UNIVERSIDADE ESTADUAL DE CAMPINAS
INSTITUTO DE ECONOMIA

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CHINA'S BELT & ROAD INITIATIVE: THE CASE OF PAKISTAN (2015-2020)

A INICIATIVA CHINESA "BELT & ROAD": O CASO DO PAQUISTÃO (2015-2020)

Campinas
2024

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Dissertation presented to the Institute of Economics of the University of Campinas in partial fulfillment of the requirements for the degree of Master's in Economic Development, in the area of Social Economy and Labour.

Dissertação apresentada à Instituto de Economia da Universidade Estadual de Campinas como parte dos requisitos exigidos para a obtenção do título de Mestre em Desenvolvimento Econômico, na área de Economia Social e do Trabalho.

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ESTE TRABALHO CORRESPONDE À VERSÃO FINAL DA Dissertação DEFENDIDA PELO ALUNO KALEEM SALEEM E ORIENTADA PELO PROF. DR. BRUNO MARTARELLO DE CONTI

Campinas
2024

Ficha catalográfica
Universidade Estadual de Campinas (UNICAMP)
Biblioteca do Instituto de Economia
Ana Regina Machado - CRB 8/5467

Saleem, Kaleem, 1986-
Sa32c China's Belt & Road initiative : the case of Pakistan (2015-2020) / Kaleem Saleem. – Campinas, SP : [s.n.], 2024.

Orientador: Bruno Martarello De Conti.
Dissertação (mestrado) – Universidade Estadual de Campinas (UNICAMP), Instituto de Economia.

1. Corredor Econômico China-Paquistão. 2. Iniciativa Cinturão e Rota. 3. Investimentos estrangeiros diretos. 4. Paquistão - Relações econômicas internacionais - China. 5. China - Relações econômicas internacionais - Paquistão. I. Conti, Bruno Martarello de, 1982-. II. Universidade Estadual de Campinas (UNICAMP). Instituto de Economia. III. Título.

Informações Complementares

Título em outro idioma: a iniciativa chinesa "Belt & Road" : o caso do Paquistão (2015 - 2020)
Palavras-chave em inglês:
China-Pakistan Economic Corridor
Belt and Road Initiative
Foreign direct investments
Pakistan - International economic relations – China
China - International economic relations - Pakistan
Área de concentração: Economia Social e do Trabalho
Titulação: Mestre em Desenvolvimento Econômico
Banca examinadora:
Bruno Martarello De Conti [Orientador]
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Data de defesa: 23-02-2024
Programa de Pós-Graduação: Desenvolvimento Econômico

Identificação e informações acadêmicas do(a) aluno(a)
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A Comissão Julgadora dos trabalhos de Defesa de DISSERTAÇÃO DE MESTRADO, composta pelos Professores Doutores a seguir descritos, em sessão pública realizada em 23 de fevereiro de 2024, considerou o candidato KALEEM SALEEM aprovado.

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ACKNOWLEDGMENTS

This work would not have been possible without the kind supervision and guidance of my supervisor Prof. Bruno De Conti. His detailed and precious remarks, comments and suggestions at every step during this journey enabled me to complete this thesis. His extraordinary support and motivation helped me to materialize the pursuit of this goal. The deficiencies in the thesis are all due to my own incapability to execute this body of work. I am also heavily indebted to Prof. Hugo Dias for providing me this wonderful opportunity to study the masters program at The Institute of Economics at UNICAMP and for facilitiating my family to accompany me here at Brazil. Here I also would like to mention the names of other remarkable faculty under whom I studied, Prof. Roberto Alexandre Zanchetta Borghi, Prof. Carolina Troncoso Baltar, Prof. Eugenia Troncoso Leone, Prof. Cheng Li, Prof. Ana Rosa Ribeiro de Mendonca Sarti, Prof. Simone Silva de Deos, Prof. Jana Silverman, Prof. Magda Barros Biavaschi and Prof. Anselmo Luis dos Santos. Likewise I am thankful to Prof. Antonio Carlos Diegues, Prof. David Monyae and Prof. Abdul Sattar Baloch for their scholarly comments and remarks.

I am specially grateful to several Brazilian colleagues whose help was extremely handy at the time of needs, Gabriel Silva, Viviane, Lene, Camila, Luiz, Wellington, Alex, Vitor and there are several others whose names I am unable to mention due to limited space but their generosity and kindness I always enjoyed. I shall express my special thanks to my friends Dr. Rashid and Waja Sultan Baloch for their continous support right from the begining till present. Last but not the least my classmates, Diana, Alvero, Ibrahim, Jimson and Aishat during the program made this academic journey a memorable experience. Similarly my dear colleagues Muhamamd Jahanzeb and Shujaat Haider have always been a source of motivation and inspiration for me during this study.

Resumo

A Belt & Road Initiative (BRI), abrangendo dois terços da humanidade e 40% do Produto Interno Bruto mundial, é considerada o maior programa de infraestrutura já lançado em termos de alcance global. No Paquistão, esses investimentos fazem parte do guarda-chuva do China-Pakistan Economic Corridor (CPEC), com estimativa de investimentos de 62 bilhões de dólares, tornando-o o maior destinatário potencial de investimentos relacionados à BRI. O Paquistão compartilha fronteiras com o "oeste selvagem"da China e deve servir como uma porta de entrada para conectar essa parte da China ao Oriente Médio e além, até a África, proporcionando acesso ao Oceano Índico, o que pode ajudar a superar o Estreito de Malaca, juntamente com outras rotas da BRI, como a proposta via Myanmar. O objetivo desta pesquisa é explorar os incentivos e desafios para a domesticação da BRI no Paquistão entre 2015 e 2020. Dados secundários de diversas fontes, como relatórios e dados publicados pelo Secretariado do CPEC no Paquistão, banco de dados Chinês Global Investment Tracker e banco de dados AidData, foram analisados. Esta pesquisa analisou amplamente cinco áreas principais em que os investimentos da BRI no Paquistão são direcionados: construção de usinas de energia, rede de transporte rodoviário e ferroviário, Porto de Gwadar, Zonas Econômicas Especiais/Cooperação Industrial e desenvolvimento socioeconômico. Finalmente, uma discussão detalhada elaborou sobre três grandes usinas de energia a carvão construídas no âmbito do CPEC. Concluiu-se que o CPEC ajudou o Paquistão a aumentar substancialmente sua capacidade de geração de eletricidade em um curto período de tempo. A análise também destaca que o Foreign Direct Investments (FDI) por si só não é suficiente para resolver os problemas econômico domésticos existentes. O Paquistão precisa preparar suas instituições locais para aproveitar ao máximo o CPEC.

Palavras-chave: Belt & Road Initiative, China-Pakistan Economic Corridor, Investimentos Estrangeiros Diretos.

Abstract

Belt & Road Initiative (BRI), encompassing two third of humanity and 40% of world Gross Domestic Product, is regarded as the largest infrastructure program ever launched in terms of global outreach. In Pakistan these investments fall in the umbrella of China-Pakistan Economic Corridor (CPEC) and investments of USD 62 billion were estimated, making it the largest potential recipient of BRI related investments. Pakistan shares borders with China's "wild-west" and is supposed to serve as a gateway to connect this part of China with Middle East & beyond to Africa by providing it access to Indian Ocean which may further help to overcome Melacca Delima along with other BRI routes such as the one proposed via Myanmar. The objective of this research is to explore the incentves and challaneges for domestication of BRI in Pakistan between 2015 to 2020. Secondary data from various sources such as reports and data published by CEPEC Secretariat in Pakistan, Chinese Global Investment Tracker database and AidData database were analyzed. This research broadly analysed following 5 major areas where BRI investments for Pakistan are channeled, construction of energy power plants, road and rail transportation network, Gwader Port, Special Economic Zones/Industrial Cooperation and socio-economic development. Finally, a detailed discussion elaborated three large coal-fired power plants constructed under CPEC. It was concluded that CPEC helped Pakistan to substantially enhance its electricity generation capacity in a short period of time. Analysis also bring into light that foreign direct investment alone is not sufficient to resolve the existing domestic economic issues. Pakistan need to prepare its local instituiuons to reap most from CPEC.

Keywords: Belt & Road Initiative, China-Pakistan Economic Corridor, Foreign Direct Investments

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INTRODUCTION

0.1 Bakground

Pakistan as a nomenclature is a historic name of a ceased country that existed between 1947 and 1971 after the partition of British Indian Empire into two states, India and Pakistan in 1947. With a further division of Pakistan into two in 1971, the territory then possessing the majority of her population renamed herself as Bangladesh, and the remaining minority western wing claimed to be the true heir of that bygone state and hence started calling herself as Pakistan (Bose, 1983). The united Pakistan by constitution was a federation formed by combining various parts of eastern and western British India with majority of inhabitants adhering to Islamic faith, which was a common feature among her ethno-linguistically diverse population groups, as this religious identity used for legitimizing the division of British India at the first place (Adeel, 1999).

Federation of Pakistan since the separation of her majority eastern part in 1971 comprised of four provinces and a federally administered region along with a part of Kashmir, a disputed territory amid India and Pakistan. Population and the area of the country are unequally distributed among its units. These federating units are Punjab, Sindh, Khyber Pakhtunkhwa (KPK) and Balochistan. Out of 220 million population of the country close to 130 million lives in one province of Punjab. While Balochistan, the least populated province of the country, possessing 45% of the area have a population of 12 million. Despite being a federation, the power remained highly centralized for most part of her history. Only since the introduction of the 18th amendment in the federal constitution in 2010, each of these provinces acquired provincial autonomy in most affairs. However, there is still much work need to be done and various practical hurdles to be climbed for the true execution of different components of decentralization since the spirit and willingness to transform the country to a truly decentralized state is lacking among

her established institutions who are the beneficiaries of a centralized system (Arshad, 2018). De facto power in the country is enjoyed by old and well-established institutions of military-bureaucratic apparatus who acts as guardian of the centralization and opposed regional autonomy of provinces.

Belt & Road Initiative (BRI), encompassing countries which represent two third of humanity and 40% of world Gross Domestic Product, is regarded as the largest infrastructure program ever launched in terms of global outreach (De Conti et al., 2019). It is estimated that around US$8 trillion will get spent through this mega initiative (McBride, 2023). In Pakistan these investments fall in the umbrella of China-Pakistan Economic Corridor (CPEC) encompassing a chain of infrastructure and industrial projects running from north to south of the country (Garlick, 2020). Pakistan is geographically connected with China's "wild-west" and is supposed to serve as a gateway to integrate western part of China with Middle East & beyond to Africa by providing her access to Indian Ocean, which may further help to overcome Malacca Dilemma [1] along with other BRI routes such as the one proposed via Myanmar (Hussain, 2021).

China-Pakistan Economic Corridor (CPEC) is the term refers to the various investment projects undertaken by Chinese firms prior and after the launching of Belt and Road Initiative (BRI) during previous and ongoing decade within the territorial boundary of present day Pakistan (McCartney, 2022). Pakistan shares 596 kilometers of border with China on her northern frontier. The region amid the two countries comprise of extremely high, very hostile and rough mountainous terrain of Himalaya which throughout the history acted as a natural boundary between Indian subcontinent and Northern Asia making the human crossing into either side a masive challenge. This geological obstacle

[1]The term Malacca Dilemma coined by Chinese President Hu Jintao is his address to Chinese Communist Party´s economic work conference in 2003. China import more than 80% of its pertoleum and liquified natural gas through the Strait of Malacca and this narrow strait observe 20% of global maritime trade and around 60% of trade flow of China. Strait of Malacca is located between Malay Peninsula and Indonesia Island of Sumatra where Singapore, located at the mouth of the strait is a strategic chokepoint due to its close ties with US navy, thereby enhancing the potential vulnerability of a naval blockage at a time of crisis. Due to the lack of a better alternative, this most viable option is perceived by Chinese authorities as a dilemma. Other passages are costly, inefficient and time consuming such as the narrow Sunda Strait between Indonesian islands of Sumatra and Java lacks the depth and wideness for carrying huge ships. Similarly voyaging through South Java Sea and passing through eastern Indonesian islands will augment the transportation cost into multifold. Land routes are still lagging far behind in terms of shipping as evident by drawing a comparision among 820000 barrels of oil per day via Kazakhstan-China and Myanmar-Yunnan combined versus 6.5 million barrels of oil per day through Malacca Strait (Khan, 2019; Paszak, 2021).

always remained a matter of concern as it interrupt the land route resulting from land sliding and earthquacks in the region (Gao, 2023).

Pakistan emerged as one of the largest recipient of Chinese investment under BRI initially estimated to be US$46 billion as proclaimed by Pakistani sources during the 2015 visit of President Xi to Pakistan and which was later revised to US$62 billion, planned to get invested over a period of close to two decades (Khan, 2019). There exists multiple numbers depending on the manner the planned projects are counted and included in CPEC by a certain source, for instance Center for Strategic and International Studies (CSIS), Washington figured the worth of US$87 billion (CSIS Data, 2020). However so far according to various sources the actual Chinese spending varies between US$17 billion to US$25 billion. In a recent statement issued by China's Ministry of Foreign Affairs on the occasion of the 10th anniversary of CPEC, the figure of US$25.4 billion was mentioned as total direct investment (Ministry of Foreign Affairs China, 2023).

Sine pre-colonial times, Punjab and Sindh were comparatively better developed due to fertile agricultural terrain and availability of water resulting from the flow of various Himalayan rivers, Indus [2] being the most prominent among those. British colonial railways and irrigation canals also mostly concentrated in those two provinces (Haines, 2011). During previous seven decades, no step was taken for further extension of the railway and till the beginning of the present century modern highways were absent for most parts of the country. Modern states views the building and extension of infrastructure within the territorial frontiers as a nation-building project that facilitates both the legitimacy of the state over a certain territory by expansion of state-space as well as help in integration of diverse groups by inculcating common experiences through the presence of a uniform infrastructural-geography (Goswami, 2010).

China during 1960s helped in construction of a 1300km highway connceting upper Punjab with Khunjrab pass at the Chinese border in the federally administered region of northern Pakistan. However, CPEC is the first ever mega infrastructure in Pakistan's history by any foreign government covering multiple sectors across the country. In addition to electricity generation, the other most important infrastructures under CPEC are the construction of Gwader port and building of 3000km of road linking western China to the port of Gwader in Indian Ocean at south-western Pakistan.

[2]The Greek word $Ινδια$ (India) is derived from Indus River which flows from North in Himalaya and to South in Indian Ocean mostly in present Pakistan and is the longest river in Indian Subcontinent.

If political stability maintained in the region, then the road corridor may get further extended to Arabian peninsula via Iran by constructing an underwater tunnel through strait of Hormoz and finally a 29km long bridge at the mouth of the red sea between Yemen and Djibouti will connect China to Africa (Gao, 2023).

Constant and sufficient supply of electricity is a major requirement for both modern living and industrialization of a country. In 2015, the loss to the overall economy of the country resulting from lack of electricity equals to US$12.9 billion or 4.8% of GDP (Zhang, 2018). Therefore, energy sector is dominant in CPEC projects in order to improve the supply to electricity. Though production of energy had improved, however the losses resulting from fragile electricity transmission infrastructure proved another hurdle to get climbed. New projects such as 700km long electricity transmission line [3] between Sindh and Punjab provinces are being constructed, which may finally overcome this longstanding barrier in country's transition towards a thriving economy (CPEC Secretariate, 2022).

0.2 Research Objectives

This research will primarily investigate the China-Pakistan Economic Corridor and its actual and potential impacts for the economic growth of Pakistan. Seconday objectives of this research are to analyze the incentives of CPEC for both China and Pakistan. It shall further study the contribution of CPEC projects, particularly the power plants, for the economic growth of Pakistan. The aim is here to unfold the socio-economic opportunites and challenges associated with CPEC initiative for Pakistan and China.

0.3 Research Hypothesis

- There exist a positive relation between CPEC and long-term economic growth of Pakistan.
- Preparedness of the institutions of the host country is the key to reap most from the foreign direct investment.

[3] Matiari to Lahore ±660 KV HVDC Transmission Line Project (CPEC Secretariate, 2021, https://cpec.gov.pk/project-details/17)

0.4 Research Methodology

The following research is both exploratory and descriptive in nature. The tools of exploratory research used here to investigate the underlying topic and to bring forth the major issues surrounding it into prominence. This helped to formulate the right questions and set the direction of the research. Secondary research methods such as published data from various sources as briefly discussed below along with a wide range of exisiting literature, governmental reports and documents are employed here for the said purpose. This research further performed a detailed description of CPEC Projects in order to deepen the comprehension and provides a systematic understanding of the large amount of data which is beneficial in order to highlight the prominent characteristics of these investments.

This research will primarily explore all notable infrastructures that were completed, under construction and are under consideration for future within the umbrella of CPEC, the manifestation of China's BRI in Pakistan using secondary data. Four data sources employed to extract the relevant data for this research. Here a brief explanation for each dataset is provided and further detailed discussion on each of these will be done in chapter two. The sources are as follows, (1) CPEC Secretariat, Ministry of Planning & Special Initiative, Islamabad Pakistan[4], (2) Chinese Global Investment Tracker by American Enterprise Institute, Washington,[5] (3) AidData – A Research Lab at College of William & Mary,[6] (4) Reconnecting Asia Project Database by Center for Strategic and International Studies (CSIS), Washington[7].

These four data sources complement each other as missing data in one database can be found in another. CPEC Secretariat, and AidData so far contains CPEC and Chinese investment related data only till 2018 and 2017 respectively, while AidData is the most richest among all four in terms of containing several and detailed pieces of information for each transaction. However Chinese Global Investment Tracker is the most updated due to the availability of data till 2022. The dataset that exclusively focuses on CPEC projects and cited most diverse sources for its collection, is the CSIS data. Due to

[4]https://cpec.gov.pk/
[5]https://www.aei.org/china-global-investment-tracker/
[6]https://www.aiddata.org/
[7]https://reconasia.csis.org/

the comprehensive nature of this dataset, the total value estimated for CPEC projects by CSIS is greater than the rest of the three. I shall elaborate it further in chapter two.

0.5 Structure of the Thesis

The thesis shall comprise of an introduction followed by three chapters. First chapter shall present a historic and a macroeconomic profile of Pakistan. The second chapter shall feature the key deliverables and a broader overview of CPEC. It will lay down a theoretical foundation for this study and bring forth the four major sources of data used for this research on BRI related investments. The chapter will end with a detailed discussion of the economic and political incentives and challenges for both countries involved in CPEC project. Final chapter of the thesis shall present a detailed description and analysis of three selected major coal-fired power plants constructed under CPEC.

The analysis will explore the way these BRI funded projects are domesticated in a country which have completely different institutional mechanism and it highlight the financing, economic gains and the role of these projects in enhancing capacity of electricity generation of the country. The chapter shall end with a discussion on challenges faced by power sector in Pakistan and how CPEC power plants are contributing to tackle this challenge and the extent of their success and failure to overcome this long lasting challenge.

Chapter 1

OVERVIEW OF THE HISTORICAL AND ECONOMIC DEVELOPMENT

1.1 Pakistan through the Ages

1.1.1 Geographic Location

Pakistan is a country located in South Asia. It shared land border with India in its east, with China in the North, and with Afghanistan and Iran in north West and South West respectively. In south of the country lays Indian Ocean, where across the sea lays the Arabian peninsula as can be seen in Figura 1.1 below:

1.1.2 Pre-Historic India (Pakistan)

The region which comprise modern day Pakistan till the end of the Second World War was part of then British India. The entire region is popularly known as Indian subcontinent. The other term that is getting popular in modern literature is South Asia. This whole region is protected and separated from Northern Asia by mountains of Himalayas and in the extreme south it is separated from Arabian Peninsula by the Indian Ocean (Champakalakshmi et. al, 2022). The land passage that made it possible to contact with its western neighbours was mostly from North West connecting India with Central Asia, from where in later centuries many invaders invaded India and their descendants

Figure 1.1: Pakistan Geographic Location

Source: World Regional Geography: People, Places and Globalization (2016)

settled there permanently. Second land passage was through North East that connected India with Myanmar and rest of Southeat Asia through land. Apart from those land routes for northern inhabitants of India, south Indians always remained well connected with the coasts of southern countries around the world, such as Arabia, East Africa and all of Southeast Asia but particularly Java, Malaya and Siam. It was also through south Indian coasts, that in modern times, India came into contact with Europeans (Calo, 2014).

1.1.3 Ancient Civilizations

Indus valley civilization, sometimes also referred to Harappan civilization, which is one the ancient urban settlement is known to be the earliest civilizational center of ancient India. The remains of those civilizations comprised two cities of Harapa and Mohenjo-Daro. The remains of those ancient cities are located in modern day Pakistan. Those civilizations existed at least 2500 years ago and it is believed that Aryan invasions via the Northern passage of India is among the possible reasons for the abolishment of those ancient indigenous civilizations. Present day Dravidians in south India and across Pakistan are considered to be from the same stock of people who inhabited those lands in ancient times. Dravidian languages of South India and in Pakistan are also considered to have inherited from ancient language spoken in Indus

civilization. Other well flourished and great civilizational centers of North, South and Central India and now part of present day India (Allchin et al., 2022).

1.1.4 Major Dynasties Since First Millennium

Indian subcontinent is a massive landmass, so it was never ruled by a single political authority throughout the ages until the arrival of British East India Company in the middle of 18^{th} century and then during the course of a century, the whole of India was brought under the umbrella of a single political authority. It is difficult to distinguish which dynasties prior to the colonization of Britain also ruled areas that formed present Pakistan. However, most rulers of northern India were also rulers of the territory belonging to Pakistan. We will only mention names of few great and well known dynasties here such as Nanda, Gupta, Harsha, Paramara and Chalukya dyansties who ruled various regions of India during various periods of history prior to the invasion from western and Central Asia commencing in 8^{th} century AD including the conquest of India by Alexandar The Great who established Greek supremacy in some parts of the country(Jayaswal, 1934).

1.1.5 Foreign Invasions on India and origins of Pakistan

In the middle of 8^{th} century Arabs attacked south India for the first time since establishing their rule on Persia more than half a century ago. The Arab conquest of Persia, Central Asia and western India paved the way for future attacks on India from its western neighbours. Within two centuries a series of constant invasions from rulers of small dynasties in Central and Western Asia commenced who invaded, looted and in later occasions established their own dynasties mostly in Western, Northern and Central Indian territories. These attacks on India from its Western frontiers continued well until the middle of 18th century. As most of the invaders and then rulers belonged to Islamic faith, therefore as a result of their political dominance, groups of local population abandoned their ancient faiths and adopted varieties of Islamic religion (Engineer, 2004). Most reputable dynasty during pre-colonial India is known as Mughal dynasty. Mughals ruled most of north-western India until middle of 19th century when the last Mughal emperor, Bahadur Shah Zafar, was abdicated and later sent into exile in British colony of neighbouring Myanmar (Burma) where he died a decade later due to old age (Britannica, 2022; Hashmi et. al, 2022).

By end of second world war, when Britain divided India into two countries, then the newly created Pakistan was formed on those parts of western India where majority of local population were adherent to some form of Islamic faith. Pakistani elite derived its legitimacy to rule this territory through referring to the Mughal Dynasty that existed in pre-colonial India, therefore they considered themselves to be the heir of Mughal Empire and the country to be an be the extension of that bygone state.

1.1.6 Pakistan during British Colonia Era

As mentioned earlier there existed no such country with the name of Pakistan in history and neither the geographical territory that comprised Pakistan today used to be a single political unit in history. Therefore, when discussing Pakistan's political history during British colonial era, then discussion should focus on colonial history of India where Pakistan being part of that colony devoid of a separate history. India's first contact with Europeans began when age of exploration commenced in Europe and there was a search to find trade routes to India via sea. First European in modern era arrived in the south coast of Malabar at Calicut India was Portuguese explorer Vasco da Gama in 1498 (Koestler-Grack, 2009). Portuguese presence continued in this part of India till 1961 when Goa was captured through force by Indian government. British during the course of history managed to overcome other European powers in order to dominate its political rule in India. British East India Company was founded in 1600 which began trade and commercial activities across the Asia, mostly concentrating in India. By the start of second half of 18th century, precisely 1757, as a result of defeating local rulers of Bengal[1]. British East India Company started its political rule over Indian subcontinent. During next one hundred years company kept expanding its territorial frontiers throughout India and it even occupied certain neighbouring regions and brought all those regions under a single political authority, therefore whole of South Asia became a single political unit for the first time in history (Tharoor, 2018).

Exactly one hundred years later, a munity occurred against the rule and various policies of British East India Company when local soldiers of the company and various local rulers including Mughal Emperor revolted in 1857. This is known as Indian Mutiny in

[1]South Eastern province of India, half of which later became East Pakistan, and in 1971 it became Bangladesh

British literature, and is remembered as war for freedom in India and Pakistan. Company managed to curtail this mutiny but this had its impact on the rule of company as well. By the end of this war, Indian territories were brought into direct political and administrative control of British Empire. Thus the company rule was abolished. Direct British rule was controlled by a British ruler to India possessing the title of Viceroy and Calcutta was established as capital of British India where office of British Viceroy was located. Only in 1911 once British King George V visited India, the capital was shifted from Calcutta to the surrounding of Delhi, which used to be the historic capital of north Indian empire, it was then named as New Delhi. As Delhi used to be seat of Indian kings for centuries, therefore in order to present British rule as a continuation of earlier kingdoms and also due to logistic reasons as Delhi is in center of India and more accessible to both eastern and western parts of the country (Tharoor, 2018).

1.1.7 Political Movements in Colonial India

British civil servant named Allan Octavian Hume established a political platform to provide opportunity to Indian elite to raise their political and social voices in order to communicate issues related to local communities in India. This forum was called Indian National Congress and was established in 1885 representing both Britishers residing in India as well as Indians themselves. It included Indian elite from different cultural backgrounds. However, in 1907, part of Muslim elite of India decided to establish a separate political forum, called Muslim League. During first half of 20th century a low intensity political movement in India continued, and even well until 1947 by the end of the British Indian Empire it never took a shape of complete revolt against British rule. By end of second world war, Britain was financially unable to sustain its affairs in India and it was also no longer profitable to extend its rule anymore (Tharoor, 2018).

There existed two major political parties in India, that is Indian National Congress representing all Indians regardless of their religious and caste affiliations headed by one of the most well-known figure of 20^{th} century Mahatma Gandhi and second political party was Indian Muslim League claiming to be the representative of Muslims of India and was led by an advocate from Bombay named Muhammad Ali Jinnah who constantly advocated and demanded for the division of India on the basis of

religious identity. Muhammad Ali Jinnah and his companion Muslim political elite failed to reconcile their religious identity with broader Indian national identity. British rulers on the occasion of their approval of independence to India divided it into two countries of India and Pakistan (Tharoor, 2018).

1.1.8 Currency of the Colony

Before moving futher to discuss events that shaped Pakistan's history, it is important to mention that despite being a colony, British kept a separate currency for India which was the old currency that was used in India prior to the political dominance of Britian. That currency was called Rupiah or Rupee and the name was retained even after independence of both countries. This decision of having a separate currency for colony on one hand gave some autonomy to the colony to print its own currency and on the hand the colony needed to purchase British Pound in order to pay its external debt to UK (Tharoor, 2018).

1.1.9 Economy of Colonial India

This topic is widely debated among scholars that what were the causes for the economic decline of India such that it ended up being one of the poorest countries in the world by the time of British departure. According to some statistics from **maddison2008historical**Maddison (2022), GDP of India from 1850 to 1947, the time period when colony was directly ruled by Britian, grew from US$125.7 billion to US$213.7 billion, an annual increase of 0.55%, this growth was in fact higher compare to growth under earlier Indian kingdoms, such as during Mughal era it is estimated by Maddison to be only 0.20% annually. However when comparing the size of Indian GDP at two different points in history, such as in the year of 1820, India shared 16% of the total world GDP, however by 1870 its share reduced only to 12% and by end of the British rule in 1947 it was only 4% of the total GDP of the world (Tharoor, 2018).

Some writers are of the opinion that due to colonization, India became a deindustrialize country and Britain converted into an industrialized nation. Becasue large Indian Market was forcefully opened for goods that were produced in Britain, and there were no tariffs and duties on imports from Britain to India and on the other hand locally produced Indian goods were heavily taxed thereby making those goods less competitive

in the domestic market. Though not everyone agree with this for instance Ferguson (2004) mentioned about heavy investment in the infrastructure in India by Britain, where it invested £270 million by 1880s which was close to 20% of entire British investment outside their home country and by 1914 this figure reached almost double. This massive investment was done in irrigation, industry and in infrastructure and similar arguments are made for increase in income in Indian villages during colonial period.

1.2 Political, Social and Cultural Challenges

1.2.1 Pakistan's Federative Structure

Pakistan as a nomenclature is a historic name of a ceased country that existed between 1947 and 1971 after the partition of British Indian Empire into two states, India and Pakistan in 1947. With a further division of Pakistan into two in 1971, the territory then possessing the majority of her population renamed herself as Bangladesh, and the remaining minority western wing claimed to be the true heir of that bygone state and hence started calling herself as Pakistan (Bose, 1983). The united Pakistan by constitution was a federation formed by combining various parts of eastern and western British India with majority of inhabitants adhering to Islamic faith, which was a common feature among her ethno-linguistically diverse population groups, as this religious identity was used for legitimizing the division of British India at the first place (Adeel, 1999).

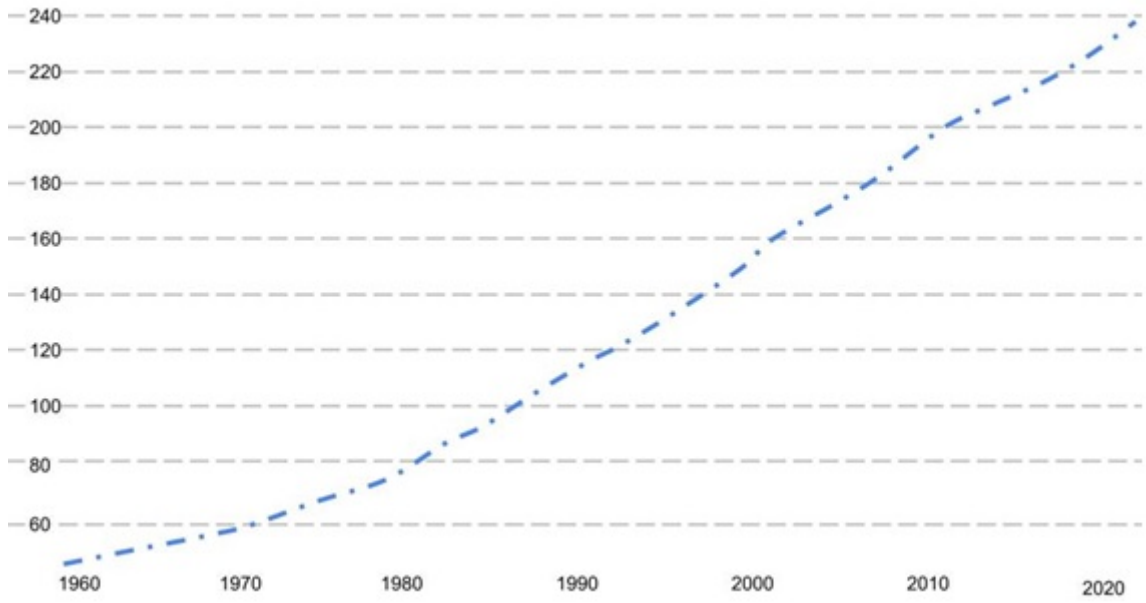
Federation of Pakistan since the separation of her majority eastern part in 1971 comprised of four provinces and a federally administered region along with a part of Kashmir, a disputed territory amid India and Pakistan. Population and the area of the country are unequally distributed among its units. These federating units are Punjab, Sindh, Khyber Pakhtunkhwa (KPK) and Balochistan. Out of 220 million population of the country, close to 130 million lives in one province of Punjab. While Balochistan, the least populated province of the country, possessing 45% of the area have a population of 12 million. Despite being a federation, the power remained highly centralized for most part of her history. Only since the introduction of the 18th amendment in the federal constitution in 2010, each of these provinces acquired provincial autonomy in most affairs. However, there is still much work need to be done and various practical hurdles to be climbed for the true execution of different components of decentralization since the spirit and willingness

to transform the country to a truly decentralized state is lacking among her established institutions who are the beneficiaries of a centralized system (Arshad, 2018).

1.2.2 "Population Explosion" – Demographic Dividend or Disaster

Pakistan is regarded among the countries with highest population growth in the world. West Pakistan, which is now called Pakistan, at the time of inception in 1947 had a population of 37 million people and according to census conducted in 2017, this had grew to more than 200 million. East Pakistan, that is now called Bangladesh, used to have 41 million population in 1947 and now posses 164 million people which is roughly 40 million less than Pakistan (Gupte, 1983). This shows lack of serious efforts from government in Pakistan related to matters of managing population growth. Following Figura 1.2 shows rapid increase in population of Pakistan from 45 million in 1960 to 230 million in 2022 making it the 5th largest country in the world.

Figure 1.2: Population of Pakistan 1960 - 2022



Source: World Bank Data 2022

This has posed the greatest threat today to the very existence of the country where a large majority of the population is living below poverty coupled with an increase in crime rates both in rural and urban settlements while government is unable to provide basic services such as uninterrupted electricity, water and sanitation to majority of its

population. Country is also confronted with environmental degradation which is primarily reflected in the rapid melting of the glaciers in northern mountains of Pakistan, causing floods very frequently as well as a sense of fear for availability of water for the purpose of irrigation for the upcoming generations (Rasul & Ahmad, 2012)

1.2.3 Islamic Religious Identity and Conflicts

Unfortunately the country remained confused since its very creation back in 1947 about its *raison d'etre*. Pakistan was carved out of India to create a separate state for Muslims of India. It was assumed by the think tanks who created Pakistan that Muslims and Hindus formed two distinct civilizational units therefore it is not possible for them to coexist in a united India. However, there are still 200 million Muslims living in present day India, which is equal to the entire population of Pakistan, it therefore contradict the notion that communities adhering to different faiths cannot coexist in a modern state. Furthermore, within a quarter of a century of its creation the country got split into two when East Pakistanis, who also adhered to Islamic faith, decided to leave this project, which exacerbated the existing idealogical counfusion (Gilmartin, 1998).

The breakup of Pakistan in 1971 was a blow to the idea that religious homogeneity or Islamic identity can unite people from different historical and cultural background and it gave a call a common faith alone is not sufficient, hence other ideals or basis should get pursued to build a nation in modern world. However, Pakistan's political elite didn't learn much from the split of the country and kept using Islam as an instrument to unite Pakistanis under a single political union. This had created other problems, specially since 1980s when Islamic fundamentalism was in rise due to global support to the groups who were fighting in Afganistan against Soviet invasion and were mainly trained in Pakistan. It also affected the religious harmony within the country among different Islamic sects and sectarian violence became a norm (Feyyaz, 2013).

Sectarian violence and discrimination not only promoted by religious groups receiving funding from foreign countries but unfortunately this ideology was promoted by the state itself, as parliament of Pakistan became the first parliament in the world which attempted to construct a definition for a so-called "true Muslim". It resulted in the expulsion of a certain Muslim group from the mainstream which escalated the acts of violence in the country. Unless the elite of Pakistan do not reach to a consensus to find a

rational and logical basis for the existence of the country, this confusion shall remain and it shall act as a hindrance in the progress of the country (Feyyaz, 2013).

1.2.4 Labour Unions in Pakistan

Government established a body in 1972 under the socialist government of Prime Minister Bhutto called National Industrial Relations Commission (NIRC) which is an authority with the objective to promote trade unions and to help in establishing trade unions in various national organizations. As per the data released by NIRC in 2016 total number of trade unions were 1,390 comprising of 1.4 million members registered with those trade unions. There are also 16 registered federations and when comparing total number of employed people to total union members, then ratio is 2.2% which is unfortunately quite low (National Industrial Relations Commission, 2016).

When country was formed in 1947, there used to be very Strong trade unions in Pakistan Railways and Karachi Port. Those unions and their leaders played very active role to fight for the rights of the workers and also to finght for democracy in the country. However since 1990, when government as per the instructions of IMF and World Bank started the process of privatization then the practice of contractual labour was introduced further reducing bargaining power of the unions and its memebers. Irony is that government is constantly making it difficult for workers to form unions as it is regularly privatizing major public corporations. There were massive protests against privation of Pakistan International Airlines and similarly against the attempts to privatize Pakistan Steel Mill. However governamental authorities were only unable to sell off those national assets as no external party was willing to buy (Khalil, 2018).

1.3 History of Pakistan's Economy 1947 - 2020

1.3.1 Pakistan's Formative Phase (1947 – 1958)

Pakistan was established as a separate independent country on 14th August 1947 as a result of termination of British rule in India and dividing greater India into two countries. Originally Pakistan consisted of two wings, East Pakistan and West Pakistan. East Pakistan was geographically located on the East of India and it was guarded by

Indian territory on East, North and West by land, it was also very close to Burma (now called Myanmar) and on its South it touches Indian Ocean. East Pakistan was the result of division of Bengal province into two, the eastern Bengal with Muslim majority population transformed into East Pakistan and western Bengal became part of India. On the other side West Pakistan was created by dividing province of Punjab on religious lines into Muslim majority area of East Punjab and Sikh majority areas of West Punjab. In addition to that West Pakistan also comprised of neighboring provinces and regions (Hasan et al., 1997).

The population of East Pakistan was larger than West Pakistan, however despite that fact, capital of the newly formed country was located in West Pakistan and most investment in physical infrastructure and in social sector went to West Pakistan. Similarly West Pakistanis were dominant in government jobs, such as in military and in civilian bureaucracy since colonial era and this domination continued during the brief existence of the united country for a quarter of a century. This had caused unequal socio-economic progress in both parts of the country where most of the prosperity was concentrated in West Pakistan. East Pakistan became alienated and isolated. Religious identity was no longer suffice to unite Pakistanis with distinct cultural and regional identities. Economic growth during 1950s was about 3.1%. Several governments changed during this period and along with frequent political changes we observed rapid changes in economic policies as well(Hasan et al., 1997).

There was also massive shortage of resources which country was facing just after its creation. India being the largest trading partner in early 1950s halted trade with Pakistan due to several reasons, one among those was establishing a separate central bank by Pakistan. According to Haqqani (2018), one of the primary problem confronted by Pakistan was the inheritance of a large military from British India. During second world war Britain recruited a large army from India and a large portion of those who were hired in British Indian army belonged to those parts of India which later became Pakistan. Therefore once India was divided Pakistan received 33% of the British Indian military and only 17% of the British Indian resources. This created a mismatch and posed the question about the future of this large army. Since Pakistani elite decided to keep this large military therefore they made compromises by investing less in other social sectors such as healthcare, education and public infrastructure resulted in a relatively poorer

country throughout its history. The roots for establishing a security state goes directly into those starting years when Prime Minister of Pakistan visiting United States did in fact asked for military aid to sustain the inherited Second World War military in Pakistan (Chaudhri, 1956; Gardezi et al., 2004).

Pakistan joined various defense treaties in 1950s to fight against Soviet communism in the region and it helped the country to attract foreign aid from USA which mainly benefitted military and civilian elite in the country (Gardezi, 2004). Present day Pakistan (former West Pakistan) being in 1947 with a very modest economy and resources at hand. However, despite that country still managed to establish the groundwork by constructing institutions such as State Bank of Pakistan, Pakistan Industrial Development Corporation, Pakistan Industrial Credit & Investment Development Corporation and Water & Power Development Authority in its formative phase in 1950s that played key roles in the following decades for the economic development of the country. The subsequent decade of 1960 is mainly marked with the five years plans of Planning Commission. Pakistan between 1960 and 1990 experienced GDP growth rate of 5.2% on average and a per capita income growth rate of 2.5% on average which though less than the accomplishments in East Asian region, however it had improved the living conditions for a large chunk of its population. Certain external events such as the Korean War in early 1950s also generated earnings for Pakistan's raw material of jute and cotton (Khan, 1999).

1.3.2 Decade of Growth in Pakistan in 1960s

Pakistan's biggest natural resource was its arable land and water. It's agricultural plains due to their extended continuity along a substantial geography are among the largest uninterrupted irrigational areas in the world. Pakistan possess vast mineral resources mainly unexplored and unutilized for industrial usage. In West Pakistan the provinces of Punjab and Sindh and some part of Khyber Province possess large fertile and plain lands which are being watered by rivers flowing from Himalayas in the northern mountains. There was never been shortage of water as Himalayas contain massive glaciers which keep melting throughout the year. Furthermore during British rule, a large and well organized canal system was introduced to widen the access to water for agricultural farms, it converted this region into a food basket specially for

producing grains such as wheat and rice and crops such as sugar cane and cotton. Pakistan during 1960s started constructing few large dams such as Tarbela and Mangla dams, large power stations and cement and automobile industry with financial grants and loans acquired from external lenders. Construction of these dams and distribution of some agricultural lands to ordinary farmers in West Pakistan revolutionized agricultural output and made the country self sufficient in wheat by end of 1960s and early 1970s (Khan, 1967).

Futhermore, in October 1958, Pakistan had its first military dictatorship, when head of the army, General Ayub Khan removed the civilian government and established a military regime. He only resigned in 1969 mainly due to his bad health that weakend his grip upon army generals. He was replaced by another military general, General Yahya Khan, who ruled the country from 1969 til the end of 1971. First nationwide elections were held in the country in 1970, the result showed the clear political polarization of the country. Awami League from East Pakistan emerged as the largest political party, however the military generals along with leading political party from West Pakistan refused to transfer power. This had created a deadlock in the country and military force was used to suppress the political uprising in East Pakistan. It had finally resulted in a civil war, where military had left with no option other than to surrender and East Pakistan announced it separation on 16 December 1971 and became Bangladesh (Meher, 2015).

Economic growth from 1959 up until 1969 remained 5.82% on average. This was also the time when manufacturing growth was 8.51%, since then Pakistan never achieved such high growth rate in manufacturing. However this was also an era of widening inequality, as mention by then Finance Minister of Pakistan Mahbub ul Haq[2] that 22 families owned 66% of Industrial and 87% of banking assets in Pakistan. Similarly despite being a poor and third world country, Pakistani elite decided to shift capital from Karachi in south next to Indian Ocean to north next to the foot of Himalayas in the forest of Margalla. This shift of capital city further escalated already mismanaged political situation. Karachi was somehow accessible to East Pakistanis by sea route and as it was also the largest city in the country and center for trading and commercial activities therefore it represented all ethnic groups in the country, thereby

[2]Mahbub ul Haq (1934 – 1998) was a Pakistani economist popularly known for his contribution in constructing Human Development Index (HDI) (Baru, 1998).

generating a sense of detachment and isolation. This shift has widened the gap among heterogeneous ethnic groups that comprised Pakistan (Amjad, 1976)..

The growth rate during 1950s was on average around 3% per annum which peaked to 7% for few years during the decade of 1960s. In fact Pakistan was regarded as a model to be emulated for other third world nations during that era. There are several factors which contributed in the economic growth of 1960s, as in the mid-1950s Pakistan joined several treaties initiated by capitalist block lead by United States which made the country eligible to receive foreign aid. The decision of the government to match most part of military finances, specifically additional requirement for arms and appliances, through foreign military aid therefore defense expenditures until first half of 1960s was not a burden upon the government budget. By end of the decade Pakistan turned into a country with self-sufficiency in food. This period is also marked with high levels of fixed investments culminated to 20.8% of its GDP in 1964-65, more than half of these investments were financed through foreign aid (Hasan, 2015).

However the India-Pakistan war in 1965 had deeper consequences for the both the political and economic future of the country. By 1971, Pakistan was split into two, as East Pakistan turned into a new country Bangladesh. On economic front, the massive blow was in the form of reduction in foreign aid. The democratically elected government of Bhutto in early 1970s also augmented defense budget which got doubled. This has left less budgetary resources for other social sectors such as education and health. Consequently, rate of school enrollment which was relatively high during first two decades declined. The second half of 1960s showed a higher growth rate mainly due to increased agricultural production that resulted from the policies adapted during first half of that decade resulting in what is called the green revolution in the country or the food self-sufficiency. Similarly, the economic growth resulting from policies of first two decades consequently paved the way for the concentration of wealth in the hands of a minority elite from West Pakistan. This had widened the existing disparity among the two wings of the country ending in the split of the country (Zaidi, 2015).

1.3.3 Nationalization and Rebuilding the Residual Country – 1970s

Defeat that Pakistan army had to face on 16 December 1971 left the military elite with no choice except to handover the power to a civilian head of state. Therefore, a popular democratically elected leader Zulfiqar Ali Bhutto was elected initially as President and later on as elected Prime Minister. Pakistani parliament passed the constitution of the country in 1973 which is a document that reflected the consensus among the elected representatives in parliament who represent diverse ethnic and cultural groups in Pakistan. It was the third constitution since the birth of the nation in 1947. Bhutto represented a political party named People's Party and he came to power to transform Pakistan's capitalist economy into a socialist economy, therefore his earliest political decisions included the nationalization of the private industries and other large private enterprises such as educational and healthcare establishments (Gustafson, 1976).

Due to engagement in two wars during previous past 10 years, economic resources were mainly depleted. US aid also declined after the 1965 war. Bhutto's policy to control the minor wealthy elite of the country through nationalization started crumbling as those party leadership with more leftist thinking were sidelined and marginalized. Government succeeded to establish largest industrial complexes such as a large steel mill, cement industries, mechanical complex as well as a large sea port at Karachi. Bhutto tried to abandon state capitalism which were created by previous military regime and it was widely believed that break-up of Pakistan was occurred due to unequal and unjust economic growth among two parts of the country. He introduced the socialism in order to save the rest of the country from further break-up by lowering income gap and making sure that economic benefits of prosperity reaches to all segments of the population (Hyder, 1972).

The remaining Pakistan that emerged in 1970s after losing half of its population, witnessed a rise in defence expenditure as mentioned above despite the shortening of its geographic size. At the eve of 1970s there was an international demand for commodities and oil prices were cheap which benefitted Pakistan. But it soon washed away with the oil crisis of 1973 and for the remaining period of Bhutto government economic growth subsided. Similarly the new government of new Pakistan opted for nationalization, specially of heavy industry, schools and hospitals. There exists

a debate within scholars about the true motives and associated benefits and losses of this nationalization. It had transferred the power from urban industrialist elite to rural feudal lords who managed to refrain the government form implementing meaningful land reforms with its true spirit. However, the failure of these policies resulted from the absence of a clarity of vision as well as the inability to manage these institutions rather than the program itself (Zaidi, 2015).

1.3.4 Decade of Remittances: Pakistan in 1980s

There was general election in Pakistan in 1977, however opposition parties did not accept the results and alleged Prime Minister Bhutto for ragging the election. Once negotiations were underway, the head of Pakistan army, General Zia-ul-Haq imposed military rule in the country in July 1977. He later on executed Prime Minister Bhutto as well in April 1979 when his death penalty was carried on. In December 1979, Soviet Union invaded neighboring country of Afghanistan, and it created an opportunity for United States to equalize the defeat they had faced during Vietnam war where Soviet Union helped the communist guerrillas of Vietnam. The revolution in Iran also acted as a blessing for Pakistan, as the only choice left for United States to support the war was through Pakistan. Country received heavy foreign aid for its services to recruit and train anti-Soviet militias in Afghanistan (Burki, 1988).

Later half of 1970s experienced a surge in the migration of Pakistani labor to oil rich Middle Eastern countries resulting in a rapid increase in remittances from US$ 100 million in at the start of 1970s to US$ 3 billion in early year of 1980s. There were around 2.1 million Pakistani works abroad by early 1980s, while two-third among them found work in Middle Eastern countries. It is accompanied with a rise in imports which used to be US$ 1 billion at the commencement of 1970s jumped into US$ 5.5 billion by mid 1980s. As exports only grew from US$ 700 million to US$ 2.6 billion during the same period, therefore major portion of the deficit in balance of payment was financed through remittances. Pakistan was still an agricultural country by 1980s and its exports were mainly agricultural commodities such as cotton and rice, majority of its industrial goods for exports were from its textile industry where cotton yarn comprised a large component (Zaidi, 2015).

Pakistan also was among the large recipient countries in term of receiving both foreign aid and loans. By mid 1980s the accumulated amount of foreign aid and loan since 1947 amounted to US$ 17.87 billion. United States was the leading donor and lender followed by Japan. Share of Oil rich Arab countries also grew specially from 1970s. It has also benefitted from the Soviet invasion of Afghanistan in 1979 as the foreign aid received during the war to host Afghan refugees and for provision of facilities to the Afghan fighters (Zaidi, 2015).

1.3.5 The "Lost Decade" – 1990s

In August 1988, Pakistan's third military dictator General Zia-ul-Haq died as a result of an aero-plane crash that was also carrying the United States Ambassador to Pakistan. Elections were held in the country and daughter of former Prime Minister Bhutto, Benazir Bhutto was elected as first female Prime Minister of the country. However, the military along civilian bureaucracy and judiciary still enjoyed de-facto power. Therefore she could not complete her five year term and elections were held again within two years and this time another Prime Minister Nawaz Sharif was elected. He confronted the same issues by wrestling with various centers of power and he also hardly rule for two years and there were re-election. Benazir became Prime Minister for one more time and remained in power for three years before being removed and paving the way for Nawaz Sharif who was elected as Prime Minitser in 1997 and was removed again in 1999 as a result of a military takeover for the fourth time in Pakistan's history (Shafqat, 1996).

As Soviet Union left Afghanistan in early 1989, therefore the interests of United States were no more in that region and consequently it reduced the military and civilian aid for Pakistan. Apart from that demand for unskilled imported labor reduced sharpely in neighboring Arab countries who had already achieved a certain level of development. Large number of Pakistanis who previously worked for unskilled positions lost their jobs and returned home causing substantial decline in foreign remittances. Economic growth was low during 1990s compare to previous decades. It is assumed to be around 4% during the decade (Shafqat, 1996).

This decade is also marked for rising debt to GDP ratio that was 57.5% two decades ago, and by 1998-99 it rose up to 102%. This debt ratio was also high in

relation to revenuce where it climbed up to 624% in 1998-99. In the year 1998 Pakistan announced it had tested a nuclear bomb which enhanced the defense capability of the country. Several international sanctions were imposed upon the country and soon after this announcement government froze foreign exchange reserves which shattered its trust among overseas Pakistanis as well as domestic foreign currency account holders and subsequently remittances fell to US$ 1 billion. Pakistan since 1973 permitted Pakistani workers living abroad to open foreign currency accounts within Pakistani banks and this facility was later extended to domestic residents too, which is responsible for the dollarization of the economy. The motivation for allowing it for domestic residents was to reduce the size of black economy within the country which at sometimes estimated to be 40 to 80% of the country's GDP (Zaidi, 2015).

1.3.6 Pakistan in 21st Century – 2000s

The era that began just before the turn of the century in 1998 was filled with events that defined Pakistan economy for the upcoming two decades. The country experienced 4th military coup in October 1999. Two years later the incident of September 2001 at United States brought war in Afghanistan in the neighborhood of Pakistan. This has long term implications for both the economy and society of Pakistan. The military coup brought economic and political sanctions on the country and contrary to that American invasion of Afghanistan proved to be a blessing for the military regime. Pakistan became an ally of United States and NATO in the war and was entitled with massive military and non-combat foreign aid and loans (Siddiqa, 2019).

The year 1998, like the preceding years of 1990s was not much different with a low GDP growth rate that became a permanent feature of Pakistan's economy since the start of the decade. The entire decade is remembered for its underdevelopment because of the execution of advices from IMF and World Bank after Pakistan approach those to tackle the ongoing debt crisis in late 1980s. However, the sanctions from G-8 countries due to the nuclear tests had some fatal consequences for economic growth for the upcoming three years. The year 1999 saw another low scale war between Pakistan and India. Japan, which used to be one of the largest donor and trading partner of Pakistan, due to its firm stance on nuclear testing halted all engagements with Pakistan. Pakistani rupee depreciated 16.2% and liquid foreign exchange reserves remained were US$423 million (Zaidi, 2015).

The American War in Afghanistan had a huge social cost for Pakistan as the country got an image of being a rogue state due to its role in the war and escalating insecurity and instability in the country. It witnessed the avoidance of foreign businesses and investments due to the uncertain political climate both resulting from neighboring war and the military regime in the country. The positive for Pakistan being an ally of United States in the war came first in the form of removal of sanctions upon Pakistan soon after it agrees to be part of US led coalition in Sepetmeber 2001. Second most significant benefit that was awarded to Pakistan was that part of its external debt which was mounting specially since 1980s was written off and part of it was rescheduled over a longer payback period. The country that was on the path of bankruptcy on its debt and which was alienated internationally and was often referred to as pariah state reached at a position by 2002 that it paid portion of its debt of US1.2 billion prior to its payment date (Hathaway, 2018).

Since 1998 country's ongoing balance of payment crisis continued and government knocked the door of IMF to match those obligations. The same improvement that was seen in reduction of external debt also appeared in the foreign exchange reserves of Pakistan. In the fiscal year 1999-00 the foreign exchange reserves were US$2.77 billion and by 2003 those jumped to US$11.48 billion. Pakistan also received support in the form of augmentation to its export quota in the US and European markets. The country for the first time surpassed exports worth of US$10 billion in 2002-03. Among other factors involved in rising foreign exchange reserves, one was the large increase in foreign exchange reserves from USA which constituted close to 30% of its total US$4.236 billion received in 2002-03. The sharpe and large increase in remittance from US was mainly due to the newly found fear among Pakistan diaspora after attacks of September 2001 that led to large scale investigations against Pakistani nationals and their bank accounts (Zaidi, 2015).

In order to prevent themselves from unnecessarily being questioned by American authorities they preferred to send money back home. As most of the money was sent through legal banking system to avoid any harm from authorities therefore the formal foreign exchange reserves rose rapidly in the country in the post September 2001 period in Pakistan. Similar improvements were observed in growth rate as it touched 7.5% in 2003-04, while inflation fell to lowest level since 1983. This was considered the

end of the “lost decade” of 1990s and a new foundation was apparently laid for further growth in all those areas. However, the longivity of these economic indicators were questioned as those were mainly based on exogenous factors. Increase in remittances, specifically from United States were not expected to continue their inflows at the same level, had the internal political climate change in US, their magnitude may fell below. Similarly 65% of the Pakistani exports to US and Europe were from textile, and it was expected that by 2005 the Agreement on Textile and Clothing will come into effect and Pakistan may no longer be able to enjoy the same priviledge. Therefore sustainability of this favoured climate was a major challenge (Zaidi, 2015).

Bigger issues such as poverty alleviation however didn't improve much and according to estimates in those early years of the present century close to one third of the population was living below poverty line. A substantial reduction was only possible had GDP growth rate continued over 5% for a reasonably longer duration. Policy of the government since late 1980s was also favouring private sector for investments and the reduction of the public sector. It means that private sector was assigned the responsibility for employement generation. However no large scal fixed investment was made since the begining of 1990s and increasing privatization of large public enterprises only added further to the existing unemployment stock (Zaman et al., 2012).

By mid of the decade, Pakistan for the first time in two decades had 9% GDP growth rate in 2005, remittances also peaked to new levels and export earnings climbed to US$17 billion. The optimism was high due to favourable international climate as Pakistan being a close military ally of US and NATO, absence of domestic oposition parties due to the exiles of main opposition leaders and continuity of political regime unlike 1990s where several governments were toppled down in a matter of few years. Critics however sees this growth to be artificial as it was grounded on cosumption of middle class while most of the investment was channeled towards sectors such as real estate and financial markets. Productive industrial sector failed to receive its deserving share and therefore once the favourable climate changed, the bubble burst and Pakistan returned to its previous economic standing. There is no doubt that various infrastructure work such as high ways and water dams were constructed. But the government expenditure on meeting the growing demands were not sufficient (Zaidi, 2015).

Energy crisis that later on had fatal consequences for Pakistan's economy has its root in this era. Despite the availability of funds, government failed to invest in new energy power plants while on the other hand the rising consumer demand had increased the demand for energy into multifold in the manufacturin sector. Oil prices also started surging again after 2005, and Pakistan being heavily dependent on imported oil had to bear its consequences in its balance of payment (Kessides, 2013).

1.3.7 Stunted Economic Growth in Pakistan – 2008-2013

After almost a decade, military dictator resigned in 2008 and a democratically elected government of People's Party came into power. Their rise into power is coincided with the highest rise in the prices of oil which peaked with US$145 per barrel in July 2008. This era is also featured with high food prices in global market. The contraction in the world economy resulting form Global Financial Crisis of 2008 perpetuated its consequences at least until 2013 also affected developing world. However, despite all these distressing issues, new government launched an scheme that make direct cash payments to the absolute poors of the country for the first time in history of Pakistan, called Benazir Income Support Program, named after the first woman prime minister of the country who was martyred duirng the election campaign. Similarly the salaries of the employees were increased by 50% which also had no precedent in the history of the country. Major decision that had long lasting effect on the federation of Pakistan was the 18th Amendment in the Constitution of Pakistan which after six decades recognized the provincial autonomy for each of the four states that comprise the federation (Zaidi, 2015).

The 5 year period begining in 2008 that ended in early 2013 in terms of economic indicators was criticised to be a bad performance. Average GDP growth during this era was 2.5% per annum, which was considerably low compared to other regional countries like India and Bangladesh who experienced growth of 7.8% and 6.8% respectively. Inflation was also in double digits, however it is mostly regarded to be the result of unfavorable economic climate where oil and commodity prices achieved new heights. Several other indicators during this era such as Investment-to-GDP ratio was low. At the start of 2008 the investment-to-GDP ratio was 23% which went down to 12.5% by end of the five year term in 2012. This was considered the lowest in previous three decades (Finance Division, 2012-13).

One sector that specifically deteriorated further during this period was the power sector, and electricity crisis became chronic. It caused much public anger and is considered to be a major factor for the defeat of the People's Party in the 2013 election. Balance of payment situation deteriorated at the very first year if the government, the roots of bad economic outcomes should be seen in the previous era. However Pakistan in late 2008, signed a deal with IMF of US$11.6 billion to support its falling foreign exchange reserves. Pakistan was expecting financial support from Western countries and United States, who formed a consortium known as Friends of Pakistan, which was supposed to extend financial help at times of need. However the consortium hesitated at the time of need and therefore it had no choice other than going to IMF to fill the deficit of its rising current account. Last but not the least was the most severe flood in Pakistan's history in 2010, which is estimated to have affected more than 20 million people across the country. According to sources almost 20% of the country's land area was under the flood water during the peak (Ali et al., 2015; Zaidi, 2015).

This era on the one hand can be described by its low economic indicators, however it was also a period of transition from a military regime towards democracy where the government was highly vulnerable to get dismissed by powerful military-judiciary nexus which has been doing it since 1950s. The massive flooding and deepening electricity crisis further added to the existing problems. Previous government from 2002-07 failed to invest in power sector while demand boosted in those years resulting over 5% growth during 5 year period, increased the demand for electricity for both industrial and domestic consumers. In fact the intended electricity outages had already begun in 2007 and it kept worsening with each passing year.

1.3.8 Pakistan's Economy 2013 – 2020

For the first time in the history of Pakistan, an elected government completed the five year term in the office and power was transferred to the upcoming government through a peaceful transition. New government of Muslim League was rooted among the urban traders and industrialists of Punjab unlike previous ruling party who is more popular in rural population. The fiscal year 2013 under newly elected government also witnessed a growth rate of 4.14%, which was the highest that country achieved since 2008. This year also coincided with the global recovery that started happening after

Financial Crisis of 2008. The notion for constructing an economic corridor entered into formal talks between Pakistani and Chinese officials in 2013. In order to tackle the worsening electricity crisis, new government came up with *National Power Policy* in 2013 that stressed on constructing power plants based on local fuel resources such as coal due to rising prices on imported oil used in existing thermal power plants of the country. However, investment-to-GDP ratio did not improve further as it was 13.99%, in fact slightly lower than previous period (Finance Division, 2014).

Pakistan's economy continues the symptoms of improvement as in 2014 the inflation rate declined to 2.1%, lowest in a decade. The government was also lucky due to a sharpe decrease in oil prices and an increase in foreign remittances that substantially reduced current account deficit from US$2.9 billion to US$1.3 billion. Pakistan's exports sustained at the same level of around US$20 billion for few years and it did not changes much while imports of US$34 billion also kept its level. Pakistan's per capita income also finally climbed to US$1512 mainly due to economic growth, slowing down of population growth as well the maintenance of exchange rate against USD (Zaidi, 2015).

There was a 10% growth in FDI compared to previous year and it reached US$2.05 billion in 2014, however it was still too low for a country of the size of Pakistan, for instance Brazil received FDI of US$87.7 billion in the same year (World Bank, 2014). The problems related to terrorism and insecurity persisted and in fact peaked in some areas, in addition to the 4 months long protests in the capital city by the largest opposition party that proved to be a substantial hurdle in barring FDI inflows to the country.

Power generation that was costing both socially and economically was the priority of the government. It in fact approached several multilateral organizations too, but due to political turmoil within and flooding in the northern Pakistan where proposed hydro-projected were supposed to be located caused delay in 2014. Meanwhile the year 2015 witnessed the visit of President Xi of China, 51 Memorandums of Understandings were signed during the visit, which encompassed several coal, solar, wind and hydro projects costing US15.5 billion along with other undertakings. It was estimated then that these projects once completed would add 10,400 megawatt of electricity in the existing capacity of the country. The timeline for the completion of these projects was set at 2018, when the next national election will held in the country. It was also estimated then

that by 2025, nearly 45000 megawatt of electricity will get add into the system (CPEC Secretariat, 2022).

By 2017, Pakistan achieved 5.28% economic growth, for the first time in a decade it crossed this margin. There were projection then that if country continues current growth pattern, it will become part of G-20 by 2030. Country could not do much to improve export earnings, on the other hand import bill started rising mainly due to increase in oil prices but also due to the sharpe increase in capital goods, for instance the electricity related machinery imports increased by 76.5%, construction machinery import by 66.8% and the same can be said for other capital equipment categories. China for the first time became the source of largest FDI inflows in Pakistan. New government in United States in 2017 stopped payments under *Coalition Support Fund*. There was also a reduction in remittances and decline in export earnings. All these factors combined, caused deterioration in current account deficit of the country (Finance Division, 2018).

Pakistan improved GDP growth further to 5.79% by 2018 mainly due to large infrastructure projects that were undertaken along with lower interest rates which encouraged domestic investment within the country. By 2018, few power plants had already commenced generation of electricity and several other CPEC and non-CPEC infrastructure projects were underway causing a rise in growth. Pakistan's current account deficit witnessed a very sharpe rise reaching US$12.03 billion. It was expected due to a negative trend in export earnings for few years mainly due to slow down of global economy, and the increasing oil prices and a rise in capital equipment imports (Finance Division, 2018).

Several significant event happened in years leading towards the end of the decade that had substantial impacts on world economy including Pakisan. The exit of Britain from European Union, intensification in the trade war among United States and China, wide protests in Hong Kong and finally COVID-19 Global Pandemic had long lasting influences for the world. A new government was elected in Pakistan since the second half of 2018. The economic indicators, which had already shown symptoms of deterioration since2017, started worsening and government was soon obliged to ask IMF and 39-months *Extended Fund Facility* (EFF) was signed to reduce the escalating pressure on its balance of payment (Finance Division, 2018).

Pakistan for the first time ever had a negative growth rate of -0.38% in fiscal year 2020. As consumption always remained main contributing factor in growth, since it declined due to COVID-19 lockdown causing this negative growth. Good news due to global pandemic reflected in Pakistan's improved current account deficit which reduced to US$4.49 billion declining from US$13.43 billion in preceding year. However as expected it climbed up in later years once COVID-19 restrictions eased around the globe (Finance Division, 2021)

1.3.9 Current Economic Turmoil

Pakistan's nominal GDP of US$374 billion in 2022 is lowest compared among countries with equal population, it is one-third of Indonesia's US$1.32 trillion and one-fifth of Brazil's US$1.92 trillion. It has also lagged behind Nigeria and Bangladesh, in fact the later surpassed Pakistan in 2020 (World Bank, 2022). Gap between exports and imports has increased widely to a level where country was left with no option but to avail IMF leanding program twice since 2019 to settle its balance of payment issues. Pakistan's exports remained on average US$30 billion dollar during 2011 and 2020 while its imports at the same timed jumped from US$43 billion to US$60 billion. Singnificant portion of this difference was usually paid out with remittances sent by Pakistanis abroad which increased from US$12 billion to US$26 billion during the same period. At the same time priod, the external debt of the country almost doubled raising from US$65 billion to US$118 billion. The mounting budget deficit of Pakistan ranging from 7.3% of GDP in pre-Covid times to around 9.2% of GDP in 2020 clouded the expectation of the sustained economic and social progress of the economy. Moreover, the proportion of the public debt remained 61 of the GDP till 2020-21 which by 2022 stands at 77 percent of the GDP. Consequently, around 85percent of the net federal revenues are spend to serve the cost of debt servicing relative to the service provision by the government (Finance Division, 2020; Finance Division, 2021).

1.4 Conclusion

Pakistan emerged as one of the most populated yet a dynamic nation on earth on the eve of the dissolution of British India in 1947 where two geographic units of

the country were located 1000 miles apart neighboring both southeast Asian and west Asian nations. It began with a very meagre industrial and economic base. The country accomplished self sufficiency in food and succeeded to establish a thriving industry if analyzed with other comparable developing countries in its early phase. However political instability, constant military intervention, break-up of the country in 1971 and shortage of investments in social sector barred it from realizing its true potential.

There were certain phases when favorable international political and economic climate proved to be a driver for the economic progress of the country. During past decade it lagged behind in socio-economic growth compared to Bangladesh and India, with whom it shared a common past. It maybe difficult to capture the whole complexity responsible for the decline of Pakistan's economy, however comparing to India and Bangladesh it had received less foreign investments during past two decades. In this context investments under Belt & Road Initiative were warmly embraced by Pakistan and in fact it channeled investments to those sectos which are in desparate need such as energy and transportation sector as I shall discuss further in the next chapter.

Chapter 2

CHINA-PAKISTAN ECONOMIC CORRIDOR (CPEC)

2.1 Rationale for CPEC & China-Pakistan Relations

Pakistan throughout last seven decades remained in desperate need of FDI, foreign loans and grants to transform her agrarian economy into an industrial one and to uplift millions of people out of dire poverty. Balance of payment data from fiscal year 2006 to fiscal year 2022 reveals a constant and rapid increase in both current account and trade account deficits. For instance, current account deficit and trade deficit were US$4.99 billion and US$12.87 billion respectively in fiscal year 2006 and those peaked during fiscal year 2022 when an all time high current account deficit of US$17.48 billion and trade deficit of US$44.89 billion incurred. Main source of financing the current account deficit during these and earlier years was through secondary income account which mainly comprised of remittances of Pakistani diaspora abroad. Therefore, BRI was warmly welcomed in the country and it was considered by many to be once in a lifetime opportunity to get out of poverty by attracting large sums of foreign investments in order to construct the necessary physical infrastructure of the country (State Bank of Pakistan, 2023; Miller, 2022).

It is estimated that 70% of the proposed US$ 62 billion financial inflows under CPEC would be in the form of FDI which is substantially greater than the combined FDI of US$ 7 billion received by Pakistan during three decades from 1970 till 2001 (McCartny, 2022). Considering the fact that 70% of CPEC would comprise of FDI makes this project

further attractive for the policy makers in Pakistan. This means that Pakistan is not liable to pay any debt back to China for 70% of the financial inflows under CPEC and she only need to ensure that Chinese investors receive the return on their investment. Component of loan under CPEC is only 25% and remaining 5% is in the form of a grant. These statistical figures related to the financial nature of CPEC projects dismisses the notion of it being a debt trap (Khan et al., 2020).

China and Pakistan historically had very congenial relations, including strong political support and close military ties. Their compact relations are rightly demonstrated by a joint construction of a major infrastructure project Karakoram Highway during 1960s and 70s connecting both countries through inland rout. Pakistan also played a role in bringing United States closer to China in early 1970s which paved the way for China's recognition at United Nations (Haider, 2005). However unlike China's deep historical, socio-economic and cultural involvement with countries in Far East and Southeast Asia, reflected by a significant presence of a large Chinese diaspora, her ties with Pakistan and to South Asia in general were of limited nature. It never acquired profound people to people, socio-cultural and economic aspects. This is partly due to the geographic reality where mountains of Himalaya protected and separated India from northern Asia as well as the fact that majority of the Han population, the largest and predominant ethnic group in China, is concentrated on southeast of China (Lockard, 2013).

China being the most populous country and the second largest economy in the world shared border with Pakistan. During last two decades China's ambitions to become a global economic power had rapidly increased which is also reflected in investments in mega projects around the globe. Pakistan being a neighbouring country and a close ally had received large investments from China. Since the launching of Belt & Road Initiative in 2013, Pakistan emerged as one of the largest recipient of Chinese investments under this initiative. It is expected that these projects will resolve the chronic shortage of large infrastructure within the country, particularly in energy and transportation sectors subsequently paving the way for industrialization of the country. The hallmark of Chinese investment is building a deep sea port in the southwest of Pakistan at a small town called Gwader in the province of Balochistan. This town is located in close proximity to the seaport of Dubai across Persian Gulf. It is expected this sea port will connect western region of China with global south and it shall reduce transportation costs particularly

between western China and rest of the globe. Furthermore, it will also connect landlocked Central Asian countries with Indian Ocean. Once completed, the project shall encompass several other supplementary infrastructures such as an international airport and a free trade and industrial zone in the coastal town (Haider, 2005).

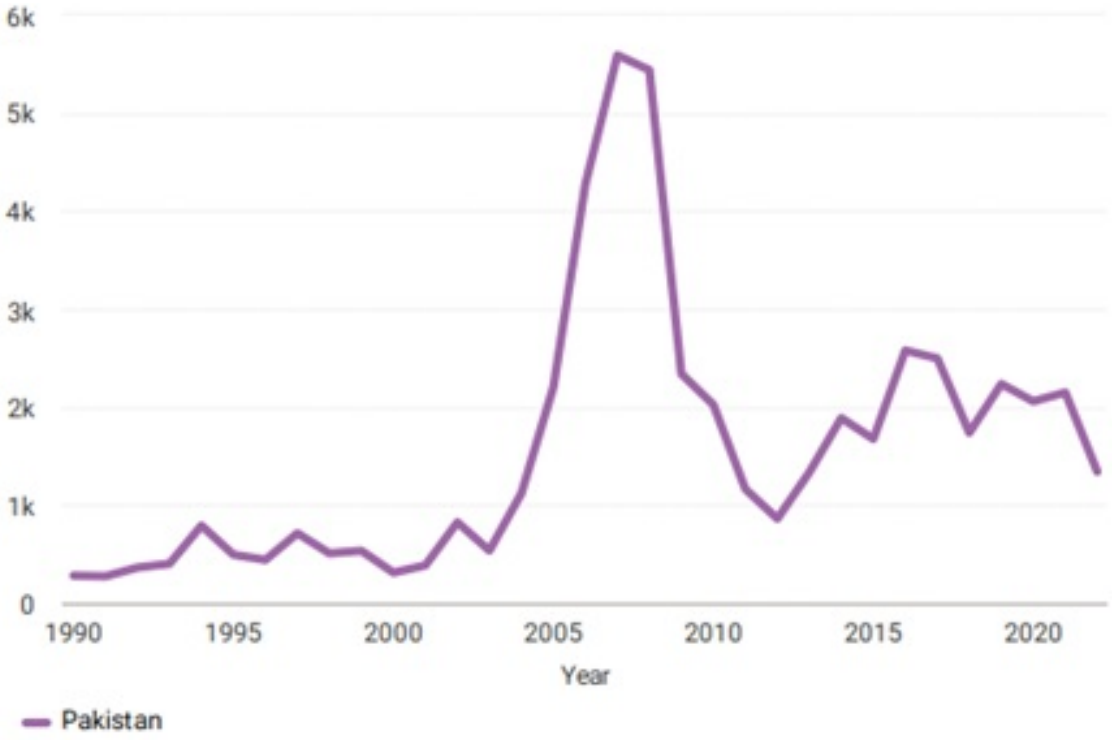
2.2 Emergence of Belt & Road Initiative & Pakistan

China's double-digit GDP growth rate specifically since late 1970s until 2007 accumulated both surplus capital and surplus industrial capacity for the country. This had transformed China to become a globally competitive player in several industries during those booming years (Demiryol, 2019). Physical infrastructure within the country was built at a massive scale, for instance the construction of 30,000 km of high speed railway lines. The financial capability of China is evidenced in a 2017 publication of Center for Global Development Policy Paper which states that *"China Development Bank, a leading source of cross-border official finance, now has total assets (domestic and international) that exceed the combined total assets of the World Bank, the European Investment Bank, and all four major regional development banks combined"* (Morris et al., 2020). According to De Conti & Mozias (2020) *"annual volume of China's direct investment increased from 0.9 billion dollars in 2000 ..... (and) in 2015, it reached to 145.7 billion dollars"*. There is no sign of decline in this momentum and recent figures from 2022 revealed it to be US$163.12 billion (Wu, 2023).

Financial capacity, giant population and the way the Chinese political system functions led herself to approach the rest of world with global ambitions. Pakistan due to her geographic proximity and being a political ally is a natural and convenient destination to get selected for China's global decree of her economic capability. Pakistan with more than 200 million population and total annual exports of 30 billion dollars, GDP of 340 billion dollars and per capita income of 1658 dollars is a reflection of a fragile state with poor governance and messy economic affairs. The country is in desperate need of Foreign Direct Investment (FDI) to uplift the declining economy. However, it never been on the good book of the global investors due to various reasons including but not limited to her consistency in being politically unstable (World Economic Outlook, 2023; The World Factbook, 2023).

According to De Conti & Mozias (2020) the lack of international funds and the absence of physical infrastructure in many developing countries left them with no choice except to opt for BRI projects. This applies to the case of Pakistan as Figure 2.1 shows trajectory of FDI in Pakistan since 1990s where it can be seen that with the commencement of the 21st century a surge in FDI is observed mainly resulting from Pakistan's participation as an ally of United States during the Afghan War and the construction of Gwader port by China.

Figure 2.1: Historical Trajectory of FDI in Pakistan 1990 – 2022 in Million USD



Source: UNCTAD's World Investment Report 2023, UNCTADstat (2023).

Since 2013 this trend went up again due to the BRI related investments as China along with Hong Kong emerged as the largest sources of FDI in Pakistan, which was dominated by United States in the previous decade (Board of Investment, 2023).

Pakistan-China trading relations in comparison to Pakistan-United State and Pakistan with oil rich Arabian countries remained negligible till the beginning of the 21^{st} century. Only in 2004 her imports from China crossed US$1 billion dollar and in 2006 after a free trade agreement was signed, Chinese imports to Pakistan crossed US$ 2 billion mark. On the contrary to current trade deficit prior to the breakup of the country in 1971, Pakistan maintained a trade surplus with China during her two initial

decades which however since then always remained in deficit. Historically neighboring oil rich countries of Saudi Arabia and United Arab Emirates along with United States remained the largest trading partners for Pakistan. Pakistan import 80% of its petroleum need which mostly comes from oil rich Middle Eastern countries, therefore this combined region formed the largest of imports for Pakistan, as of 2018 the country's import worth US$16 billion from this region out of total US$60.8 billion import. However, a constant rise in imports from China was experienced during last decade, which was logical due to the increase in CPEC related activities, that peaked in 2018 with $15.74 billion. Export to import ratio from Pakistan to China since 2016 was constantly below 15% reflecting the significant dominance of China amid the inter countries commercial relations (State Bank of Pakistan, 2020).

2.3 Theoritical Foundation

Geoeconomics currently gained fresh interpretation with the publication of *'War by Other Means: Geoeconomics and Statecraft'* which defines it as follows: *'The use of economic instruments to promote and defend national interests, and to produce beneficial geopolitical results; and the effects of other nations' economic actions on a country's geopolitical goals'* (Blackwell & Harris, 2016, p. 20). . The authors further elaborate this definition by stressing *'economic and financial instruments as tools of statecraft'*. Geoeconomics and geopolitics may not be in complete contrast to each other; however the most fundamental distinction among those is the *'means'* used for accomlishing the *'ends'*. Secondly, but not less significant difference is the association of *'power'* with politics, and of *'wealth'* with economics, where first is considered to possess the property of being *'limited'* and the second to be *'limiteless'*, thereby former is a zero-sum game and the later is a positive-sum game (Blackwell & Harris, 2016). . CPEC may not necessarily be entirely captured through the lenses of geoeconomics, however considering the strength and richness of this analytical approach, the thesis shall apply it while presenting the analysis.

Pakistan, the Muslim part of the historic British India, regarded by Hamza Alavi (1973) as an *"underdeveloped nation"* in an *"overdeveloped state"*. He differentiates among metropolitan country and the colony by empahasizing that the

ruling elite of the former not only had to replicate the *"metropolitan superstructure"* in a colonial setting, but need to devise an additional apparature for the subjugation of colonial subjects. This instrument of domination for the metropolitan elite in the colonial state paved the establishment of a military-bureaucratic structure. This structure is comparatively overdeveloped in contrast to the rest of society. In a post-colonial society, with the absence of colonial metropolitan elite' as controlling authority, the military-bureaucratic apparatus by virtue of their *'overdevelopment'* during clonial era (and due to the pathetic state of the indegenous classes) captured the newly independent state and attained the role of mediator while pursuing and expanding its own interests with more freedom than ever. In Pakistan, the state institutions particularly military and civil bureaucracy are "overdeveloped" with respect to the rest of the underdeveloped nation due to perpetuation of colonial design. During colonial times these two institutions were key to sustain the colonial status of India and those were instrumental to rule over her indigenous population (Alavi, 1973).

The lack of a powerful political party in Pakistan, facilitated the continuation of military-bureaucratic state in Pakistan. The enhanced auntonomy gained by this apparatus, permitted their penetration is economic affairs as well, where decisions pertaining to the promotion of economic development were guided by bureaucracy rather than through a democratic instituion (Alavi, 1973). Recently due to the ever increasing role and constant intervention of military, scholars are reassessing its status from an overdeveloped to a *"praetorian state"*, where military managed to appear as the sole winner and runner of the state machinery (Yousaf, 2019). Considering the current dominance and enthusiasm of the military in Pakistan for CPEC projects, the present research shall also employ the notion of 'overdeveloped state' to explore the intended and unintended consequences of CPEC project for both military-burucrartic administration, the de facto rulers of the country, and the rest of the society.

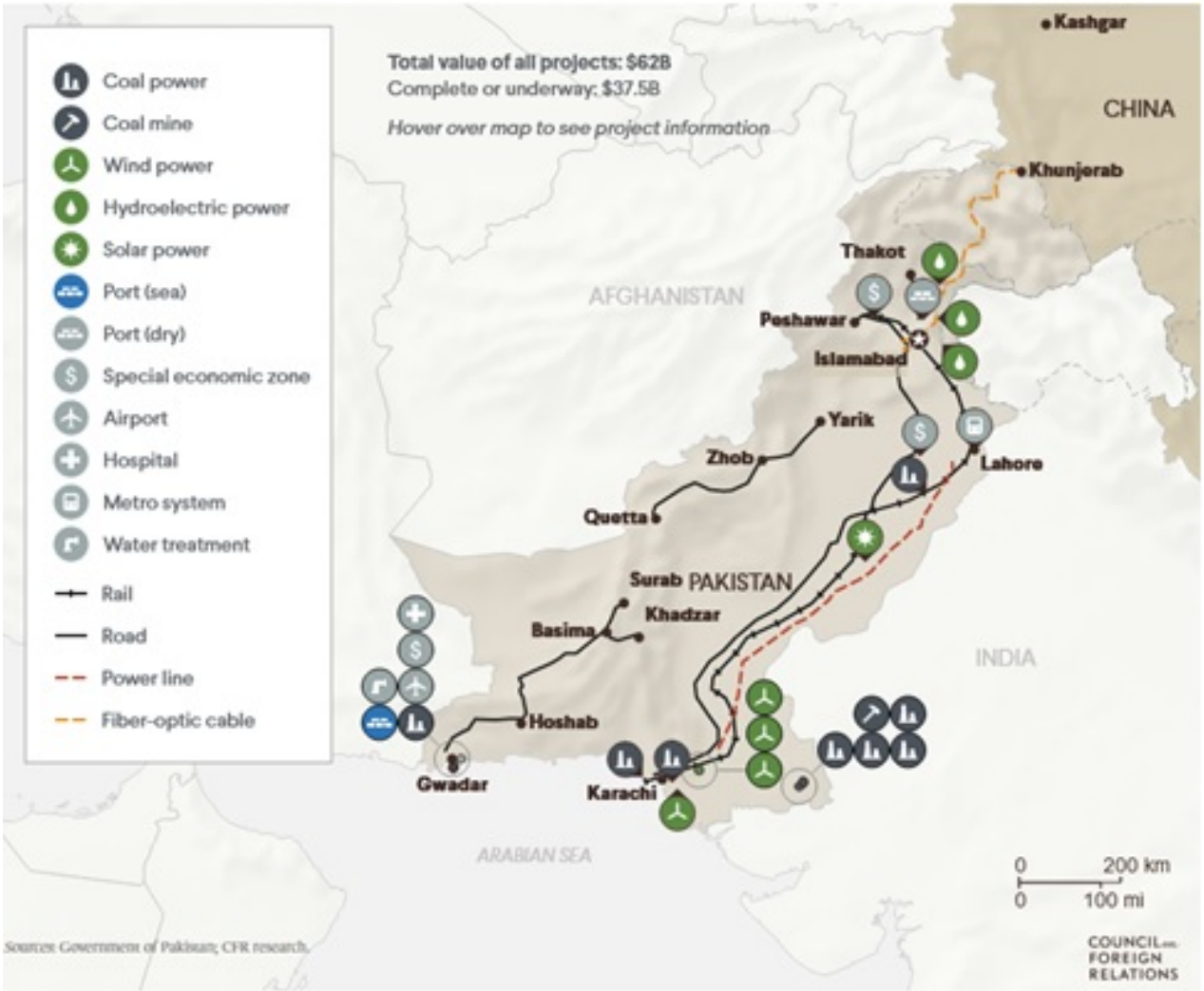
2.4 Roadmap for CPEC

First formal agreement regarding CPEC signed on May 2013 during the visit of China's Premier Li Keqiang in Pakistan. Further 51 cooperation agreements were signed during President Xi Jinping's visit two years later in 2015. In Pakistan it is regarded

to be not only a *"game changer"* but a *"fate changer"* (Qian, 2023). CPEC is usually refers to the corridor that links China's Western Province of Xinjian with the Port of Gwader at Indian Ocean 2700 km away that encopasses energy, transportation, industrial and socio-economic projects along this long rout passing through Pakistan from north to south (CPEC Factbook, 2020).

Figure 2.2 shows the concentration of projects geographically and sectoral wise. Most of the investments as stated went to energy sector where a number of coal power plants were established in Sindh province and a number of hydroelectric power plants in the province of Punjab, two of the four largest provinces of the country.

Figure 2.2: CPEC Projects Map across Pakistan



Source: Council on Foreign Relations, Hillman et al,. (2021)

CPEC will get implemented in four stages during 15 years commencing in 2015 and completing by 2030. The first stage spans from 2015 to 2019 and included

most immediate projects related to energy sector. These projects aimed to solve problem of energy crisis by generating 7000 megawatt of electricity. Second phase encompasses projects that are for an intermediate term, intended for accomplishment by 2022, and mainly covers transportation infrastructure, Gwader Port project and mining in addition to energy sector, which will reach to production of 13180 megawatts by end of second phase. Third stage is supposed to complete by 2025 covering construction of railways and special economic zones. Finally, by 2030 all projects including but not limited to industrial zones, agriculture and from other sectors of the economy are supposed to be completed (Husain, 2018).

Discussions had begun at governmental level recently with the official statement from Pakistan's Minister of Planning to initiate upgradation of railway network which is shown in Figure 2 as part of the initial CPEC plan (Staff Report, 2023). Almost all energy related projects are constructed in the two eastern provinces which had raised resentments among neglected western regions specifically in Balochistan as most part of the province is not connected to the national electricity transmission and distribution grid of the country, therefore the province is unlikely to benefit from the energy power plants constructed in the eastern provinces (Zubair, 2019).

2.5 Major Sectors Under CPEC Projects

2.5.1 Energy

Energy projects consumed the largest portion of CPEC investments. According to Finance Division of government of Pakistan, around 72% of the planned investments are directed for construction of power generation and transmission (Finance Division, 2017). CPEC planned to build power plants for electricity generation through coal, wind, hydro and solar sources. Latest figures from 2022 reveals that 11 power projects are completed and 10 projects are under-development. Energy power plants based on coal is dominant where out of planned 13,048 Megawatt electricity, 8220 Megawatt will get produced through coal, that equals to 63% of total generated electricity while contribution of solar and wind power plants is 10% ("Power Projects", 2022).

2.5.2 Transportation Infrastructure

Three planned road routes named Western Alignment, Eastern Alignment and Central Alignment within CPEC will connect Khunjrab Pass in northern Pakistan at China-Pakistan border with Gwader in south at Indian Ocean. Why three and not a single route is a political decision by the government of Pakistan in order to make CPEC more inclusive for all four federating units of the country. Total 6038 km of roads network were initially planned for construction under CPEC in these three alignments. There was also a proposal for the upgradation of railway track Mainline-1 (ML-1). This single line 1872km railway track was constructed during British colonial era that connects Peshawar city in north to Karachi, the largest city in Pakistan, in south (Finance Division, 2017).

2.5.3 Gwader Port Project

Gwader[1] is a small coastal town located at the coast of Mekran[2] in south-west of Balochistan province in Pakistan, surrounded by Iran and the oil rich Arabian Gulf countries. At the time of British withdrawl from India in 1947, the state of Kalat (largest part of modern Balochistan province, which was not under the direct colonial adminisration) proclaimed its independence, however this was illegally occupied by Pakistani authorities in 1948 through using brutal military force. The tiny enclave of Gwader surrounded by State of Kalat was part of the Kingdom of Oman, a country in Arabian peninsula, under an agreement with the sate of Kalat. As the State of Kalat ceased to exist due to the occupation of Pakistan, therefore Gwader was made a part of Pakisan in 1958 (Baloch, 2018)

Presently the only port city that deals with foreign trade is Karachi in the south-east of Pakistan roughly 650km from Gwader, which possesses two seaports. Gwader was identified to be a suitable location for a deep seaport back in 1954, however government was only able to complete the building of a small wharf in 1993, which was

[1]First mention of Gwader (Guadel) can be found in the Manuel Sousa's Asia Portuguesa written in Spanish published in 1666 'La segunda cotiene 200 leguas (mas esteriles de todo, y en parte yermas) desde el Cabo de Jasque, esta la foz del Indo, sellama Carmania que lleva estas poblaciones, Guadel, Calara, Calamete y Diul repartidas en dos Reynos que son Macran, y Madel (SOUSA, Manuel de Faria e, 1590-1649 Asia Portuguesa. Tomo I [-III].. Tom. I., Part. I., Cap. IX, p. 79).

[2]Mekran is generally referred to the region between Persia (Iran) and India (present day Sindh, a province in the eastern Pakistan). Alexandar the Great travelled through this route while returning from India and in Greek literature it is known as Gedrosia (Ross, 1871). Total coastal length of Pakistan is 1046km, out of which 7760km lies in Mekran region of (Balochistan) (Government of Balochistan, https://balochistan.gov.pk/explore/).

used mainly by local fishermen. Pakistan never had enough financial resources as well as social incentives to construct a deep seaport in this part of the country. Balochistan comprising of 45% of the country's land area but with a population less than 7% is the least developed province within Pakistan. This part of the country possess a very harsh and challenging geographic climate. However, its vast mineral resources, the long coastline and its proximity to the oil rich Middle Eastern countries enhanced its economic and strategic significance. Gwader is also the shortest and most feasible and viable location to connect western China to Middle East and African countries. Most of the foreign trade of land-locked Afghanistan passes through Pakistani port of Karachi, however with the construction of Gwader port it is expected the Afghan Trasit Trade will shift to Gwader due to later's proximity with Afghanistan. Similiarly, depending on the political climate of the region, the Gwader port may also compete with Chabahar and Bandar Abbas Ports in Iran for paving a passage to other land-locked Central Asian countries (Malik, 2012).

2.5.4 Industrial Cooperation/Special Economic Zones

During 6^{th} Pakistan-China Joint Cooperation Committee meeting it was decided that nine Special Economic Zones (SEZs) will also get constructed under CPEC (CPEC Secretariat, 2016). . SEZs in Chinese context was a social experiement permitting private sector in a confined area within the country in order to attract foreign direct investments while the rest of the economy was still managed through government owned companies (Sit, 1985). In Pakistan, Industrial Estates were established in 1970s and Export Processing Zones (EPZs) in 1980s. However, the experience in the past was not much successful when comparing the total earnings of US$10 billon since their inception in 1980s by EPZs in Pakistan with the US$60.1 billion in one decade between 2009 and 2019 by EPZs of Bangladesh (State Bank of Pakistan, 2022). Under CPEC, 9 SEZs across the country were planned waiving custom duties and taxes on imported plant and machinery in a range of industries from texiles and steel to food processing and pharmaceuticals. It is expected that half of the investment will get raised through FDI (Khan, 2019)

2.6 CPEC: DATA ANALYSIS

2.6.1 Sources of Data for CPEC

It is difficult to measure the deliverables of the CPEC given the fact that most of the projects are about to realize in the upcoming future that may consume roughly one more decade. In the past decade changes in political economic arena of Pakistan and various adjustments of BRI policies from Chinese had its impact on the pace and the execution of the CPEC. The data related to BRI projects used in this research is secondary and are collected from four different sources. Therefore, these dataset overlaps, however those also complement the missing data in their counterparts.

Most comprehensive and exclusive data on CPEC is from Reconnecting Asia Project of Center for Strategic & International Studies, Washington. Only limitation to their dataset is the lack of the update for post-2020 period. Governmental source of data is through CPEC Secretariat website, managed by Ministry of Planning Development & Special Initiatives of Government of Pakistan. However, their webiste discontinued posting data since 2018. Revival in publication and few updates were released only very recently in 2023 on the 10th anniversary of the CPEC. AidData by Research Lab of College of William and Mary and Chinese Investment Tracker Database from American Enterprise Institute are two other major sources, where former's data is confined till 2017 and later included as recent as 2022. AidData is richer among all these datasets due to detailed description of each item as well as by supporting the data through citing the original Chinese sources.

There are some discrepancies in the data found at different databases, which is the result of diversity of sources used for collection. Several projects which are regarded as part of CPEC in one dataset, are absent from the counting in another dataset. With regard to data from CPEC Secretariat in Pakistan, it unfortunately failed to keep the pace of regular publication between 2018 and 2022 unlike during the previous government between 2013 till 2018 when publications were released more regularly, however as mentioned above it got improved with the change of the regime in 2022.

CPEC Secretariat Islamabad Data

CPEC Secretariat was established by Ministry of Planning, Development & Special Initiatives of the government of Pakistan in 2019 in order to pave way for smooth and improved coordination between various governmental bodies involved in the CPEC related projects. In this section initially I shall present the data related to CPEC projects as mentioned on the official website of the CPEC Secretariat up to 2019. Recently ministry released an update about the CPEC progress till 2022 which even though lacking several important data but does provide information about the current status of various CPEC projects as shall be mentioned briefly in this section (CPEC Secretariate, 2022).

As per data by end of 2020 CPEC projects were divided into four categories namely 21 projects related to Energy, 24 of Transportation Infrastructure, 14 concerning Gwadar Port Project, 9 are from Industrial Cooperation/Special Economic Zones and 27 are linked with Social and Economic Development. Projects in each sector are further categorized into three or four subsections titled completed, under construction, under consideration or in-pipeline and long-term projects. Here I shall briefly explain these four categories prior to description of the data (CPEC Secretariate, 2022).

The estimated cost value of three categories of energy projects is US$ 22.9 billion, among which projects costing US$ 14.44 billion are completed. While the estimated amount for some of the Transportation Infrastructure related projects are given in Pakistani Rupees and others are in US dollars, those in Pakitani Rupees are equal to PKR 419.2834 Billion (roughly equal to US$ 2.79 billion in 2019 average exchange term) and others in US Dollars are US$ 10.38 billions worth. In this category US$1.67 billion is spent on Transportation Infrastructure and the remaining US$ 8.706 billion and PKR 350.90 (roughly estimated US$2.33 billion on average 2019 exchange rate) worth of projects are either in-pipeline or declared as long-term projects.

In the case of projects related to Gwader Port, US$ 1.528 billion and PKR 16.39 billion (roughly estimated US 109.27 million) are estimated to be the total cost under CPEC including the construction of international airport. It should be noted that major portion of the Gwader Port was already constructed prior to the commencement of CPEC by Chinese firms. However, under CPEC half a billion dollar is spent for various constructions at Gwader port related projects (CPEC Secretariate, 2022).

Out of 9 projects in the category of Industrial Cooperation/Special Economic Zones only 4 of those are shown as being under construction, however no amount is mentioned regarding the estimated cost. Similarly for 27 projects related to Social and Economic Development 5 are mentioned as completed, 12 are under construction and the rest are in-pipeline and nothing is mentioned about their associated estimated costs (CPEC Secretariate, 2022). Table 2.1 summarizes the above data as follows:

Table 2.1: Energy Mix of CPEC Power-Plants

Sector	Completed Projects	In-Construction	In-Consideration	Total
Energy	US$14.44	US$2.54	US$5.9	US$22.9
Transportation	1.6782	0.90	11.00	13.17
Gwader	0.493	1.03	0.15	1.637
Special Economic Zones	N/A	N/A	N/A	N/A
Socio-Eco Development	N/A	N/A	N/A	N/A

Source: Author created table using data from CPEC Secretariat Ministry of Planning Development & Special Initiatives

Approximately calculated combined estimated value of CPEC related investments from the data at ministry of planning website equals to US$ 35 billion. Some of these projects apart from being mentioned separately into their respective categories are also part of a distinct category titled CPEC & Related Projects under the subsection of Public Sector Development Program (PSDP)[3] During three fiscal years commencing from 2016, CPEC related projects under PSDP were numbered as 38, 43 and 32 respectively. Some of these projects which requires many years to complete were obviously overlapping such as Gwader International Airport. Foreign assistance is separately mentioned for initial two years in figures corresponding to various infrastructures given in the list, however foreign funding source is not explicitly reflected and the information related to foreign assistance is lacking for the final two fiscal years (CPEC Secretariate, 2022).

Recent update incorporating data from 2022 related to progress of CPEC reveals that more than 90% of completed power generation plants are operational. Two are still under construction and five more plants will be constructed in the upcoming future.

[3]PSDP is an instrument used by federal government of Pakistan to mobilize resources for development expenditures in various sectors during fiscal year which starts from 1st of July and ends by 30th June in the coming year. These projects may get financed both by domestic and foreign resources.

In transporation sector one third of the projects were completed, and equal numbers are under construction and in-pipeline. Same distribution prevails with projects related to Gwader Port. However as of 2022 no Project related to Special Economic Zones/Industrial Cooperation were completed, in fact those are still at an infantile stage. No further update is available regarding Social and Economic Development related projects apart from those completed by 2019 (CPEC Secretariate, 2022).

CPEC Secretariat also issued a *Factbook* in 2020 which contains more information about the status of energy and transportation infrastructure related projects which were completed, under construction and are planned for future as Table 2.2 below sumarizes the information:

Table 2.2: Energy & Transportation Infrastructure Deliverables under CPEC- 2019

Sector	Deliverable	Completed	Under Construction	Planned
Energy	17,045MW	9	8	4
Transportation	7100 KM	8	9	10

Source: Author created table using data from CPEC Secretariat Ministry of Planning Development & Special Initiatives Pakistan

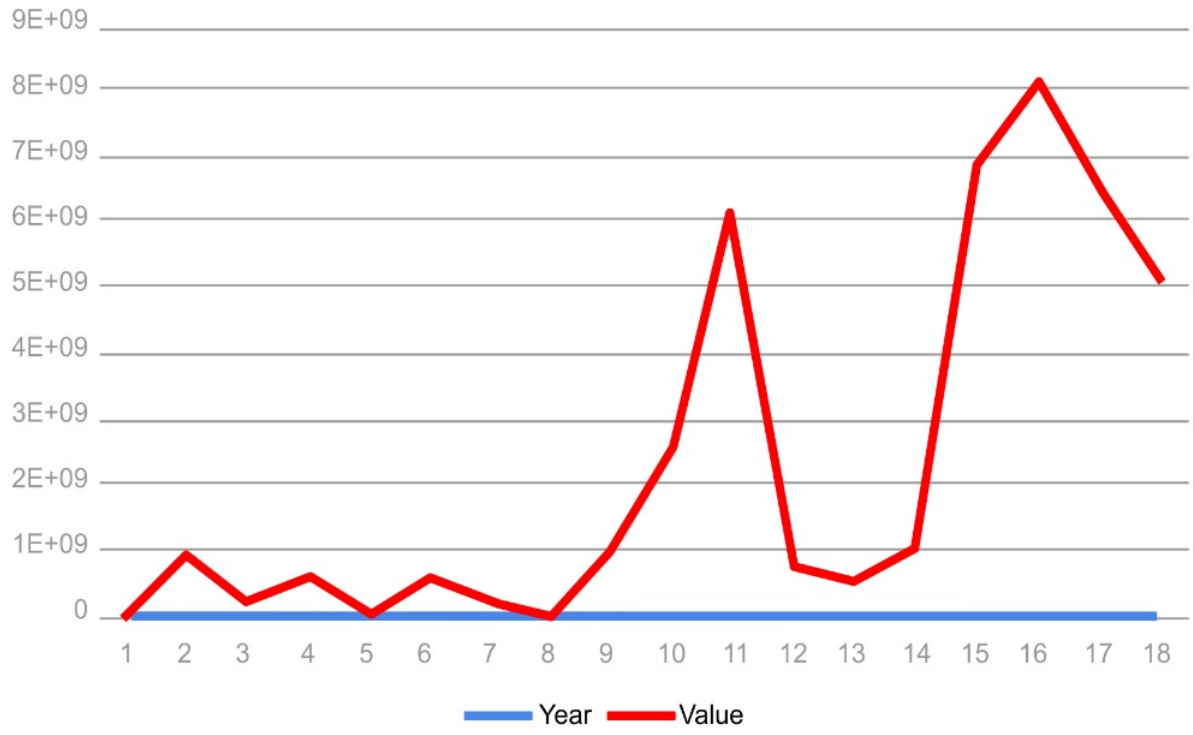
From Table 2.2 it can be deduced that total energy sector projects are 21 and transportation sector counts for 27 projects. Out of these 48 projects 70% of the projects are either completed are under construction.

AidData

Second source of data used in this paper is from AidData, a research lab established at William & Mary College in United States. This database contains various types of datasets, for our purpose we selected the AidData's Global Chinese Development Finance Dataset. This dataset contains Chinese financing transactions of various types covering time period between 2000 upto 2017. Therefore using this dataset we may only know regarding China's investments for the initial years of BRI's launching in Pakistan since futher data beyond 2017 is still lacking at the database. Figure 2.3 is constructed using this data that summarizes all types of financial inflows regardless of their nature from China to Pakistan begining at the year 2000 and it encompasses period up until 2017. This is explicit here that China's investment in Pakistan was already growing

during preceding years before the formalization of CPEC in 2013 and well ahead of the visit of President Xi in 2015, for instance in 2011 Pakistan received financial inflows of US$ 7.5 billion and these inflows peaked with US$ 8 billion in 2015 and the available data shows in Figure 5 that it went down to US$ 5 billion in 2017 (AidData, 2021).

Figure 2.3: China's Financial Inflows to Pakistan 2000 – 2017 (Billions USD)



Source: Author's calculations based on AidData A Research Lab at William & Mary

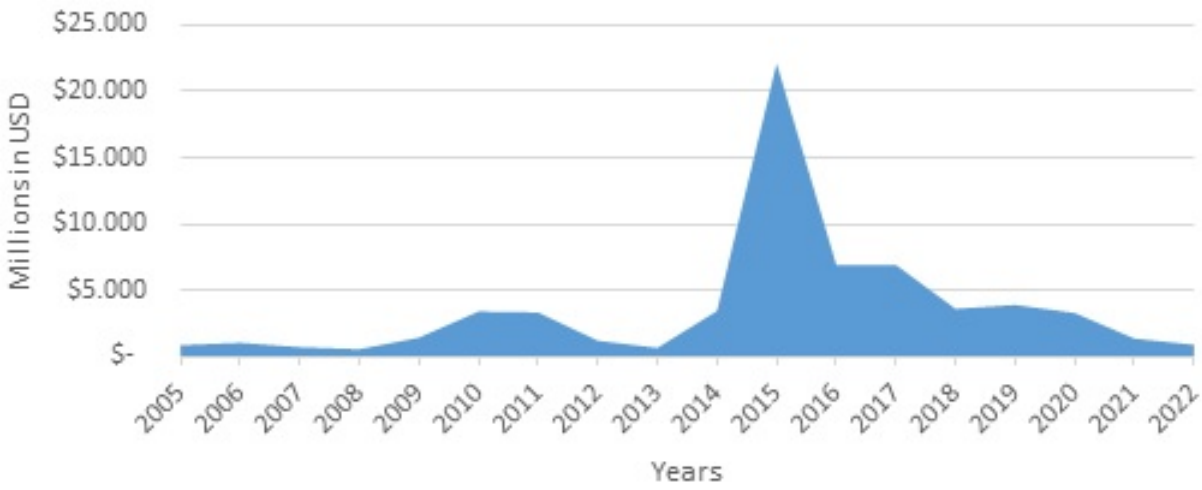
This is a very rich collection of data providing the details as far as 2000 when Pakistan received a grant for the construction of her diplomatic missions in China and the details of the earliest three Chinese loans and one substantial grant for the construction of Gwader port in 2001 including one interest-free loan in this regard. Total financial inflows from China to Pakistan in the form of investments, grants and various types of donations & aid comprised roughly US$ 40 billion during this 18 years period ending at 2017 (AidData, 2021).

Chinese Investment Tracker Database

A US based think tank, American Enterprise Institute, operates a database known as Chinese Investment Tracker Database which keeps the record of China's direct investments for various countries around the globe. This dataset does not descriminate

between planned or projected and actual spending of China's foreign direct investments. In the case of Pakistan, the published data for both planned and actual investments is available between 2005 and 2023 for two categories that is investment and construction. The total value for yet realized and for future promised projects equal to US$ 17.03 billion for investments and US$ 48.66 billion for constructions thereby the entire estimated cost for all Chinese financed projects is US$ 65.69 billion (American Enterprise Institute, 2023). Figure 2.4 shows a surge in investment specially during 2014 to 2019 period which correlates with the peak time for CPEC related projects under BRI and the subsequent slowdown of granting loans and extending further investments that started happening since 2019 and during and after pandemic (American Enterprise Institute, 2023).

Figure 2.4: China's Combined Investments in Pakistan 2005 -2022



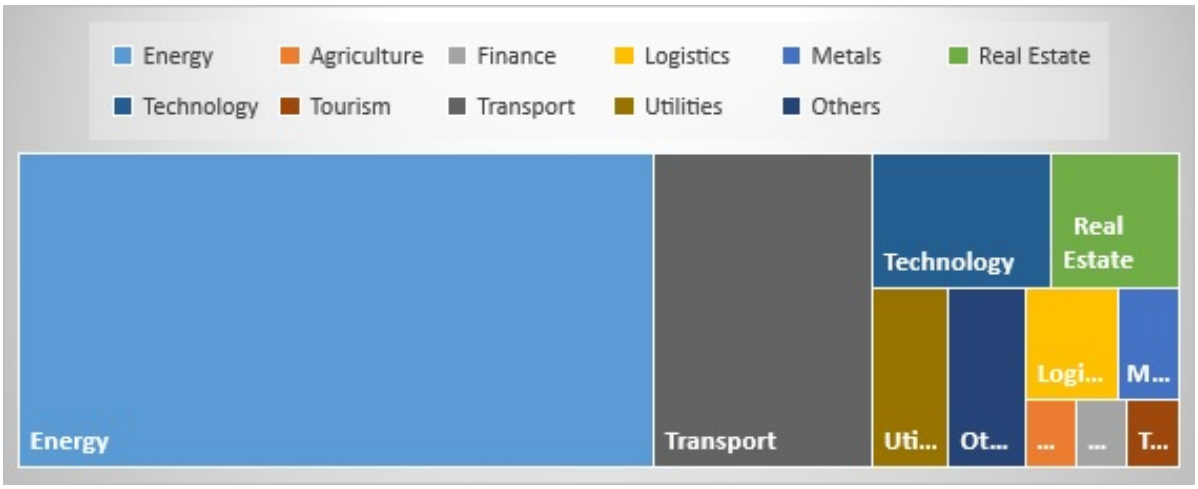
Source: Author's calculations based on American Enterprise Institute Data, China Global Investment Tracker

Total listed projects in the database are 109 and there are 8 companies which invested in 73 of those projects. Highest number of actual or planned investments are from China Communications Construction and Power Construction Corp. (Power China) that are 15 and 14 respectively. Those are followed by China Energy Engineering and China National Machinery Industry (Sinomach) with 10 investments each and by Three Gorges with 9 investment projects. All of these firms are either wholly owned by Chinese government or it is the majority shareholder (American Enterprise Institute, 2023).

Below in the Figure 2.5 we can see that most of the investment went into energy sector which made up more than half of all the undertakings with 58 projects, as Pakistan was facing a chronic shortage in power and therefore Chinese investment in this

regard was much sought after and hence encouraged to overcome the issue. Second in the list is the transportation sector with 20 projects while rest of the sectors put together made up close to one fourth of the total number of investments (American Enterprise Institute, 2023). Projects in Special Economic Zones on the model of Chinese Special Economic Zones are yet to be commenced, however several of those has been inaugurated by various government officials (Dawn, 2023).

Figure 2.5: Sectoral Treemap of Chinese Investments in Pakistan – 2005-2022



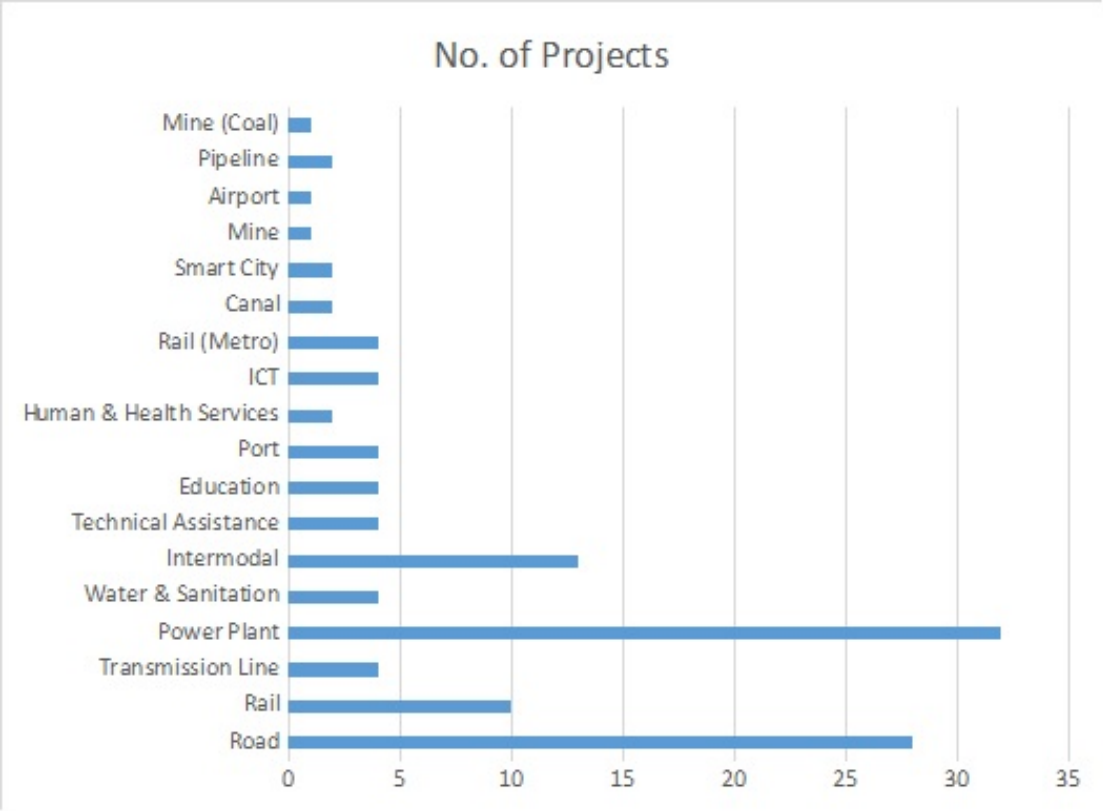
Source: Author's calculations based on American Enterprise Institute Data, China Global Investment Tracker

Reconnecting Asia Project Database CSIS

The most comprehensive data exclusively focusing on CPEC related projects is collected by Reconnecting Asia Project Database of the Center for Strategic & International Studies based at Washington. According to their dataset, total number of CPEC projects are 122 with a total value of roughly US$87 billion. This estimated value is far greater than the generally quoted US$65 billion due to inclusion of few very expensive projects such as Diamer-Bhasha Dam, a large water reservoir, costing USD$14 billion is currently kept into shelves. Another project is Pakistan-Iran Gas Pipeline, which as result of sanctions imposed by United States on Iran also remained in shelve and is not proceeded further. It is pertinent to note that all these projects listed at CSIS dataset are not funded by Chinese sources, and several projects in the dataser commenced prior to the lauch of CPEC as well (Center for Strategic and International Studies (CSIS), 2023).

Figure 2.6 below depicts the CPEC project by sectors where it can be seen that CSIS data categorized CPEC related projects into 18 different sectors. Power Plant sector is the largest recipient of these projects with a total number of 32, followed by 28 projects in Road infrastructure and 13 in Intermodal sector. Sectors such as mining, ICT and airports as well as health and education received comparatively less number of projects. In certain sectors such as Mining, only project is part of CPEC, titled Iron Ore Mining, Processing & Steel Mills Complex at Chiniot, in the province of Punjab, however no information is available regarding its actual or expected cost (Center for Strategic and International Studies (CSIS), 2023). .

Figure 2.6: Distribution of CPEC Projects Sectoral Wise



Source: Author's calculation based on data from CSIS (2020)
https://www.csis.org/analysis/china-pakistan-economic-corridor-five

There exists a wide disproportion among these 18 different sectors in terms of levels of investment as shown in Table 2.3 below. Power Plant sector is dominating the CPEC with approximately 55% of the investment is destined for this sector alone, which is slightly greater than US$48 billion out of total US$87 billion. It is followed by Road infrastructure and Rail network respectively with US$16.6 billion and US$8.2

billion. While the least recipient of CPEC projects are in Education, ICT, Technical Assistance and Human & Health Services (Center for Strategic and International Studies (CSIS), 2023).

Table 2.3: CPEC Projects by Sector - Pre-CPEC till 2020

Sector	*Ex-ante* **&/or** *Ex-post* **Cost**
Road	16.53
Rail	8.27
Transmission Line	3.16
Power Plant	48.38
Water & Sanitation	0.46
Intermodal	0.88
Technical Assistance	0.0046
Education	0.0131
Port	0.151
Human & Health Services	0.10
ICT	0.069
Rail (Metro)	4.22
Canal	1.17
Smart City	0.128
Mine	0.00
Airport	0.23
Pipeline	2.00
Mine (Coal)	1.47
Total	87.23

Source: Author created this table using data from CSIS (2020)
https://www.csis.org/analysis/china-pakistan-economic-corridor-five

According to Center for Strategic and International Studies (CSIS), (2023) data, the CPEC projects are relatively fairly distributed among four provinces of Pakistan. On top of the list is Balochistan with 39 projects and at the bottom is KPK with 27. Other federally administrated regions such as Gilgit-Baltistan, FATA and Kashmir, however are far flung in the tally as shown in Table 2.4 below. These projects with respect to their current statuses are categorized into following categories of Under Construction, NULL, Started, Complete, Preparatory Works, Announced/Under Negotiation, Shelved and Delayed. I have created two groups by combining Complete, Started and Under Construction into one group and Preparatory Works, Announced/Under Negotiation, Delayed, Shelved and NULL into another group.

Former is collectively renamed as Executed Projects and later as Inactive Projects referring to their presente statuses for the sake of simplification.

Highest number of Executed Projects among her share of assigned projects are in the Punjab province where 70% of the allocated projects are at some stage of implementation. It is followed by KPK, Sindh and Balochistan respectively with approximately 59.26%, 56.25% and 53.85% of projects are at some level of execution. Least number of Executed projects are in FATA, which received only one CPEC project and till 2020 the Preparatory Work was still continued. Three projects whose exact locality is unknown and which are supposedly to be carried out at national level are still regarded as Inactive Projects (Center for Strategic and International Studies (CSIS), 2023).

Table 2.4: Distribution of CPEC Projects among Provinces/Regions

Province	Total Projects	Individual Projects	Joint Projects	Executed Projects (%age)
Punjab	30	17	13	70.00
Sindh	32	20	12	56.25
KPK	27	15	12	59.26
Balochistan	39	33	6	53.85
Gilgit-Baltistan	10	7	3	40.00
Azad Kashmir	3	2	1	33.33
FATA	1	1	0	0.00
Unknown	3	3	3	0.00
Nationwide	3	3	3	66.67

Source: Author created this table using data from CSIS (2020)
https://www.csis.org/analysis/china-pakistan-economic-corridor-five

Out of total 122 CPEC projects, roughly a quarter were completed by 2020 as shown in Table 2.5 below. Following the definition of Executed Projects as described above, almost 53% of CPEC projects are at some stage of execution. Among the remaining projects, 17% are those for which either no data is available, or those have been put into delay or kept into shelves for upcoming future. While 12% of the projects were announced or some kind of further negotiation is still continue in order for those to get realized (Center for Strategic and International Studies (CSIS), 2023).

Six projects including USD$2 billion Iran-Pakistan gas pipeline and USD14 billion Diamer-Bhasha Dam were shelved and no work of any sort even begun. Pakistan's need for natural gas is documented in the Economic Survey of 2021-22 published by

Table 2.5: Status of Completion of the Projects

Status	No. of Projects
Under Construction	22
NULL	11
Started	13
Completed	32
Preparatory Works	21
Announced/Under Negotiation	15
Shelved	6
Delayed	2

Source: Author created this table using data from CSIS (2020)
https://www.csis.org/analysis/china-pakistan-economic-corridor-five

Ministry of Pakistan stating that 'The scarce natural gas reserves of the country are quickly depleting due to substantial increase in the demand for gas, putting huge pressure on the limited natural gas reserves of the country. Government is looking for both short as well as long-term alternatives solutions to respond effectively to the substantial energy requirements'.

Natural gas pipeline from Iran as well as from Turkmenistan in Central Asia has long been conceived by both India and Pakistan to meet their domestic energy needs. India however, lifted the project at the initial stage. Pakistan and Iran in 2013, made a formal inauguration of the project and Pakistan was supposed to complete it within 22 months. However, mainly due to US sanctions in Iran, no progress was made within Pakistani soil. According to the engineering company that prepared feasibility report for the pipeline within Pakistan, this project was made part of CPEC in 2015[4] .

Tha fate of Diamer-Bhasha Dam was not different. Cost of construction was high, and in order to meet this cost, the Chief Judge of the Highest Court in Pakistan issued an order where a fund was established and the nation was asked to donate in the fund so that the dam could get constructed. However, after a couple of years of donation campaign, no further activity happened and the project is currently is abandoned. According to current statistics available at the State Bank of Pakistan

[4]'In 2013 the idea was presented to the Pakistan decision makers. The project was included in the discussions about the China-Pakistan-Economic-Corridor and was supported by the governments of both countries in a government to government (G2G) agreement in 2015.In the same year the tender procedure was started. Construction shall be started in 2016. The project shall be in operation in 2018' (Gwadar – Nawabshah Pipeline – Development of a Project by Harald Lohrenscheit, 2016)

website, PKR 18.65 billion (US$68.48 million) were collected in form of donations and further investments of the fund [5] .

Other Published Sources for CPEC Data

There exists some ambiguity regarding the exact amount invested or plan to be invest under BRI projects which is mainly due to the issuance of different statements issued by government officials. In 2018, a statement issued by Embassy of China in Islamabad says *"Currently, 22 early harvest projects under the CPEC have been completed or are under construction, with a total investment of US$18.9 billion. There are 20 more projects in the pipeline."*. In fact, since the change of government in Pakistan back in 2018, no further statement was issued by the Embassy related to CPEC on official website. However, in a recent statement on the occasion of the 10th anniversary of CPEC, Wang Wenbin, spokesman for the Ministry of Foreign Affairs of China summarised the project's deliverables and investments as follows *"Projects under CPEC are flourishing all across Pakistan, attracting USD 25.4 billion of direct investment, creating 192,000 jobs, producing 6,000 megawatts of electric power, building 510 kilometers of highways and adding 886 kilometers to the core national transmission network"* (Ministry of Foreign Affairs of China , 2023).

A booklet written by former State Bank Governor of Pakistan while working for CPEC project stated that *"Only approximately half of US$ 45 billion committed originally for CPEC would be utilized for these projects. Pakistan's liability is therefore at present limited to this US$ 23-25 billion only. Many other projects are at feasibility stage ...."* (Husain, 2018). At another occasion he mentioned the amount of US$ 50 billion where US$ 35 billion allocated for energy and the rest is for all other sectors (Husain, 2017). Similarly statement published at the national assembly (parliament) of Pakistan website says *"CPEC was formally launched in 2015 with the value of US$46 billion"* (Parliamentary Committee on CPEC, 2015).

Board of Investment (BOI) Pakistan website mentioned the figure of US$62 billion in 2019 saying that *"China is investing US$62 billion in Pakistan through the China-Pakistan Economic Corridor (CPEC) as part of its Belt and Road initiative"* (Invest Pakistan, 2015). Mostly US$ 62 billion is mentioned by several US think tanks

[5]https://www.supremecourt.gov.pk/dam-fund-statistics/

such as Wilson Center[6]. One also finds this figure in Pakistani print and news media. An article published by a Pakistani academician on the occasion of the 10th anniversary of CPEC at the website of Chinese Cosulate of Lahore also mentioned the figure of US$62 billion (Haq, 2023).

On the other hand a prominent Chinese academician Zhongxing (2023) using data from BOI Government of Pakistan website provided a figure of US$ 45 billion. The reasons for these discrepencies are due to the long duration of the project where most of it yet to be realized and also the non-existence of any officially published document stating the probable amount in addition to the fact that apart from CPEC, China is also investing in non-CPEC projects in Pakistan which makes it difficult to make a clear distinction.

2.7 CPEC: INCENTIVES & RISKS

2.7.1 Incentives for China in CPEC

Global financial crisis of 2008 causing decline in demand for Chinese products in the Western world and US policy shift from Middle East to Asia Pacific encircling China are two immediate reasons for the emergence of BRI. This rationale is partly true and it provides a reactionary explanation for the BRI. However, BRI should not be merely considered a Chinese reaction against Western dominancy as Chinese leaders themselves tries to portray it as a global order which creates a win-win situation rather than a zero-sum game for all participants. However, it may also possess an expansionist ambition of Chinese political leadership. China being the holder of the largest foreign exchange reserves equaling to 3115 billion dollars[7] and its current account surplus of US$ 401.9 billion and a trade in goods surplus of US$ 668.6 billion in 2022 provided plenty of capital to invest in developing world (De Conti & Mozias, 2020; SAFE Releases, 2023).

However, questions are raised on China's intention for investing in large sums outside China specially in countries with political instability such as Pakistan despite the fact that various under-developed regions exist within China. There also arose arguments about the economic inefficiency of the CPEC in terms of cost savings for a trade route

[6]The China-Pakistan Economic Corridor and Energy Geopolitics in Asia https://www.wilsoncenter.org/blog-post/the-china-pakistan-economic-corridor-and-energy-geopolitics-asia

[7]China forex reserves fall to $3.115 trillion in September. (2023, October 7). *Reuters*. `https://www.reuters.com/world/china/china-forex-reserves-fall-3115-trln-september-2023-10-07/`

to Indian Ocean when it gets compared to maritime ocean route, primarily due to high maintenance cost as this land route passes through a very harsh geological zone and the long distance between Gwader Port in Southwest of Pakistan in Indian Ocean and China's commerical and industrial hub in her Southeast close to Pacific option (Gao, 2020).

Similar objections can be raised on CPEC's socio-economic benefits from a utilitarian perspective. A trade route between China and South Asia could have benefitted far greater number of population, had it went through some of the congested parts of this region. For instance, an alternative economic corridor could have been the route connecting port of Shanghai at Pacific Ocean and port of Mumbai at Indian Ocean stretching 5000 km across China, Myanmar, Bangladesh and India. Such a corridor could have benefited much larger population as it would have passed through some of the most densely populated regions of the globe (Asian Development Bank, 2018).

China's selection of Pakistan as one of her largest recipient of BRI investment rooted in the close political and military relations between two countries, which gained heights specifically after 1960s Sino-Indo War. Pakistan's geographical position where it is connected both with China at her north and Indian Ocean at her south attracts China for reasons stemming from her geopolitical landscape. China is not in very good terms with US and her historically fluctuating relations with Russia since Soviet era compelled her to find an alternative access to Indian Ocean in case of a global crisis at Malacca Strait or in Central and Western Asia. Therefore, as part of her hedging strategy, multiple inland routes such as China-Russia and China-Kazakhistan, are constructed connecting China to Eurasia to escape a conflict in Asia-pacific (Gao, 2023).

On the other hand a crisis in Western Asia can be mitigated with routes such as Chine-Myanmar and China-Pakistan, that enabled China to become an 'Indian Ocean country'. These routes are part of her strategy of constraining a future uncertain event disturbing the supply chain. One rationale for the slow pace of construction at CPEC route specially during last few years is the smooth functioning of China-Central Asia route that is causing a delay in the urgency for a rapid construction of China-Pakistan road and rail network (Gao, 2023).

Gwader Port is considered to act as seaport for Xinjiang region therefore this is significant for augmenting trade and commerce in Western China. Similarly, the economic development both in Western China and in Pakistan is regarded to curtail the Muslim

Uygur separatism which did receive support from Jihadist movements in Pakistan. One may not exclude the use of the Gwader port for other non-economic reasons considering the close military ties between the two countries (Hussain, 2017).

2.7.2 Associated risks of CPEC for China

One concern raised in a Chinese social media platform was the possibility of mass immigration from Pakistan to China once railway and inland connectivity get fully operationalized and which may alter the composition of the Muslim population in China, however this issue is dismissed in serious circles as despite the existence of Karakoram Highway for more than half a century no such phenomenon has been observed (Gao & Zhen, 2023).

One unintended consequence for China is the way CPEC will get executed by Pakistani institutions through their own mechanism which may lead in concentration of these projects in some specific parts of the country specially the province of Punjab and Sindh which are the most populous federating units of the country. Pakistan practices a majoritarian federalism where national income is distributed among the provinces mainly based on the population which carries a weight of 82% in the National Finance Commission (NFC)[8] award. Therefore, the prevailing federal system in Pakistan by virtue of its makeup favours the two populated provinces, therefore the unfair distribution of CPEC projects are no exception (Kakar, 2016).

In fact, CPEC may exacerbate the existing irksome socio-political affairs as the feeling of deprivation will intensify in western provinces of Balochistan and Khyber Pakhtunkhwa (KPK). The political and economic amphitheater of the country is dominated by the largest ethnic group of Punjabis due to the composition of the population where they comprise more than half of the country's population and given the Pakistan's turbulent history of failing to manage the ethnic conflicts that resulted in the breakup of the country in 1971, the distribution of these projects across the country if left un-intervened by China may aggravate those disputes to new heights as a result of

[8]'The National Finance Commission (NFC) award is the distribution of financial resources among the provinces of Pakistan by the federal government on annual basis.....The 7^{th} NFC Award has given 82 percent weightage to population, poverty 10.3 percent, revenue collection 5 percent (2.5 percent revenue generation, 2.5 percent revenue collection); while the area will get 2.7 percent share' (Mustafa, 2011).

biased disbursement of the benefits which are likely to favour eastern provinces of Punjab and Sindh (Boni & Adeney, 2020).

BRI will faster the process of globalization in the less developed countries like Pakistan by investing in her infrastructural and industrial structure, however it must take into consideration the consequences of globalization that often lead to unfair distribution of benefits and widening inequality between various social groups within those countries that will ultimately generate severe consequences which China would like to prevent from happening (Gao, 2023).

Last but not the least, lack of good governance in Pakistan may generate losses to Chinese firms who have invested heavily in energy and transportation sector within Pakistan. Political unrest in western provinces of Pakistan emerging from the historical injustices since the formation of the country and the extensive use of military to address those domestic political issues have generated an atmosphere of uncertainty and chaos which may bar CPEC and any other investments to be fruitful.

2.7.3 Incentives for Pakistan in CPEC

A World Bank policy paper[9] discusses the condition and trend of public infrastructure in Pakistan by comparing it with large comparable countries within South Asia such as India, Bangladesh and Srilanka and outside the region with Brazil, Indonesia, Malaysia and Thailand. They concluded that despite the progress in infrastructure made during half a century, Pakistan has still underformed in infrastructure development with comparable political entities. Density of paved roads is low, quality of railroad and airports is miserable and within those comparable countries, the electricity generation is lowest in Pakistan. The situation is abysmal in terms of access to portable water and the sanitation where Pakistan is considerably below among the compatriot countries (Loayza et al., 2012). Country has consistently suffered from chronic shortage of energy and is unable to supply uninterrupted electricity for domestic and industrial consumption, as was manifested with 10-12 hours electricity shortage per day in 2012 and it is estimated that this short fall costed 2% of her annual GDP (McCartny, 2022).

[9]World Bank Policy Paper Series on Pakistan PK 10/12 August 2012

Historically most of the mega infrastructure projects within Pakistan were financed through external sources. However, the country never remained in the goodbook of foreign investors due to fragile political and economic conditions. Therefore number of foreign funded infrastructure projects are few. Exports earnings were never suficient to meet import bills, Pakistan regularly approaches multilateral funding agencies such as International Monetary Fund to meet her current account déficits. Additionally, lack of local capital resulted in underinvestment in basic physical infrastructure (McCartny, 2022).

Massive dearth in all forms of physical infrastructure is evident as shown above, however closure and underutilization of textile mills and other factories due to consistent shortage of electricity in large urban centers gave rise to massive unemployment. Likewise, the unavailability of electricity to households led to social unrest in major cities. Therefore, both the industrial and political elite of the country gave priority to energy sector in CPEC in order to generate sufficient electricity to meet the exceeding demand. Most of the CPEC investments, that is 71%, allocated for constructing power plants (McCartny, 2022).

Pakistan's 220 million population, 5th latgest in the world, with 63% among them are 30 years or below brought the country into a juncture where this large young population may turn into a demographic dividend or a demographic liability. Scale and rapid investments with a huge population in hand can elevate its economic status. On contrary, the lack of such investments may escalate the exisitng fragile political and economic condition (Ahmed, 2018). CPEC generally portrayed as an opportunity that induces colossal investments in order to industrialize the country. For this purpose, the final phase of CPEC includes the construction of nine Special Economic Zones, emulating the Chinese experience of industrialization. Priority is given to textile, food processing, light enhgineering, pharmaceutical, steel, motorbike assembling and electrical appliances in addition to others. The SEZs are supposed to generate half a million direct employment opportunities ("CPEC Special Economic Zones", 2019).

Pakistan also sees CPEC as an opportunity to curtail the independence struggle in Balochistan, which had intensified specially since the first decade of the current century. Socio-economic underdevelopment and extensive use of brutal military

in Balochistan since the emergence of Pakistan as an independent state manifested in a large-scale insurgency across the province (YİĞİT, 2019)

Central government of Pakistan selected Gwader Port in the south coast of Balochistan as the hallmark of CPEC project which had raised concerns among the indegenous population due to their lack of participation in decision making. The success of CPEC specifically in Balochistan depends upon the voluntary and consensual participation of local Baloch population, which is only possible if their rights to their ancestral lands is recognized by Central government of Pakistan. This recognition requires major changes in the federal structure of Pakistan so that it no longer remains a majoritarian federalism where sparsely populated provinces like Balochistan is at the discretion and mercy of densly populated provinces in the national legislative body of the country. Abolishing the majoritarian federalism and replacing it with a parity-based federal structure where each province or region of the country has same political weight in the legislative body regardless of their respective population size is the only way forward for the country and this will facilitate the smooth execution of large foreign direct investments like CPEC (Kakar, 2016).

2.7.4 Challenges associated with CPEC to Pakistan

Most of the projects under CPEC so far are related to construction of power generation plants. Total demand for electricity in the country is believed to be 23000 MW during hot summer season and the production is limited to 16000 MW causing a shortage of 7000 MW. Chinese firms under CPEC are confined to the construction of the power plants and to sell the production to the government of Pakistan who assume the further responsibility to disseminate and transmit this energy to final consumers. Since the operation of various power plants the availability of electricity had increased and the situation got improved (Khurshid et al., 2018). According to study conducted by International Monetary Fund the daily power shortage reduced from 10 hours to 2 hours which indicates a significant improvement specially in industrial areas, however due to poor transmission infrastructure and mismanagement by Pakistani domestic institutions the true benefits from these power plants could not get transfer to the wider population (McCartny, 2022).

Chinese investors are guaranteed a fixed return of 17% in US Dollars for the generated electricity by the government of Pakistan (McCartny, 2021). The government is responsible to arrange for the transmission of the electricity to final consumers. However due to poor physical infrastructure and a lack of better institutional mechanism the line losses are extremely high[10]. In addition to that the lack of better governance also reduced the government's ability to collect the bills from certain cosnumers. This mismatch of fewer receipts from final consumer and excess payments to final investors is growing the debt on part of the government who at the first place guaranteed certain returns on FDI. This accumulating debt in Pakistan is termed as circular debt[11]. This growing circular debt problem need to be resolved by reforming the mechanism of electricity distribution and investing on replacing the deteriorated infrastructure in the sector (Husain, 2017). The circular debt increased from Rs. 450 billion in 2013 to Rs 2467 billion in 2022 equal to 3.8% of country's GDP & 5.6% of the total government debt (Ministry of Finance Pakistan, 2022). However despite the losses from cicular debt, the increased electricity production from CPEC is estimated to contribute US$6 billion annually (Husain, 2017).

The accumulated circular debt in energy sector though can be traced prior to the construction of power plants under CPEC, however experienced an extra-ordinary surge in recent years. By end of fiscal year 2022-23 on 30th June, circular debt rose to Rs. 2.31 trillion (roughly equals to US$ 8.35 billion). Unfortunately, the electricity transmission infrastructure is outdated and massive investment for upgradation is required so that the existing transmission system get enable to distribute the electricity. Major portion of Balochistan province including Gwader, the jewel of CPEC, not even linked with national electricity grid of the country (Siddiqui, 2016).

Federal system as currently practiced in Pakistan has caused several challenges for the smooth functioning of the country including the unequal representation of federating units in the main legislative body, the parliament, where

[10] "The major cause of power shortage in the country is line losses. In the financial year 2021-22, the amount of power lost during transmission by distribution companies was recorded at 22,298 Gigawatt hours (GWh). In the same fiscal year, the financial effect of transmission and distribution losses as a result of the inability to reach National Electric Power Regulatory Authority (NEPRA) goals was also calculated at Rs. 520.3 billion" (roughly equals to US$ 1.88 billion) (The Nation, 22 December 2022).

[11] "Circular debt is a public debt that arises from the cascade of unpaid government subsidies. In Pakistan this problem is acutely present in the power sector which leads to a relentless spiral of unpaid bills among distribution companies. This situation prevents distribution companies from paying independent power producers, who then fail to pay fuel suppliers — thus creating a chain reaction of debt that afflicts the entire system, and subsequently Pakistan" (Pakistan Today, 16 August, 2023).

seats are allocated based on the population of the federating units. Unlike American and Brazilian Senates, where each state has equal voting weight regardless of her population size, here the size of population determine the political strength of a particular state within the federation. Punjab, the largest province in Pakistan, possess a population that is greater than the combined population of all other provinces and federally administered regions. Therefore, majority of the elected legislative members lacks any political incentive to protect the rights of other constituencies. Rest of the country relies on the goodwill of the politicians from the largest province rather than having a constitutional security to protect their interests in the national parliament. This fruit of this system best reflected in the formula adapted for division of the national income of the country. As population and not the level of underdevelopment is the main criteria for distribution of the national income, therefore this formula does favor the provinces with larger population but unfavorable for least populated provinces which happened to be the most backward as well. This state design of majoritarian federalism is reflected in the allocation for CPEC projects too, therefore much resentment is coming from neglected provinces against CPEC (Huang & Yan, 2023; Kakar, 2016).

Most of the CPEC being FDI, where Chinese firms received contracts to execute projects. Those firms usually import most of the construction machinery and material as well as skilled and non-skilled labor from home country thereby reducing the full potential benefits from these contracts to local businesses and to the domestic labour market (McCartny, 2022). However, benefitting from the experiences of other countries such as Turkmenistan and Uzbekistan, this situation may improve if Pakistan insists on recruitment of a certain quota of local workers and confined the hiring of foreign workers at managerial positions only (McCartny, 2021).

With the construction of the road and railway network the remote and interior localities and their resources will get conveniently accessible. It may benefit the skilled segment of the population living in urban centers of the country however it may cause damages to the indigenous population. There are concerns that in a similar fashion with the construction of railways during British colonial era, these new rail and road networks will only serve as means of exploitation of untapped resources and it will intensify the center versus periphery conflict within Pakistan. The access to interior of the country will open a way for mass migration from populated west to least populated east of the

country and may change the demographic profile of the eastern provinces by converting the indigenous population into minority within their ancestral lands (Asian Development Bank, 2018).

On the other hand, the lack of connectivity always remained a major challenge for the economic growth and further intergration with national economy of remote localities, also resulting in their deprivation from basic services such as provision of healthcare and educational facilities that also require the presence of infrastructure for their movement from metropole to periphery. The conflict can only be avoided and a win-win situation can be created through political inclusiveness if it accompany the process of economic development to safeguard the interests of marginalized communities.

Constructing and expanding physical infrastructure is used by modern states to gain legitimacy over a certain territory. However, in Pakistan both due to lack of resources as well as the absence of a political vision the country underperform in this respect. Whatever that was built primarily with the American financial aid, was mainly concentrated in the socalled 'core parts' of the country. The periphery was completely neglected in terms of extending the physical infrastructure. However, precious resources such as natural gas was extracted from periphery, that is Balochistan, and it was supplied to the core of the country except the Balochistan itself. Therefore, recent sudden acceleration in infrastructure project generated suspicion in Balochistan (Hameed, 2018).

2.8 Conclusion

Belt & Road Initiative considered to be the Chinese version of Marshal Plan, however unlike countries participating in Marshal Plan many of the recipient countries suffer from poor governance and lack of established institutional framework and mechanism to execute this mega initiative. Pakistan on the occasion of the partition of British India inherited a negligible capitalist and industrialist class as during colonial era almost all sizeable industries in British India were located in the region which is now part of modern India.

During the initial dacade, due to its alliance with United States and capitalist block, Pakistan received financial aid for development, however it was not

sufficient for the growth of a large country like Pakistan. Acceleration in foreign aid got pace, once the powerful military of the country positioned itself as a key during Soviet occupation of neighbouring Afghanistan. However, due to pathetic social indicators, miserable infrastructure and poor governance, the country was never able to attract large sums of FDI as was the was in various Southeast Asian countries during last quarter of the 20th century. Low levels of export didn't generate the required reserves needed to import modern plant and machinery in order to commence an scale of industrialization proportion to the size of the country (Pakistan is 5^{th} most populous nation in the world). Therefore, China's foreign direct investment through CPEC is seen as a unique window which may finally get the country out of the vicious cycle and put it into the track of becoming another 'Asian Tiger'[12]. CPEC is a project under BRI executed by Chinese firms in the context of Pakistan, where socio-economic, demographic and intuitional conditions and approaches are quite different from China therefore these investments along with their associated opportunities are accompanied with their unique risks for both countries. More than half of energy power plants and transportation infrastructures were constructed successfully under CPEC so far. However, Pakistan is yet to travel a long way to fully realize the benefits of CPEC and the extent of the success of this initiative depends on the readiness of the local Pakistani institutions and mechanisms who are ultimately responsible for the domestication of BRI within their territorial jurisdiction.

[12]Asian Tigers or occasionally Asian Dragons is loosely referred to the fast growing East Asian countries of South Korea, Taiwan, Hong Kong and Singapore during last half of 20th century (Stiglitz, 1996).

Political leadership in other aspirant countries of Asia including Pakistan use this terminology during their political campaigns as an economic promise to convert their economies into Asian Tigers. For instance former Prime Minister of Pakistan Nawaz Sharif 'Talking to foreign media correspondents at his Raiwind residence, ... said PML-N (his political party) is determined to make Pakistan 'Asian tiger' during its tenure' (Business Recorder, May 14, 2013).

Chapter 3

ENERGY POWER PLANTS UNDER CPEC

3.1 Introduction

This chapter shall discuss three selected electricity generating power plants constructed under China-Pakistan Economic Corridor (CPEC) in order to bring forth the nature and the mechanism of CPEC execution in the power sector of the country, the sector that received largest share of Belt & Road Initiative (BRI) projects within Pakistan. As discussed in chapter two, the proportion of CPEC investments inflows into the construction of power plants comprised approximately 70% of the total investments under CPEC. Overall number of power plants projects under CPEC are 21, out of which 14 of these projects are already completed, 2 are under construction and 5 are under consideration for upcoming future. The purpose of this chapter is to present an analysis of the three largest coal-fired power plants initially through a simple factual description, relevant cost structure, quantity of electricity production, role in filling the electricity shortfall and their wider economic gains to the economy. While doing so I shall also elaborate about the investors undertaking these projects and their financial considerations. This chapter will further delve down into the prevailing issues in power sector in order to find out potential challenges grown out of the domestic institutional and infrastructural constraints of the country.

3.2 Overview of Pakistan's Power Sector

3.2.1 Energy Supply and Demand in Pakistan

Electricity production involves both public and private entities in Pakistan. At the time of the birth of the country in 1947, the total electricity generation capacity of the country was 69 Megawatt (MW). By 1948, the electricity production from power plants reached at 110 MW, where 70% of it was generated by public utilities and rest was produced by independent power plants (Pakistan Bureau of Statistics, 2022). The most striking characteristic of that era was the discrepancy among the east and west Pakistan in their respective contribution through electricity utilities in the production where East Pakistan's share was 9% and West Pakistan's was 91% (Japan International Cooperation Agency, n.d). Construction of various power plants began during 1950s. By the end of the first decade after the country's creation in 1958, *Water & Power Development Authority* (WAPDA) was established which resulted in the increase in electricity production upto 366 MW by 1960 (Pakistan Bureau of Statistics, 2022).

In the following decade, country witnessed a persistently high economic growth and a massive rise in the production of agricultural commodities. Resulting from Indus Waters Treaty of 1960[1] , Pakistan gained substantial financial inflow from India, that was channeled for the construction of two large dams, for permitting India to divert the direction and entitling India the use of three eastern rivers which previously irrigated lands in Pakistan while three western rivers still kept flowing into Pakistan's territoty (Institution of Civil Engineers, n.d).

The construction of Mangla Dam has consequently contributed in the ascend of hydropower therefore installed capacity by 1970 increased to 1331MW (Javaid et al., 2011). Construction of Tarbela Dam, the largest in the country, was completed by 1976, therefore by 1980s installed electricity capacity augmented to 3000 MW (Kamran et al., 2019). Similarly Pakistan, though at a small scale, also started generating electricity through nuclear sources. By the commencement of 1990s, the installed capacity increased further to 7000 MW and due to the introduction of various independent power producers

[1]All six major rivers flowed into Pakistan originate in China's Tibet and their headworks are in Indian Kashmir. After partition of British India in 1947, two countries reached at an agreement supervised by The World Bank in 1960 allowing India to divert and use three of those rivers. In return to this concession, India agreed to pay a sum of Pound Sterling 62,060,000 in ten annual installments starting from Novermber 1960 (United Nations – Treaty Series, 1962).

in later half of 1990s, the total capacity climbed to 17500 MW by 2005. At the time of the beginning of energy crisis in 2007, this number increased further up to 19,670MW. Since 2007 the total electricity capacity got more than double as it ended up to 40,606 MW by 2021 (Pakistan Bureau of Statistics, 2022). This phenomenal increase was mainly contributed by CPEC power plants through generation of 13,048 MW out of 20,930 MW, which were added during that 14 year time period (CPEC Secretariat, 2022).

3.2.2 Electricity Generation Prior to Launching of CPEC

Electricity has never been accessible to all parts of the Pakistan, major urban centers and smaller towns across the country were only connected by first decade of the present century to various electricity grids that are responsible for the transmission of electricity. The disequilibrium among supply and demand of electricity, which commenced since mid-1980s culminated during second half of the first decade of 21st century. This gap was suppressed in mid-1990s by permitting large number of private power producers to generate electricity as independent power producers (Ali & Beg, 2007).

The situation started worsening in 2007 when the difference among supply and demand started widening mainly due to failure in keeping the pace of investment in electricity generation since mid 1990s while expanding the geographic reach of electrification to vast rural areas. In the immediate years prior to the launching of CPEC that is by 2011, the demand within the existing infrastructure peaked to 14,475MW while supply laid at 9,565MW causing a shortage of roughly 5000MW. The situation was extremely worse in rural areas of the country where duration of electricity blackout reached to 20 hours during a day. Cities were also not an exception as many neighborhoods within the cities experienced up to 14 hours electricity blackouts. The situation kept deteriorating further as by 2012 the demand augmented further to 15,000MW and in contrary supply reduced to 9,000 MW amplified the gap to 6000MW (Kessides, 2013).

Major and constant electricity blackouts over a several span of years threatened both social fabrics and the economic progress of the country. Large urban centers in the country are located in a hot climate zone where temperatures remain above 40 degree Celsius during summer making the living conditions unbearable without electricity. Similarly, the slowdown in industrial production has consequences in the

form of ascending unemployment raising the question of political legitimacy of the political regime and the military-bureaucratic establishment of the country (Javed et al., 2021).

Protests against long duration blackouts on several occasions turned into violence resulting in burning down the offices of electricity companies and beating their officials. During 2013, even homes of government ministers were attacked by protestors. Severity of the issue can be gauged by an statement issued by minister for water and power considering the electricity crisis to be a matter of national security (Kugelman, 2013). The shortage of electricity caused the plight of the textile industry from Pakistan to Bangladesh, considering that textile sector is one of the largest employer in Pakistan generating 50% of the export earnings for the country and 40% of the overall manufacturing related jobs (Kessides, 2013).

The origin of Pakistan's electricity crisis in the regions which had access to electricity can be traced back to 1970s when a large scale industrialization began, and it requires increasing supply of electricity. This era also shown an improvement in the per capita income of Pakistani expatriate workers resulting from the construction boom in neighboring oil rich Middle Eastern countries, that boosted the use of electronic appliances at households (Burki, 1974). However, the construction of two large water reservoirs of Mangla Dam and Tarbela Dam and their associated hydal power delayed the discrepancy among supply and demand for yet another decade (Rasheed & Ahmad, 2022).

Another significant reason was the confinement of overall level of electrification to few large metropolitans and townships of the country. During 1980s the economic growth rate remained 6.6% per annum due to several reasons including but not limited to enhanced foreign remittances, foreign aid and loans as a reward for being a western ally against Soviet invasion of neighboring Afghanistan and returns from large scale industrialization that were laid down in the previous regime during 1970s (Zaidi, 2015). This booming economic growth along with a persistent and rapid rise in population and urbanization increased the demand for electricity further. This enhanced demand was not simultaneously accompanied by an appropriate expansion in electricity infrastructure as was done in 1960s and 1970s by constructing large hydropower stations and expanding further thermal power plants. Therefore, by mid 1980s the gap between production and consumption of electricity started rising (Ullah, 2013). The government

response was too little and too late. Rather than 1960s and 1970s style publicly funded investments, the government in 1994 devised a new power policy that paved the way for private sector to build independent power plants (Ali & Beg, 2007).

At the start of the previous decade in 2011, there were 37 notable power plants across the country with the installed capacity to generate 20,921 MW of electricity. These power plants were predominantly thermal based as those were 31 constituting 83% of the total number with the capacity of 13978 MW. Out of these 29 were oil-fired and gas-fired and only 2 power plants were coal-fired. All of these power plants were located at the eastern provinces of Punjab and Sindh. There were also 6 hydro-based power plants with the capacity of 6589 MW and 2 nuclear power plants possessing the installed capacity of 462 MW (Guangwei et al., 2014).

3.2.3 Electricity Industry Structure in Pakistan

Traditionally in Pakistan, the electricity generation was managed by three public organizations that is *Water and Power Development Authority* (WAPDA), *Karachi Electricity Supply Company* (KESC), and *Pakistan Atomic Energy Commission* (PAEC). Since 1994, private entities were allowed to construct power plants and to sell their generated electricity at market as a result of change in government policy. These private entities are called as *Independent Private Producers* (IPPs). Since 1958, Government of Pakistan established WAPDA that was responsible for managing affairs related to water and power industries. Later in 2007 due to aggravating crisis, the division occurred in WAPDA and two new entities were formed that is WAPDA and *Pakistan Electric Power Company* (PEPCO).

Recent role of "renewed" WAPDA was confined to water and hydropower only. Role of PEPCO was to restructure the old WAPDA into three categories generation, distribution and transmission of electricity. For this purpose 4 generation companies (GENCOs), 8 distribution companies (DISCOs) and 1 transmission company *National Transmission & Dispatch Company* (NTDC) were established. Tariff for electricity and issuing licenses to GENCOs, DISCOs and NTDC are issued by a separate entity called *National Electric Power Regulatory Authority* (NEPRA). Some functions such as purchasing electricity power from GENCOs and selling it to DISCOs is assigned

to a newly formed state-owned enterprise *Central Power Purchasing Agecy* (CPPA-G) since 2015 (Pakistan Credit Rating Agency, 2021).

3.3 Electricity Power Plants under CPEC

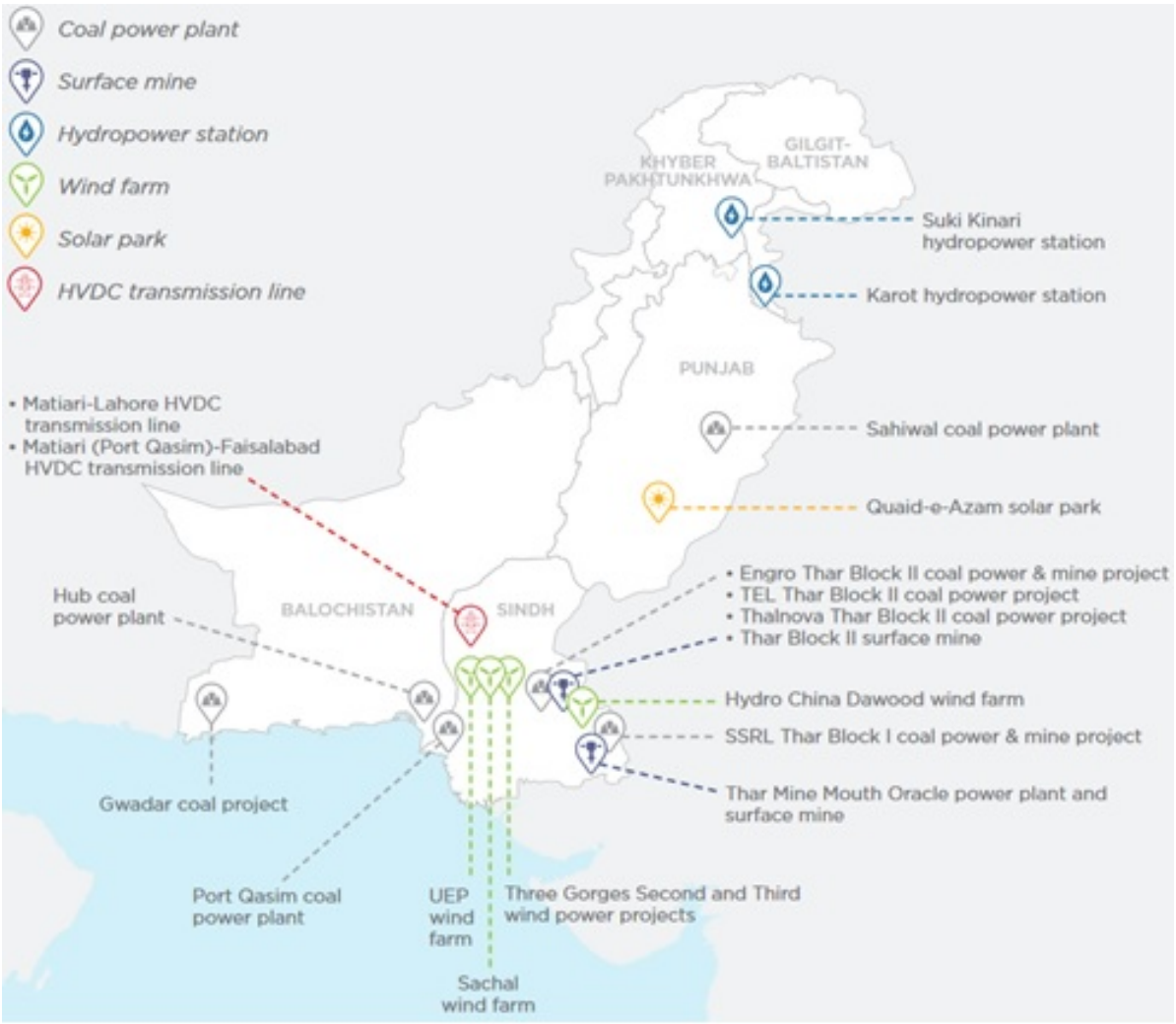
3.3.1 CPEC Power Plants

The available data for CPEC actual and projected investments in energy sector by 2019 shown in Figure 3.1 below revealed total 14 electricity power producing plants, one electricity transmission line and another one concerning the development of a coalmine. These power plants were intended to operate with coal, hydropower, wind and solar energy. Coal-fired power plants were leading the list with 7 followed by 4 wind-farms, 2 hydropower and 1 solar park. The completion of all these power plants will eventually enhance Pakistan's reliance on coal which is currently dominated by mostly imported oil and gas. Majority of these power plants concentrate in the southern province of Sindh which is the home of the largest deposits of coal. However as can be seen in the Figure 3.1 below there is an exception that one of the largest power plant, Sahiwal Coal Power Plant, is built in the province of Punjab, at a substantial distance from the coal mines (Downs, 2019).

According to CSIS Asia Project dataset released in 2020, there were total 35 energy related projects falling under CPEC. Majority of these investments goes to the province of Sindh with 12 projects within province and 2 other projects overlapping with the province of Punjab, 5 investments are intended to be carried out in Balochistan, same number of 5 is allocated for KPK, 7 investments are allocated for Punjab where it shares one project jointly with Sindh and Kashmir each, 3 outlays are for Gilgit-Baltistan and 2 are solely for Pakistani administered Kashmir and out of these two, it share one with the province of Punjab (Hillman et al., 2020).

According to the CPEC Secretariat website by 2022 number of electricity projects are 21, the discrepancy among CPEC Secretariat data listing 21 and CSIS data counting 35 is due to the recognition of smaller components of a larger project as a separate investment by CSIS, therefore resulting in a larger number at CSIS data set. Out of these total projects, 20 are intended to construct power plants and one is assigned to build an electricity transmission line. Sources of energy used for generated

Figure 3.1: CPEC Energy Projects by 2019



Source: Downs, Erica. (2019)

electricity is given in Table 3.1. As shown in the Table 3.1 below, the 9 coal based power plants comprised the largest share followed by 6 wind power plants, 4 hydro power plants and 1 solar power plant. Coal based power plants are leading in terms of electricity generation with 8220 MW followed by hydro power plants with 3428 MW. The least quantity produced, that is 400 MW, is through wind-farms (CPEC Secretariat, 2022).

For the purpose of analysis I selected three largest coal based power plants which are located in three different provinces (states) of Pakistan, namely Punjab, Sindh and Balochistan. All three projects were completed before 2020 and each of these is supposed to generate 1320 MW of electricity using coal as the source of energy. Before delving deeper into these projects, I shall draw a general sketch of each of these constructed

Table 3.1: Energy Mix of CPEC Power-Plants

Energy Source	Quantity of Power Plants	Electricity Production
Coal	9	8220MW
Hydro	4	3428MW
Solar	1	1000MW
Wind	6	400MW
Total	20	13048MW

Source: CPEC Secretariat https://cpec.gov.pk/progress-update

infrastructure. First power plant completed under CPEC is Sahiwal Coal-Fired Power Plant, located at the Sahiwal District in the province of Punjab. Total energy generation capacity of this plant is 1320 MW. Estimated cost of the project was US$1912.2 million. It was constructed by Huaneng Shandong Rui Group, a Chinese firm. Number of people employed during the construction phase were 3770 and during post-construction phase out of 1683 employees, the number of local people employed were 1033. The project got completed in October 2017 and is currently operational (CPEC Secretariat, 2022).

Second power plant called Port-Qasim Coal-Fired Power Plant built at Karachi in Sindh province. This was completed one year after the Sahiwal Plant in April 2018. Total energy generation capacity is same as 1320 megawatt. The plant was constructed by Port Qasim Electric Power Company (Private) Limited, a joint venture of Power China and Al-Mirqab Capital Qatar, respectively holding 51% and 49% shares. During the construction phase between 4000 to 5000 job opportunities were created and later on it sustained 1270 employees where 960 of them are locals and rest are foreigners. Total estimated cost is US$1912.2 million. The plant is currently operational (CPEC Secretariat, 2022; Chinese Embassy Islamabad, 2018).

Third plant is called China-Hub Coal Power Plant, located at district Hub in the province of Balochistan. The plant was built by a China Power Hub Generation Company (Private) Limited, a Chinese company. It was completed one year after Port-Qasim Plant in August 2019. Total estimated cost was US$1912.2 million. Total number of jobs produced during construction were 4200. This plant has created 1722 job opportunities where 749 of these employees are local. The plant is currently functional (CPEC Secretariat, 2022).

3.3.2 Rationale for Coal-Fired Power Plants

Government of Pakistan in response to deepening electricity crisis in 2013 introduced *"National Power Policy"* intended to reduce the widening gap between supply and demand within five-year term of the newly elected government (Government of Pakistan, 2013). As mentioned elsewhere that most of the electricity in Pakistan is produced through thermal power plants where principal sources were oil and gas. Due to limited and scarce oil resources, most of the Pakistan's requirement were met through imported oil which were becoming increasing expensive in international markets.

Gas reserves on the other hand were depleting at an accelerating rate as Pakistan is among one of the few countries where natural gas is supplied to end consumers at their homes through pipelines, in a similar fashion as water is supplied in various countries. This mode of supplying the gas to household users had exacerbated the pace of its depletion. Likewise, hydro-based power plants were not prioritized due to the longer duration that get consumed for its construction[2]. Government aimed to do something immediately and with an energy source that is available locally.

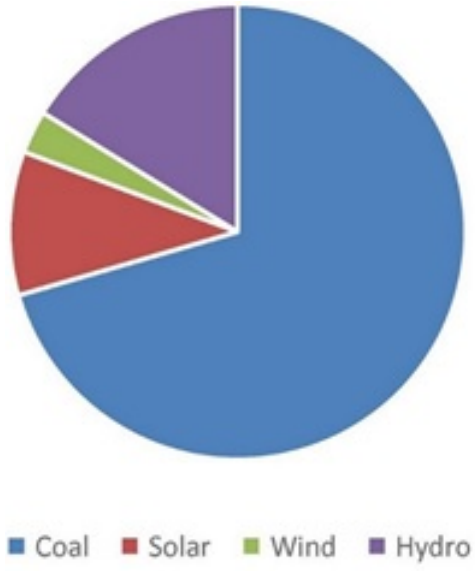
Considering that country has vast reserves of coal, the only hurdle to access these reserves is their remote location and absence of appropriate transportation and other technological infrastructure to extract coal and utilize it for electricity generation (Government of Pakistan, 2013; Bhandary & Gallagher, 2022). Pakistan's engagement with China to invest in coal power plants in the country came only after hesitation of Asian Development Bank to invest in new coal power plants, while it principally agreed to convert an oil-fired power plant to coal-fired. Similarly World Bank too agreed to build it under exceptional circumstances. It must be remember that China is not the only country constructing coal power plants abroad, other countries in Asia includes Japan and South Korea. However, it was China who agreed despite the political instability and falling financial position of Pakistan to undertake these initiatives (Bhandary & Gallagher, 2022).

With the introduction of CPEC in 2015, the projects which were prioritized to get complete earlier were mostly related to power plants. As the Figure 3.2 below

[2]In addition to the reasons mentioned above, Pakistan also approached multilateral institutions such as World Bank and Asian Development Bank to fund the proposed Diamer-Bhasha Dam in 2016 costing US$ 14 billion but failed to acquire the required financing.

shows that coal-fired power plants were leading the early harvest projects followed by hydropower and solar.

Figure 3.2: Composition of Electricity Power Plants 2018



Source: Bhandary & Gallagher, (2022)

Coal resources in Pakistan are estimated to be 176739 million tons in 2014 which includes the country among one of the largest coal-rich countries (World Energy Council, 2016). Similarly coal prices in international markets were also cheaper than oil prices, so importing coal considered to be less burdensome upon exchequer. Government of Pakistan raised the return on equity on those projects which intended to use local coal to promote power plants using indigenous fuel resources. For instance return on equity was 34.49% for Thar Coal Block 1 Power Generation Company, that uses coal from Thar region in Sindh province at south Pakistan followed by return of 30.65% for three other power plants extracting coal from mines in Thar area within the country. On the other hand, return on equity for power plants using imported coal was 27.20%, slightly less than those using indigenous coal resources (AidData, 2021). A major rationale for permitting construction of imported coal power plants as mentioned earlier was the lack of transportation infrastructure to coal mines in peripheries.

The absence of previous experience of Pakistani officials with renewable energy sources as well as scarcity of transmission lines and the high cost of building new transmission infrastructure that could connect regions that are suitable for producing solar and wind electricity further pushed the policy towards coal-fired power plants. It

was also relatively difficult to rapidly enhance the quantity of electricity production through other sources such as renewables and hydropower unlike coal. This is evidenced from the production of 624GWh in 2016 before the commencement of the operation of coal power plants to 15,5774 GWh in 2018 after the construction of few earlier coal power plants (Lin & Raza, 2020; Bhandary & Gallagher, 2022).

The government inclination to promote coal power plants is further evidenced from comparing the differences in return on equity of coal power plants versus renewables and hydropower power plants, where in the case of former it ranges between 27% to 34% and in the case of later is 17%. Pakistan's largest metropolitan area of Karachi and several other reasonable sized towns are located in Sothern regions while its hydropower power plants are located in Northern Pakistan as rivers flows from north and the hilly areas are better suited for construction of hydropower stations. However, this geographic distance from power plants to the centers of large populations contribute in the transmission and distribution losses that is estimated to be around 20 to 25%. This may also made government inclined towards encouraging construction of thermal power plants (Guangwei et al., 2014).

3.3.3 Sahiwal Coal-Fired Power Plant

Sahiwal Coal-Fired Power Plant is constructed at the neighborhood of Qadirabad, District Sahiwal, 150km away from the provincial capital of Punjab, the most populated province within Pakistan. The total capacity of the power plant to generate electricity is 1320MW after the completion of first phase. Accroding to some sources in a potential second phase there may be further expansion which may add further 1000MW in the capacity of the plant. The initial documentation for Sahiwal Coal-Fired Power Plant commenced in 2014 when a consortium of two Chinese firms Huaneng Shandong Power Generation Co., Ltd and Shandong Ruyi Technology Group Co., Ltd along their subsidiaries in Hong Kong applied to government of Pakistan for the establishment of this 2 x 660MW Coal-Fired Power Plant project. The initial call by the provincial government for the construction of the plant preceded the formal announcement of CPEC in 2014. Once CPEC was launched in 2015, this power plant was included among the 'Early Harvest' CPEC projects and was constructed during the initial phase of CPEC (CPEC Secretariat, 2022; AidData, 2021).

According to an study conducted by Institute of Strategic Studies Islamabad the rational for these plants to be based on coal is due to the availability and the low cost of coal, while 40% of power plants are sourced through coal globally (**rauf2020sahiwal**) . In the case of Pakistan to immediately resolve its power crisis, a major incentive is the shorter cycle to complete the construction of power plants. Coal-based plants usually complete within 2 to 3 years, therefore more suitable in this context. Some concerns were raised by various environmental groups due to the polluting potential resulting from coal-fired plants. However considering the fact that this is the first ever coal-based plant in the country and even after the completion of all such plants, share of coal-fired plants in the energy mix shall remain marginal, therefore Pakistan's overall environmental atmosphere may not get damage to the extent that it did in other parts of the globe (Rauf, 2020). This plant is also considered to be feasible from the geographic perspective as it is located at the industrial heartland of the country near Lahore, the second largest urban settlement in the country and not very far from the third largest city of Faisalabad, that hosts the textile sector of the country.

Operations and maintenance operator of the plant is the Shandong Huatai Electric Operations & Maintenance (Private) Limited. Coal utilized for the operation of the plant is imported by Huaneng Group Fuel Company Ltd through a coal supply contract from South Africa and Indonesia. I shall explain in a later section about the type of these coals. Most recent data shows the power plant generated the required electricity of 7,720GWh (Pakistan Credit Rating Agency Limited, 2021; Rauf, 2020).

Profile of the Investors

This investment at the Sahiwal Coal-Fired Power Plant was managed by a consortium of two Chinese firms, which are Huaneng Shandong Power Generation Co., Ltd and Shandong Ruyi Technology Group Co., Ltd. It is operated by Huaneng Shandong Ruyi (Pakistan) Energy (Private) Limited, a subsidiary of Huaneng Group. Here I shall draw a brief sketch of these two firms. China Huaneng Group Co., Ltd is among the most prominent and largest state owned companies in China dealing with electricity generation. In Pakistan this group constructed Sahiwal Coal-Fired Power Plant (China Huaneng, 2023).

For Shandong Ruyi Technology Group, her 50% ownership at Sahiwal Coal-Fired Power Plant is the most prominent among her investments in electricity generation that had generated CNY 700 million during fiscal year 2018-2019. In 2018 Huaneng Shandong Power Generation Co., Ltd expressed its interest to buy 50% share of Shandong Ruyi Technology Group Co., Ltd in Sahiwal Power Plant. However, Ruyi stated valuation of USD3.5 billion for the plant was considered very high by Huaneng. It must be considered that in 2015 at the initial phase of project execution 50% of share in the power plant was bought by Ruyi at US$ 180 million (Debtwire, 2019; Ruyi, 2023).

Financing of Sahiwal Coal-Fired Power Plant

Total cost of the project was US$ 1.8 billion, and this financing had two components. A fraction of it equals to US$ 360 million was the capital jointed invested by Huaneng Group and Ruyi Group while the difference of US$ 1.44 billion is debt financing through Industrial and Commercial Bank of China (ICBC). By 2022 the loan repayment equal to 27% of the total debt has been successfully made. Chinese government made efforts in order to facilitate Chinese banks and other financial institutions intended to invest in a volatile country like Pakistan. In order to smoothen the execution of CPEC, China Development Bank founded Energy Project Leadership Group that devise amicable policies. Limited financial capacity of Chinese enterprises could become a hindrance to invest in Pakistan, had those were not funded by state-owned Chinese banks (AidData, 2021; CPEC Secretariat, 2022).

Huaneng Shandong Ruyi (Pak) Energy (Pvt) Ltd operates the Sahiwal Power Plant and a Pakistan state-owned enterprise Central Power Purchasing Agency (CPPA-G) is assigned the responsibility to purchase the generated electricity from the power plant at a 30-year Power Purchase Agreement which is also the term of the project. This agreement assure sovereign guarantee, as long as the power plant is generating the required output and adhering to the obligated performance by matching the defined criteria. Shandong Huatai Electric Operations & Maintenance (Private) Limited is appointed as the O&M operator for the plant. The plant operates on imported coal which is sourced through China Huaneng Group Fuel Company Ltd under the coal supply contract (AidData, 2021, Pakistan Credit Rating Agency, 2021).

Financial statements of the Huaneng Shandong Ruyi (Pakistan) Energy Private Limited from 2018 till 2022 reveals a constantly increasing sales and net profit from 2018 until 2021. Only in 2022 the net income reduced due to the an increase in the amount allocated for the cost of financing and for non-operating income, however there was a significant 32% increase in the sales of the company compare to 2021. Company also generated positive net cash amount for all years since its operation commenced except in 2020, when large amount of cash channelled to pay for financing activities. Total sales generated in 2022 was PKR. 194,171 million (equivalent to US$ 698 million) and the net income for the same period was PKR 20,970 million (equivalent to US$ 75 million) and the company's net cash flow of PKR 10,816 million (equivalent to US$ 38 million) indicated soundness in its financial liquidity. Likewise net assets of the company increased by more than double between 2019 and 2022. If analyzed in context of company's other investment abroad such as in Singapore where it holds a whole subsidiary, the financial returns from Pakistan are impressive (Pakistan Credit Rating Agency, 2021).

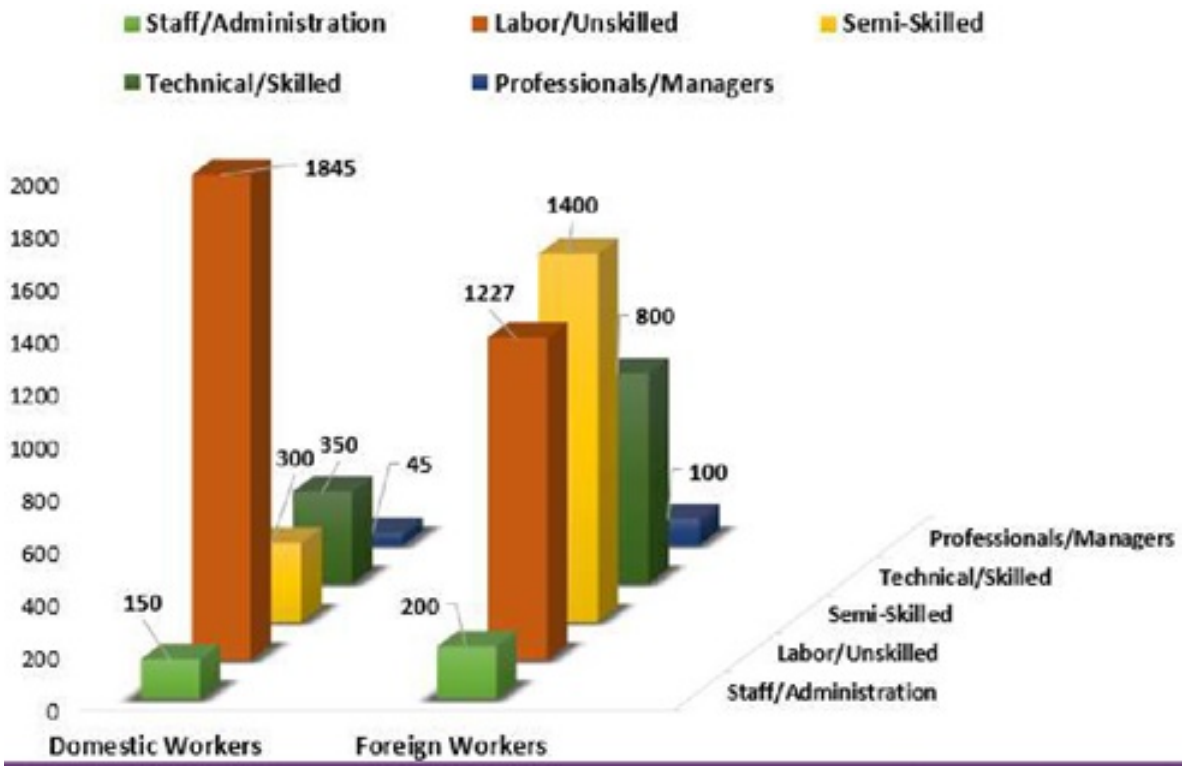
Situation was not much different in the preceding year of 2021 as the net income of PKR 26,618 million (US$ 95 million) was recorded. However, the concerning issue is the increasing amount of outstanding receivables from Central Power Purchasing Agency (CPPA-G), state-owned enterprise of Pakistan, equals to PKR 100,361 million (US$ 357 million) in 2021 and which only increased slightly further in 2022 (Pakistan Credit Rating Agency, 2021).

Gains from Sahiwal Coal-Fired Power Plant

The duration of power outages which used to be between around 6 hours to 10 hours per day on average has greatly improved and reduced to 2 hours per day. The capacity of Sahiwal Power Plant has the capacity to generate 9 billion KV Hours, that is suffice to supply energy to 4 million households, and considering the average size of household to be 5, it equals to 20 million population ("Belt and Road", 2023). It was estimated to fill one quarter of the electricity shortfall nationally. In terms of megawatt the installed capacity of this power plant comprised of 3% to 6% of the total installed capacity in the country.

According to an statement released by Chinese Embassy more than 3,000 local labor were hired during the construction phase of power plant. Similarly more than 200 Pakistani engineers were recruited and subsequently sent to China in order to impart special training to them so that they can manage operations and maintenance of the power plant. Currently more than 60% workers at the facility are local recruits from Pakistan. Last but not the least, the Chinese company established a vocational school costing US$ 3.2 million to inculcate the required skills in the local talent (Xin, 2018). Figure 3.3 below shows the mix of employees at the Sahiwal power plant during the construction phase. Except for Unskilled Labor where local workers outnumbered their foreign counterparts, in all other categories the foreign workers were greater in number. The largest discrepancy between these two groups is in the category of semi-skilled where 1400 workers were of foreign origin and 300 were recruited locally.

Figure 3.3: Composition of Domestic and Foreign Workers during Construction 2016-2017

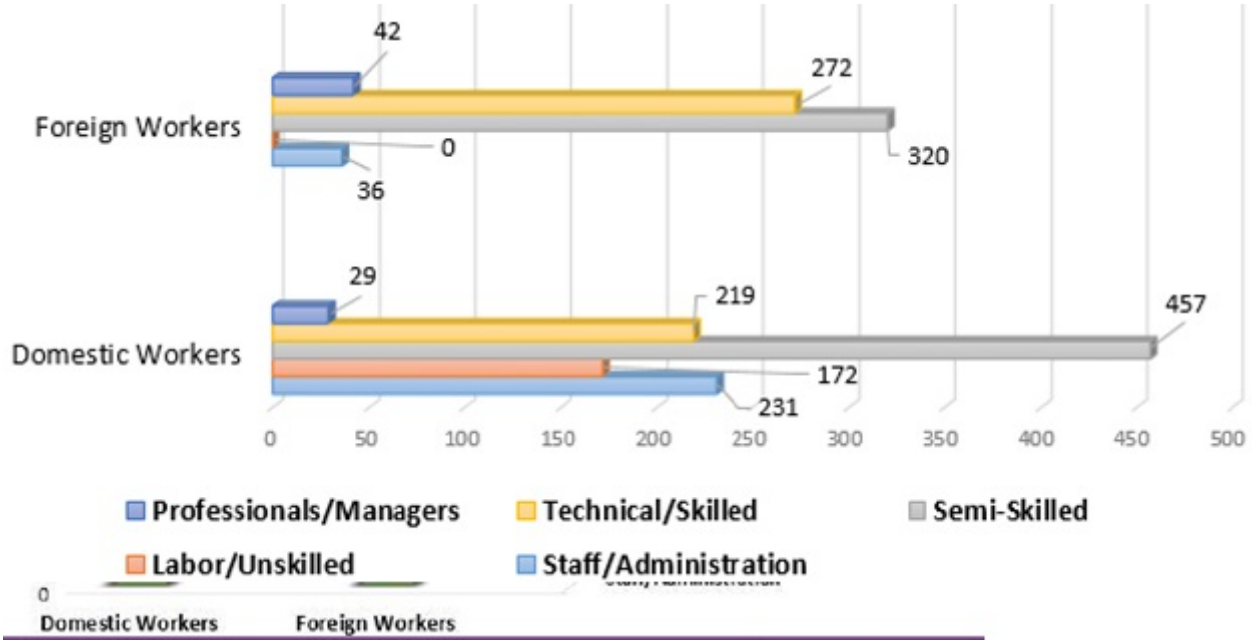


Source: Center of Excellence for CPEC. Zia, Muzammil & Waqar Shujaa. (2018)

However soon after the completion of the power plant construction within the first year of its operation number of domestic semi-skilled employees exceeded the foreign workers as shown in Figure 3.4 below. At this stage the foreign unskilled workers were completely non-existent and there was a sharpe decline in local non-skilled worker which is

understandable as the project was already constructed. Similarly general administration and staff is predominantly local Pakistanis and the gap in numbers among locals and foreign workers greatly reduced in both managerial and technical positions.

Figure 3.4: Composition of Domestic and Foreign Workers during Operation (2018)



Source: Center of Excellence for CPEC. Zia, Muzammil & Waqar Shujaa. (2018)

During the initial three years of its commercial operations, the tax revenue collected by tax authorities in Pakistan from the power plant equals to US$ 309.39 million. Application of supercritical technology in the power plant enable it to use less quantity of coal to produce the targeted electricity. Currently due to the unavailability of high quality coal, that is less damaging to environment after being burnt, in Pakistan, the coal used for this power plant is imported. The plant was also constructed in a record 22 months period and started operation in 2017, to cater the immediate needs during worsening energy crisis ("Eco-friendly coal-fired plant", 2020; Zia & Waqar, 2018).

3.3.4 Port Qasim Karachi Coal-Fired Power Plant

In southern Pakistan, within the periphery of Karachi, the largest urban settlement of the country in the province of Sindh, a 1320MW power plant called Pakistan Port Qasim Power Project is constructed. Before the commencement of the project in 2015 a company was established with the name of Port Qasim Electric Power Company (Pvt.) Limited (PQEPCPL) in 2014 primarily for the objective to execute,

operate and finance this power plant. It is a coal-fuelled power plant and the work commenced in 2015 while it was completed and became operational by 2018. It was initially estimated that the generated power will be sufficient to provide electricity between 3 to 4 million households or roughly 20 million people (CPEC Secretariat, 2022; "Port Qasim Coal-Fired", 2020).

The plant is located near the coast, therefore the project not only include the construction of two supercritical coal-fired units, but it had also built a jetty used for unloading the imported coal that is consumed during plant operation. The total estimated value of this project is US$ 1.91 billion. The power plant uses coal for the generation of electricity. Power plant is connected to national grid via 180 km long transmission line. According to data released by CPEC Secretariat out of total 1270 jobs that were created, 960 employees were local Pakistanis. During construction phase 4000 workers were recruited. This project got completed one year after Sahiwal power plant in 2018. Due to its construction in the initial phase of CPEC, this project was also part of the "Early Harvest" program that included investments that were prioritized (CPEC Secretariat, 2022).

Investors of the Project

The equity investments in the project is by a consortium called Port Qasim Energy Holding, comprised of a Chinese and a Qatari company. These are Power Construction Corporation of China and Al-Mirqabl Capital from Qatar. A subsidiary of Power Construction Corporation of China, Sinohydro Resources Limited is assigned the task for completion of the project. The project function on Build-Own-Operate basis, where Government of Pakistan sold out the right of construction and operation of the designated power plant to the foreign entities for a certain period of time who assumed the responsibility for both construction and later operation (AidData, 2021). Following section presents a brief overview of these firms.

Power Construction Corporation of China

Power Construction Corporation of China is a completely state-owned enterprise of China. This company is managed by a commission by State Council of China which is that main administrative authority within the country. The company is

currently involved in construction of 7 large projects, among these 6 are entirely related to electricity production and 1 is a mega dam which alongside storing fresh river water shall also generate electricity. Company entered into Pakistani market almost two decades prior to the commencement of CPEC back in 1987. However, it's pace got accelerated after the formal launch of CPEC in 2015. Port Qasim Karachi Coal-Fired Power Plant is one of the earliest projects that were completed. The subsidiary of Power China that handles and manages the power plant is Sinohydro Resources Ltd. It is involved in the construction of 486 international projects across 72 countries around the globe (CPEC Secretariat, 2022; Power China, 2022).

Al-Mirqab Capital from Qatar

Al-Mirqab Capital is a business group that extends into various businesses and is primarily owned by former Prime Minister of Qatar and his family in a private capacity. Its business interests lies in various sectors. The share of Al-Mirqab Capital in the Port-Qasim Power Plant is 49% while rest are with Power Construction China. After the completion of the construction of power plant, the chairman of the group expressed their interest to get involved in further joint ventures with Chinese firms in building projects within Pakistan (AidData, 2021 ; "PM opens over 1,300", 2017).

Financing of Port Qasim Power Plant Karachi

Major funding agency for the power plant was Export-Import Bank of China (China Eximbank) and the amount committed for the project was estimated to be US$ 1.79 billion. Contract between China Eximbank and Port Qasim Electric Power Company (Pvt.) Limited (PQEPCPL) was signed in October 2015 where a loan of approximately US$ 1.56 billion was extended. Maturity period for this loan is 14 years with an interest rate of 6-month LIBOR in addition of 3.7% margin which is equal o 4.105%. The grace period for delaying the loan repayment is 4 years. Government of Pakistan offered a sovereign guarantee on this loan, meaning that if PQEPCPL failed to repay the amount, then the Government of Pakistan shall take over the obligation to ensure the loan repayment. Moreover, the investors are also guaranteed to receive 27.2% returns on their equity investment.

Similarly in order to encourage Chinese enterprises to invest abroad China Export & Credit Insurance Corporation (SINOSURE) also covered this loan by extending a credit insurance. Dataset from AidData (2021) shows that 51% of the stakes of PQEPCPL are held by Sinohydro Resources Ltd. While the rest are with Al-Mirqab Capital (AMC) of Qatar. Total cost of the project was US$ 2.1 billion, which comprised on 75% debt and 25% equity. The debt of approximately US$ 1.56 billion as mentioned above was financed through China Eximbank and the remaining US$ 521 million was an equity from Sinohydro Resources Ltd., China and Al-Mirqab Capital (AMC) of Qatar (AidData, 2021).

Further contracts were awarded by the Chinese firm to various subcontractor such as to Harbin Elecrtic for the supply for boilers and to Dongfang Electric Corporation to manufacture generators. Similarly three Chinese firms EPCO III Electric Power Construction (SEPCO III) and Hebei Electric Power Design and Research Institute (HBED) were assigned the task to conduct site selection and survey. Engineering and construction of the jetty for unloading of coal at harbor was tendered to Sinohydro Harbour. Management consultancy for functioning of jetty was allotted to CCCC Second Harbor Consultants China (AidData, 2021).

Challenges of Port Qasim Power Plant Karachi

One year after being operational, concerns were raised by Transparency International Pakistan that PQEPCPL and National Electric Power Regulatory Authority (NEPRA) were involved in fake bidding practices for PQEPCPL project. Therefore, the cost of project was overestimated. Certain contracts were also awarded to the close partners due to absence of a transparent bidding process. Similarly certain cheaper tasks were intentional priced high only to elevate the total cost ("Rs 51.7 billion benefit", 2016).

Since 2022, the Pakistani Rupee started losing its value rapidly, inciting the government to take strict measures to prevent it from further declining. These measures among other instruments included restrictions on payment to certain imports. Consequently, it affected the payment for imported coal that is used in coal-fired power plants. Chinese Embassy wrote a letter to Minister for Energy mentioning that "CPEC

coal fired power plants now face the difficulty of buying coal due to the foreign exchange restriction" ("Chinese embassy writes", 2023).

Apart from the issues pertaining to currency devaluation, another major problem was the failure of Central Power Purchasing Agency (CPPA) for making the due payments to the power plant. The arrears by first quarter of 2022 amounted to US$ 483 million. In a similar fashion the company that operate the plant accumulated the dues amounting US$ 140 million to be paid to foreign coal suppliers. During the first half of 2022, supply of foreign coal was halted resulting from increasing non-payment. The currency crisis only exacerbate the issue, as the collection of electricity bills are made in local Pakistani currency that need to be reconverted into an international currency. The loses due to currency devaluation were estimated to be US$ 153 million. This situation led to further setbacks as SINOSURE also declined to extend its insurance facility for further projects in Pakistan unless some resolution is reached between CPPA Pakistan and Chinese independent power producers (AidData, 2021).

3.3.5 China Hub Coal Power Project, Hub Balochistan

The third coal-fired power plant with the same capacity of 1320MW is constructed in the Hub, Balochistan. Though politically the district is part of Balochistan, however it is located 45 kilometer away from Karachi, the largest city and the commercial hub of Pakistan in the province of Sindh. It is also located at a coastal town; this destination was carefully selected as it makes the transportation cost of importing foreign coal relatively cheaper due to its proximity to Indian Ocean (CPEC Secretariat, 2022). The imported coal is of two types which are NAR4700 from Indonesia and RB-3 from South Africa. These types are globally considered among high quality due to their low moisture and low ash content in addition to their ability to catch fire at a lower temperature (NEPRA, 2016).

It was estimated that the project shall generate electricity sufficient for 4 million households in Pakistan. Generated electricity under a power purchase agreement will be bought by Central Power Purchasing Agency (Guarantee) Limited, Pakistan for 30 a period of 30 years. Total jobs created from this power plant are 1722, where 749 employees were local. In terms of ratio among local to foreigner, this power plant showed the least number of local employees comparing to the other two. However,

during the construction phase total 4200 workers got employed. The project got completed during the second half of 2019. According to CPEC Secretariat US$ 1.9 billion was the estimated cost of the construction of the project. Funding agency for the project was state-owned China Development Bank (CDB) (CPEC Secretariat, 2022).

Initial work commenced in 2017 when China Power Hub Generation Company (Pvt.) Ltd., (CPHGC) signed a contract worth USD 1.49 billion with a consortium of banks from China made up of China Development Bank (CDB), the Export-Import Bank of China (China Eximbank), the Industrial and Commercial Bank of China (ICBC), China Construction Bank Corporation (CCB), and Bank of Communications Co. Limited (BOCOM). With regard to the engineering and construction aspects, two Chines firms Northwest Electric Power Design Institute Co. Ltd. (NWEPDI) and Tianjin Electric Power Construction Company Limited were provided the contract to design and execute the construction of the whole project (AidData, 2021; Pakistan Credit Rating Agency, 2021).

CPHGC also went into contract with a consortium consisting of several Chinese firms for the operation and maintenance of the project. These firms are CEEC Tianjin (Pakistan) Electric Power Construction (Private) Limited, China Energy Engineering Group, Tianjin Electric Power Construction Company Limited, and China Energy Engineering Group Science and Technology Development Company Limited. CPHGC acquired the license from Pakistan's National Electric Power Regulatory Authority (NEPRA) to generate electricity for 30 years, beginning from the date of commercial commencement of the power plant production. This project is not only confined to the construction of a power plant, but it also include the construction of a jetty near Gaddani in Balochistan in order to facilitate the unloading of imported coal through ships (AidData, 2021).

Investors of the Project

A company with the name of China Power Hub Generation Company (Pvt.) Ltd. (CPHGC) was established by China Power International Holding Ltd (CPIH) and the Hub Power Company Limited (HUBCO) to manage and finance the power plant. Following section shall present a brief profile of these two firms.

China Power International Holding Ltd (CPIH)

China Power International Holding Ltd (CPIH) is a subsidiary of State Power Investment Corporation (SPIC), who owned it totally. Initially it was incorporated in 1994 at then British Hong Kong in order to have access to international capital markets for the purpose of acquiring finances for the China's ministry of power. Its parent company is among the elitist 5 electricity generation firms within China. CPIH has a true international presence including Pakistan, Vietnam, Brazil, Chile, Australia, Mexico, Kazakhstan and Germany. The company operates power plants with a diversity of energy sources ranging from coal-fired, hydropower to nuclear power, and renewable. However, in its initial phase the company was mainly involved in construction of coal-fired power plants. Total megawatt installed by company upto 2022 was 31,599MW (China Power Internaional, 2021; IRAsia, 2022).

Hub Power Company Limited (HUBCO)

Hub Power Company Limited (HUBCO) is an independent power producer in Pakistan. It is the largest IPP in the country. There are four projects of HUBCO as part of CPEC. Its previous power plant at Hub area is oil-fired. In fact prior to recently coal-fired power plant under CPEC, there was no power plant fuelled by coal within Pakistan. HUBCO also expanded its business to mining, oil and gas sector. HUBCO is a private Pakistani enterprise, which was established in early 1990s when a new power policy was introduced that permitted private sector to produce electricity and sells it to the governmental agency that was responsible for its transmission to final consumers (HUBCO, 2022).

Financing of China Power Hub Generation Company (Pvt.) Ltd

A loan amounting US$ 1.496 billion of was borrowed from the consortium of above mentioned five Chinese banks by CPHGC, with the repayment period of 14 years including a 4 year grace period. There is no data available to trace the individual contribution of each bank in this loan. The interest rate is 6 month LIBOR in addition to a margin of 4.5% which equals it to 6.042%. As with other two power plants, this one too secured a buyer's credit insurance from SINOSURE. In order to meet the requirement for collateral from CDB, various items such as shares, assets, electricity payment receivables

as well as the SINOSURE insurance policy of CPHGC were kept as sources of collateral. The entire cost of the project as mentioned in previous section was US$ 1.995 billion which is partitioned into 75% debt and 25% equity financing. The equity financing is contributed by the joint venture of China Power International Holding Ltd (CPIH) and the Hub Power Company Limited (HUBCO). The stakes in the joint venture are divided among these two by 76% for CPIH and 24% for HUBCO. The return on equity in US dollar terms guaranteed by government of Pakistan is set at 27.2% (AidData, 2021).

An increasing trend can be seen in the financial statements of the company between 2019 and 2022 when net assets, sales and net incomes shows a consistent and rapid increase. The project first positive net income of the project was reported on the accounting year ending 30 September 2019 which was PKR 2773 million (equivalent to US$ 9.8 million), during the first year of its operation. During next three years, there was a multifold increase in both its sales and its net income as recorded in 2022, the former was PKR 190664 million (equivalent to US$ 685 million) and later was 46552 million (equivalent to US$ 167 million). Cash flows from its operations doubled in 2022 compared to previous year. Likewise the availability of net cash of PKR 20864 million (equivalent to US$ 75 million) evidenced the liquid strength of the firm (Pakistan Credit Rating Agency, 2021).

Challenges to HUBCO

The constant decline in Pakistan's economy as discussed in Chapter 1 of this thesis, specifically since 2017 also affected the payments to CPHGC. Government of Pakistan through its power purchasing agency mounted up arrears of US$ 379 million by end of first half of 2022 which was supposed to be paid to CPHGC. This delayed in payment further affected the ability of CPHGC to acquire imported coal necessary to operate the power plant. In addition to this, several other factors such as a surge in coal prices globally as well the restrictions by central bank of Pakistan to release US dollars for import payment also influenced the functions of the power plant in 2022 (AidData, 2021).

3.4 Challenges to Power Sector in Pakistan

Power sector in Pakistan has never been at complete ease, however in past few decades its challenges surmounted to new heights. The issues pertaining to the sector includes but not limited to electricity blackouts and outages in both large urban centers and peripheries, transmission losses, electricity theft, accumulating "circular debt", obstacles in recovery of electricity bill payments and the rising prices of electricity to final consumers. In this section, I shall briefly explain these existing challenges and in the next section shall provide an analysis on how CPEC investments contributed to resolve some of these issues. Furthermore, the local institutional weaknesses and deficiencies shall also be highlighted in the final section, which barred the country from reaping the full potential benefits from CPEC projects in power plants.

3.4.1 Electricity Blackouts and Outages

The uninterrupted supply of electricity became essential for both residential and commercial purposes in any modern society. Unfortunately, in Pakistan since mid-1980s, the demand for electricity outpaced the supply side of electricity, mainly resulting from rapid urbanization. Consequently, large urban settlements as well as smaller towns and rural communities both suffer from longer- duration electricity outages. It is also not very uncommon to see frequent blackouts as well, especially in smaller towns, which is also not very rare for bigger cities. It was estimated in 2011, few years earlier than CPEC launch, that the supply was falling behind 32% of the electricity demand of the country. Estimated costs to economy resulting from electricity blackouts and outages were equal to 6.7% of the country's GDP. Likewise the economic growth rate of Pakistan remained 2% below than its true potential, had the electricity was available uninterruptedly. Most recent data from fiscal year 2019-2020 reveals that there were 2321 planned and 491 power outages in the country in a single year (Aslam et al, 2021; Pasha & Saleem, 2013).

3.4.2 Transmission and distribution losses

In Pakistan transmission and distribution losses are oftern referred to as line losses. Such losses occurs when the quantity of electricity produced in greater than the actual quantity delivered to final consumers. The difference between production and

ultimate delivery is lost during the transmission and distribution. The global average for such losses is 8%, while the regulatory authority in Pakistan permitted 13.41% losses in 2022, however he actual losses were 17.13% ("Line losses", 2022; "T&D losses", 2022). In the decade between 2000 and 2010 these losses remained between 20% to 25% meaning that approximately quarter of the total production were lost during distribution. There also exists variations among 10 electricity distribution companies operating in different parts of the country. Transmission losses for PESCO and SEPCO are 38.9% and 36.3%. While two companies closer to the capital city of Islamabad managed to kept these losses below 10%. These differences also exists within the same electricity distribution company as from certain areas of their jurisdiction transmission losses are greater, such as Karachi Electric that supply electricity to the largest metropolitan area occurs more transmission losses in impoverished neighborhoods (Ali & Younas, n.d).

3.4.3 Electricity theft

The phenomenon of electricity theft is relatively more prevalent in larger settlements outside Punjab. There are various ways adapted for stealing electricity. In certain areas wires are hooked with main transmission cables unlawfully in order to access the electricity. Similarly with the help of distribution company officials electricity meters are tampered to show false figures. It is hard to find an exact figure for such stealing but the widespread theft in various localities is well evidenced (Ali & Younas, n.d).

3.4.4 Circular Debt

Inefficiencies and mismanagement of electricity distribution companies in Pakistan brought the power sector in a position where the massive shortfall among cash inflows and cash outflows is exponentially increasing. The accumulation of ever increasing shortage resulting from mismatch between cash inflows and outflows is termed as 'Circular Debt'. In practical terms 'Circular Debt' arises when Central Power Purchasing Authority (CPPA), the governmental body responsible for purchasing the electricity from electricity generation companies (GENCOs), failed to receive the due payments from electricity distribution companies (DISCOs) because of inadequate cash collection made by DISCOs from final consumers as well as due to loss of electricity

during transmission. Consequently, CPPA is unable to make full payments to electricity producers which are governmental owned GENCOS and privately owned Independent Power Producers (IPPs). Likewise, those electricity producing companies fail to pay full payments to fuel suppliers and finally fuel suppliers also are unable to make full payments to oil refineries and to their foreign suppliers as most of the fuel used in Pakistan's power sector is imported from abroad. In response to receiving partial payments, the refineries and imported fuel suppliers cut the supply of fuel, meaning that power generation companies GENCOs and IPPs receive less fuel and those are left with no choice except to operate power plants at a lesser capacity. Therefore, despite having the installed capacity of generating electricity sufficient to fulfill the demand of the country, those generation companies generate less than the required demand.

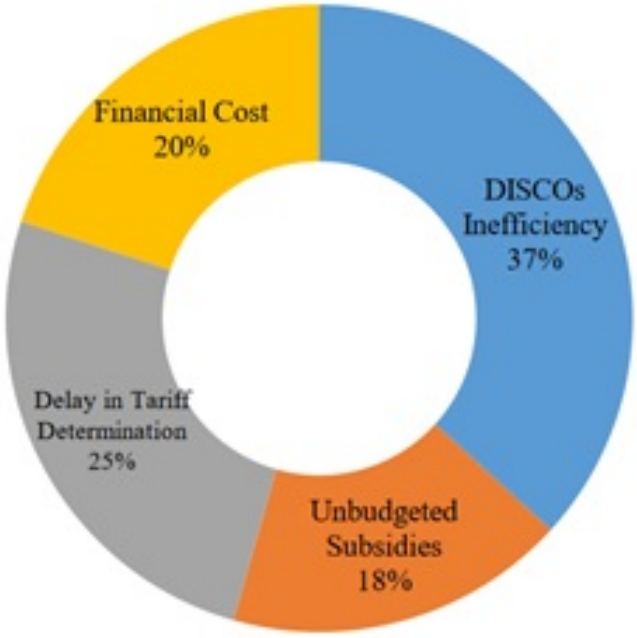
This difference does occur as government of Pakistan in order to attract investment in the power sector signed contracts with electricity generation companies that regardless of the quantity of cash inflows from final electricity consumers, return on the investments in power plants are guaranteed and certain. The amount of liability that CPPA was required to pay to power generation companies in 2020 was PKR 2.22 trillion (equivalent to US$7.93 billion) while the122802 GWh electricity that it obtained from those companies costed PKR 766.6 billion (US$2.74 billion) (Malik, 2020). The volume of Circular Debt as percentage of country's GDP has grew over the years from 1.6% in 2008 to 5.2% in 2020 (Finance Division, 2020).

There are several underlying reasons that had contributed to this severing situation, however one of the primary cause that required to be highlighted is that since 1994 when government allowed private sector to establish power plants, their total installed and generating capacity over the time surpassed the quantity of electricity generated by stated-owned enterprises, for instance the share of installed capacity of private sector reached to 58% and share of electricity generation to 61% by 2019.

Government retained the responsibility of electricity distribution it its hands except at the Karachi metropolitan area where both generation and distribution of electricity is managed by a private enterprise. The failure of government to invest in state-owned power plants, and the nature of contract with IPPs as mentioned in the previous section reflects the issues of bad governance which later on combined with financial mismanagement and inefficiencies of DISCOS further complicated the issue.

Figure 3.5 below shows the share of various factors contributing in the buildup of the liabilities of CPPA in the fiscal year 2018-2019, where the share of inefficiencies of the state-owned distribution companies is the largest.

Figure 3.5: Composition of Sources of Arrears 2018-2019



Source: Malik, Arifa (2020)

Origin of the crisis can be traced back to the poor and short sighed policy making in power sector back in 1990s and which was repeated again in later policies of 2002 and 2013. Private sector power plants though enhanced significantly the installed electricity capacity within the country, however the guarantees by the government such as to pay 60% of the capacity charges even if generated electricity in not purchased by CPPA, the payments to IPPs in US Dollar pressurizing the foreign exchange reserves and permission to use imported fuel heavily costed the budgetary resources of the government (Malik, 2020).

3.4.5 Recovery of electricity bill payments

Account receivables of the power sectors augmented due to failure of consumers to pay their dues to the electricity distribution companies. Figure from fiscal year 2019 showed the total amount of the defaulters for the year was PKR 572 billion equivalent to US$ 2 billion. Differences also exists among distribution companies in revenue collection. Those companies operating in the largest and most developed province of Punjab possess a

revenue collection record of 94%. While situation is materially different in other provinces and regions of the country. The inability to collect revenues also contributed in the poor, outdated and in some parts non-existent power infrastructure. Recovery rates also differ based on the locality of a metropolitan, where for rich and affluent localities it is above 90% and for comparatively poorer areas it is around 80% (Aslam et al., 2021).

3.4.6 Inefficiencies of Power Generation Companies

One major reason for both unavailability of electricity and for the higher price paid by consumers is the under-utilization of electricity power plants which operate below their capacity. New power plants were constructed with a projection of 5% to 6% economic for upcoming years, which was around 5% prior to 2018 and from that year it stayed close to % and even fell to a negative number in 2020, consequently caused a decline in the demand for electricity. Likewise, existing power generation companies also failed to keep the pace of investment for modernization and replacement of the rusting infrastructure, for instance consumers of K-Electric, power generator and power supplier company in Karachi the largest urban settlement in Pakistan, pays Rs.3 to Rs.5 extra for each unit of electricity (Tribune, 2003). One primary factor in their inefficient functioning is the issue of circular debt as discussed above. The end result is both the shortage and the high prices of electricity for consumers. For instance this financial burden of widening mismatch in payments and receipts is transferred to end-consumers where they are charged with an account called Part Load Adustment Charges (PLAC). In the fiscal year 2021-2022, these charges were PKR 41.7 billion (equivalent to US$ 148 million) (NEPRA, 2022).

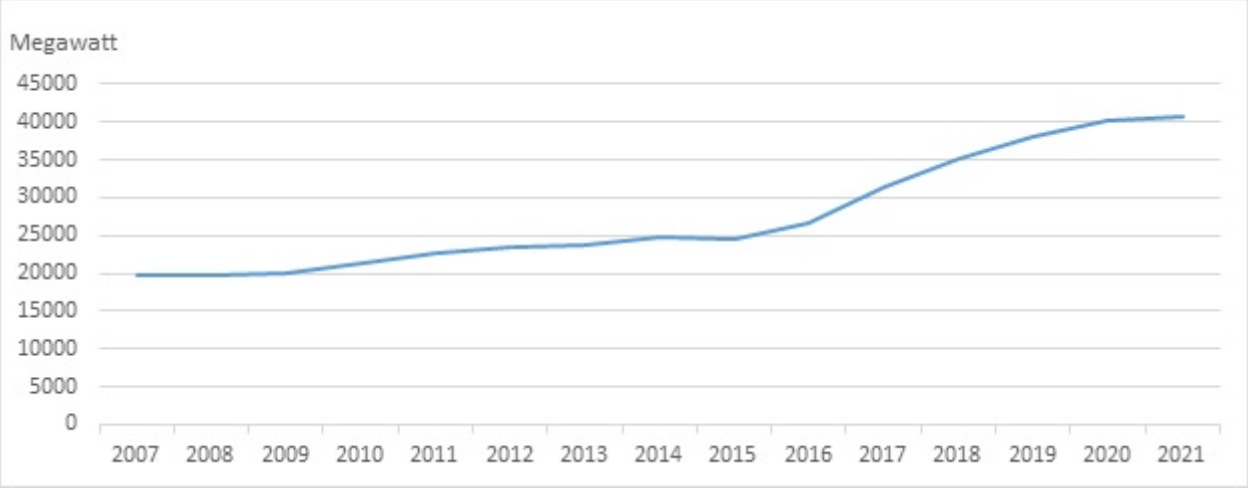
3.5 CPEC Contribution in Power Sector of Pakistan

The poor economic indicators of the country was a hurdle for Pakistan to attract foreign investments in the power sector of the economy. Energy crisis particularly intensified since 2007 resulting from a steady growth rate of nearly 7.2% over a 7 year period, resulting mainly from country's involvement with Afghan War since 2001, which enhance the demand for electricity while public and private sectors generation companies failed to meet this demand. Therefore, the arrival of CPEC has greatly relieved the country as major portion of these investments allotted for construction of power plants.

These projects were supposed to complete by 2026. These investments by China in the energy sector alone over a period of decade are roughly equal to 20% of Pakistan's GPD in a year. These were primarily intended to close the disparity between demand and supply of the electricity in the country. By 2015, GDP fell to 3.8% and 40% of the industry winded up while short fall of electricity also contributed to the economic decline of the country prior to the commencement of CPEC projects in 2015 (Duan et al., 2022).

Following Figure 3.6 shows the installed electricity capacity in Megawatt from 2007 till 2021 in Pakistan where it increased from 19670MW to 40606MW (Pakistan Bureau of Statistics. 2022). The graph shows a gradual increase in the installed capacity on yearly basis from 2007 till 2016. However with the commencement of CPEC power plants, an rapid rise can be observed from 2017 onwards. The three years of 2017, 2018 and 2019 marked the installation of the three large coal-fired power plants of Sahiwal, Port-Qasim and Hub as discussed in an earlier section.

Figure 3.6: Installed Electricity Capacity in Megawatt – 2007 to 2021

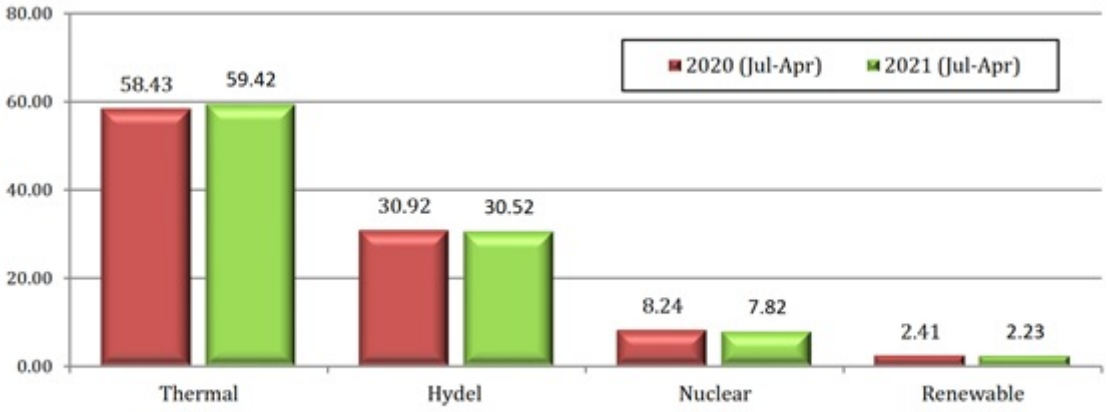


Source: author created graph using data from Pakistan Bureau of Statistics. (2022)

Therefore from the data depicted in the figure above, it is well evidenced that investments under CPEC had significantly transformed the power sector of Pakistan from a supply dearth sector to an sphere with excess availability of electricity. It was also forecasted that by 2025, the gross demand for electricity will rise up to 45635MW (Guangwei, et al., 2014). The enhanced production capacity after the completion of several CPEC supported power plants in 2021 was already 40606 MW, which is surplus to the need of the country.

The following Figure 3.7 shows Pakistan dependence upon thermal power plants. Electricity generated through thermal sources always dominated the energy mix used in power plants within Pakistan as can be seen in the table below for the fiscal year

Figure 3.7: Composition of Sources for Electricity Generation – 2020-2021

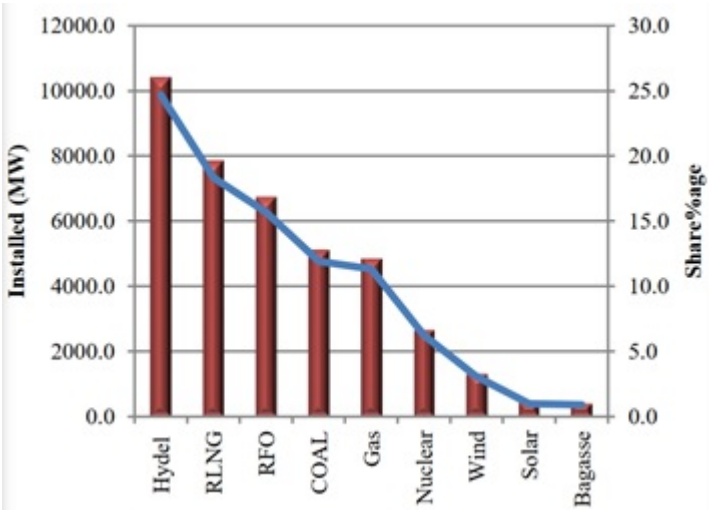


Source: Pakistan Economic Survey (2020-21)

2020, where share of thermal as source of electricity generation was twice as much as hydroelectric. Renewable and nuclear sources still comprised a very small portion in the total share of electricity.

Following Figure 3.8 present a further decomposition of each source within

Figure 3.8: Share of Sources for Power Generation – 2020-21



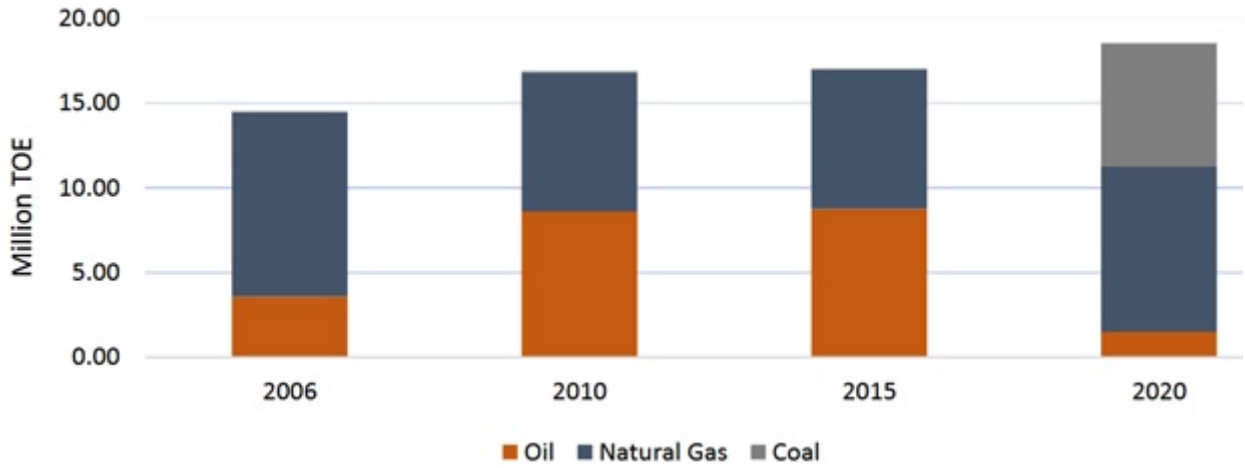
Source: Pakistan Economic Survey (2020-21)

thermal. Coal in fact has now surpassed the domestically produced gas as a source of fuel for electricity generation in the country. While imported re-gasified liquefied

natural gas and residual fuel oil are still the dominating sources for electricity generation within thermal power plants in Pakistan.

Since the commencement of operations of coal power plant Figure 3.9 below shows the energy mix used for thermal electricity generation in Pakistan in the 2006-2020 time period which reflects predominant reliance on oil and gas till 2015. Coal-based power plants in the country historically been few despite the abundance of coal reserves in the country compare to other two sources for thermal power plants, there the contribution been negligible. Due to CPEC projects a notable portion of thermal sourced electricity is being produced in the country using coal as evident from the Figure 3.9.

Figure 3.9: Energy Sources for Thermal Power Generation in Pakistan 2006 - 2020



Source: Pakistan Energy Outlook Report (2022)

It can be inferred from the empirical evidences as presented above that CPEC projects helped Pakistan to enrich its power plants to reduce its dependency on oil and gas which are scarce in the country.

3.6 'Overdeveloped State" & failure of Power Sector in Pakistan?

In this final section I shall describe the nature and role of Pakistani 'state' as being an 'Overdeveloped State' compared to the rest of society whose 'underdevelopment' is a product of perpetuating the functioning of 'Overdeveloped' colonial apparatus. In fact, these institutions without being reformed in order to fit with the new circumstances, gradually started decaying in terms of governance as they made

attempts for expansion beyond their designated limits in order to replace and occupy the vaccum left by the British ruling elite upon their departure in 1947. By virtue of being overdeveloped in comparision to, for instance infant political institutions, paved the way for their capture of Pakistani state (Alavi, 1973). The role of bureacracy in laying down the foundation of Pakistn's economy during initial decades worth to be praised, however unlike the developmental states of East Asia, where state bureaucracy remained a vital instrument for the political elite to transform their economies, it was the other way round in Pakistan where the bureaucracy legitimized its existence and further expansion through political institutions. Their growing strength and the deeply rooted socio-economic vested interests in the system to keep the bureaucratic status-quo that they had enjoyed since 19th century is well reflected in the formulation of various national policies.

In power sector matters started worsening back in the second half of 1970s, when one of the most successulf state owned enterprises, WAPDA, was handed over to a retired military official, and since then this institution with national significance remained the hunting ground of retired military generals lacking professional expertise for operating a highly technical state enterprise. Secondly, Pakistan is a country with rich hydal resources as the land is irrigated throughout the year by the large rivers coming from Himalayan glaciers, despite that private investment was channeled to construct thermal power plants operated mainly by imported fuels (Mehmood, 2023; Malik, 2020).

Likewise the bureaucrates operating WAPDA, spent all their energies on attracting investment in building power plants, meanwhile transmission and distribution of electricity was kept deprived from heavy investments. Apparently the rationale is the fixed dollar returns promised to private investors that had motivated those bureaucrates who later on found new and multiple venues to work with the mushrooms of various bodies once WAPDA was unbundled into several institutions as recommended by consultants of World Bank. Pakistan´s Power Policy of 1990s is a joint product of International Bureacracy, in this case the World Bank with a domestic institution that is Pakistan's Federal bureaucratic elite.

It was the comprehensive assistance of World Bank that paved the way for construction of Hub Power Plant in late 1980s, the first private power plant in the country and to formulate a new Power Policy in 1994 that opened the gate widely for private sector

and several private power plants known as Independent Power Producers (IPPs) were constructed in 1994. These attempts resulted in the investment of US$5 billion and had generated 4500MW of electricity (Fraser, 2005). A recent audit of IPPs was conducted in 2019, revealed that IPPS through their dubious billing practices charged PKR 4 trillion from final consumers since 1999. One also wonder why the policy makers agreed a fixed US dollar return to private investors, given the fact that Pakistan's economy never been in good shape, and even at the time when these contracts were signed in mid 1990s, there were no signs that economy would be growing above 5% to be able to repay the fixed dollar returns to private capital. This mistake was again repeated by Pakistani policy makers in CPEC power plants (Mehmood, 2023; Malik, 2020).

3.7 Conclusion

Rapid rise in population, increasing urbanization, governmental policy for electrification of remotely located rural areas and economic growth fuelled the demand for electricity in country specifically since 1980s. However, the required investments in the sector lagged behind to fulfill this increasing demand. Therefore by second half of 2000s, the country entered into an energy crisis which keep intensifying further in the coming years. In such circumstances, any foreign investments were welcomed. However, the political and economic instability within the country barred foreign investors from undertaking large and long-term investments in building infrastructures for electricity generation. Investments under Belt and Road Initiative which are referred to as China-Pakistan Economic Corridor in the country substantially improved the issues pertaining to the supply side of energy production.

Currently the installed capacity for electricity within the country is in excess to the current demand. However, despite having resolved the problems of production, the deficiencies in institutional and governance related issues still persist and are a hurdle for the uninterrupted supply at the final consumers. It also require further investments in transmission and distribution infrastructure and tackling the inefficiencies of the Pakistani electricity distribution companies. Meanwhile in 2021, President Xi announced that China may no longer construct coal power plants overseas, therefore Pakistan in order to keep attracting further Chinese investments in the country need to revise its incentives for

renewables energy sources (Reuters, 2021). These coal-fired power plants indeed fulfilled the objectives of the government to tackle the immediate energy crisis by raising the production of electricity within a short period of time, however it must be considered a borrowed time during which focus should get shift towards developing renewable power plants in order to find a sustainable solution for this longstanding issue.

Conclusions & Recommendations

3.8 Conclusion

The first chapter of the thesis described the historical overview of Pakistan's economy since its inception in 1947. Pakistan is a product of the division of British India after Second World War when western India neighbouring Iran, Afghanistan and Soviet Union were carved out of India were formed as a separate political entity. The country was directly ruled by its military for 33 years during past 74 years. Pakistan's economic growth avergare 5% to 6% from 1960 to 1990. However since 1990s the country could not keep the pace, except for few fragmented periods in between, and economic growth kept below 5%. Initial two decades can be marked as the rise of private capital in the country, however in 1970s the country experienceds nationalization of private enterprises and since late 1980s the country began privatization and market was once again widely opened for private sector.

Recognizing the fact that country has started its economic jouney with a very modest base, the economic progress of Pakistan in past 74 years worth some appreciation. However, lack of investments in social sector specially in education and health resulted into massive population growth in the country making Pakistan 5th largest country in the world in terms of population. Pakistan can immensly benefit from this demographic dividend with rightly formulated economic policies where 64% of the population is younger than 30 years.

The second chapter of the thesis investigated the execution of Belt & Road Initiative in the context of Pakistan. China being the second largest economy in the world came up with this global economic amnition a decade ago in 2013 while Pakistan being a neighbouring country next to western China and a close political and military ally since 1960s was naturally selected as one of China's pilot project to implement this

mega initiative. The incentives for China to invest in Pakistan to participate in BRI range from the pursuit of new markets for China after the decline in demand in Western world, alternative route to access Indian Ocean and development of relatively backward Western China. On the other hand Pakistan is passionate to host BRI in order to build its fragile physical infrastructure, generate employment opportunities for rapidly growing population and since the decline of American geo-political interests in the region it is looking for other venues to replace United States. Chinese investments under BRI since 2015 are termed as China-Pakistan Economic Corridor (CPEC), which are estimated to be in the range of US$62 billion to US$87 billion depending the manner of counting by various databases. However so far the materialized investments under CPEC are US25 billion. Most of these investments that comprised 71% of the total were used to building power plants in order to overcome the chronic shortage of electricity in the country.

Final chapter studied more specifically three largest coal power plants, located across the country in three different provinces. These power plants along with other power plants constructed under CPEC has significantly improved the installation capacity of the country to a level where installed electricity capacity exceeds the demand for electricity. It means that if current power plants are operated at their maximum potential, then Pakistan is in a position to export electricity to other countries. However, despite this fact, the electricity outages and power blackouts are common in the country and there are several regions within the country which still do not have access to uninterrupted electricity. The main reason for failure is due to lack of investment in electricity transmission and distribution infrastructure while the entire focus was on electricity generation. This is connected within the complex mechanism and functioning of Pakistani local bureaucratic institions who failed to formulate and execute the policies that could have prevented this from happening where their policies should have focused on creating a balance between investing in generation as well as in distribution networks. This failure is a reflection of their lack of competence, where generalists rather than specialists are recruited in bureaucracy to operate state machinery, a practice that had its roots in colonial times and was never replaced. There may also be some act of deliberation benefitting certain segments of country's elite.

3.9 Recommendations

Pakistan requires a significant change in its federal structure to transform it from a majoritarian federalism to a parity-based federal structure in order to resolve the political grivances of smaller provinces of the country. Policy making in the country with regard to foreign direct investments must include wide participation of local population to make it fruitful for both investors and recipients, and this can not be done within the present political structure of the country.

CPEC investments have resolved the chronic shortage of electricity supply in the country by massive investments in power plants, therefore in order to meet the demand of electricity within Pakistan upcoming projects should focus on building and upgrading electicity distribution and transmission infrastructure. Coal-based power plants must get constructed in regions which are closed to coal mines in order to reduce the transportation cost. Sahiwal coal Power Plant in Punjab, located far from coal-mines in Sindh as well as far from Karachi sea-port used for importing coal is regarded as a political rather than economic decision by then government in power.

CPEC investments should diversify across various sectors and specifically the construction Special Economic Zones must get prioritized in the next phase in order to help growing exports from Pakistan which are currently far below than the true potential of country. It is the only way for Pakistan to permanently resolve the balance of trade issues which compel Pakistan every few years to ask for IMF programs.

3.10 Scope for Further Research

This thesis is limited in both its time and scope to a certain period and then subsequently to a sub-sector. Here the focus of study is the execution of BRI in Pakistan between 2015 and 2020, the period right after the launching of this global initiative, then I analysed few power-plants constructed under CPEC to describe the nature and impact of these investments. Over the passage of time more specifically in post-COVID era many lessons are learnt by both Chinese and the BRI participating countries. A future research can incorprate the recent changes in policies in China where loans and investments are offered more selectively compared to the past in the case of Pakistan.

Likewise, further research can also explore the effect of domestic political and economic changes on CPEC since it is argued that the pace of CPEC projects slowed down after a new government came into power in 2018 in Pakistan. The potential research can look for the underlying rationale whether it was the internal political-economy of Pakistan or due to the smooth functioning of other BRI routes causing China not to be in urgency in carrying out CPEC. Last but not the least, Pakistan is not an ethnically monolith country, therefore another interesting area that can be explored is to study CPEC from the ethno-territorial perspective within Pakistan.

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APPNEDIX: LIST OF CHINA–PAKISTAN ECONOMIC CORRIDOR (CPEC) PROJECTS ACCORDING TO THE CENTER FOR STRATEGIC AND INTERNATIONAL STUDIES (CSIS) DATA (2020)[3]

[3]Author created the tabular form using the Dataset collected by CSIS Reconnecting Asia Project, https://reconasia.csis.org/cpec-five-data-and-methodology/

Project Name	Province	Sector	Fuel	MW	Cost USD	Cost PKR	Status	Source
Construction) Thakot to Havelian 118 KM (Phase-I)	KPK	Road	-	-	1,237,859,239.13	136,659,660,000	Under Construction	http://cpec.gov.pk
PC-II for Feasibility Study to Connect Gwadar with Karachi	Balochistan, Sindh	Rail	-	-	1,227,355.07	135,500,000	NULL	http://cpec.gov.pk
Feasibility Study from Gwadar to Besima and from Besima to Jacobabad via Khuzdar	Balochistan, Sindh	Rail	-	-	1,227,355.07	135,500,000	NULL	http://cpec.gov.pk
(Land) Thakot to Havelian 118 KM (Phase-I)	KPK	Road	-	-	62,119,565.22	6,858,000,000	Started	http://cpec.gov.pk
132 KV Sub Stations at Down Town, Gwadar	Balochistan	Transmission Line	-	-	3,499,327.05	312,000,000	Started	https://www.pc.gov.pk
2×660MW Coal-fired Power Plants at Port Qasim Karachi	Sindh	Power Plant	Coal	1320	1,912,200,000	-	Complete	http://cpec.gov.pk
300MW Imported Coal Based Power Project At Gwadar	Balochistan	Power Plant	Coal	300	542,320,000	-	Complete	http://cpec.gov.pk

Project Name	Province	Sector	Fuel	MW	Cost USD	Cost PKR	Status	Source
5 MGD RO Sea Water Desalination Plant at Gwadar	Balochistan	Water & Sanitation	-	-	21,954,242.42	–	NULL	http://cpec.gov.pk
Allama Iqbal Industrial City (M3), Faisalabad	Punjab	Intermodal	-	-	NULL	NULL	Under Construction	http://finance.gov.pk
Besima-Jacobad Rail	Balochistan, Sindh	Rail	-	-	NULL„,	NULL	NULL	http://documents.worldbank.org
Bostan Industrial Zone	Balochistan	Intermodal	-	-	NULL	NULL	Preparatory Works	http://cpec.gov.pk
Cacho 50MW Wind Power Project	Sindh	Power Plant	Wind	50	NULL	NULL	Announced/Under Negotiation	http://cpec.gov.pk
Capacity Development Of Pakistan Railways	Unknown	Technical Assistance	-	-	NULL	NULL	Preparatory Works	http://cpec.gov.pk
China Pakistan Faqeer Primary School	Balochistan	Education	-	400,000	-	-	Complete	http://pk.chineseembassy.org
China Special Economic Zone Dhabeji	Sindh	Intermodal	-	-	NULL	-	Preparatory Works	http://cpec.gov.pk

Project Name	Province	Sector	Fuel	MW	Cost USD	Cost PKR	Status	Source
China-Pakistan Economic Corridor Support Project (CPECSP) at Ministry of Railways	Nationwide	Technical Assistance	-	-	1,818,181.82	252,000,000	Started	http://cpec.gov.pk
Chitral CPEC Link Road From Gilgit, Shandor, Chitral To Chakdara	KPK, Gilgit Baltistan	Road	-	-	407,608,695.65	45,000,000,000	Announced/Under Negotiation	http://cpec.gov.pk
Comprehensive Feasibility Study for Upgradation/Rehabilitation of Mainline (ML-I) and New Dry Port at Havelian (Buldher)	KPK, Punjab, Sindh	Rail	-	-	2,811,948.05	389,736,000	Complete	http://cpec.gov.pk
Construction of 132 KV(AIS) Grid Station at Deep Sea Port Gwadar and the associated 132-KV D/C Transmission line	Balochistan	Transmission Line	-	-	7,303,251.81	806,279,000	Preparatory Works	http://cpec.gov.pk

Project Name	Province	Sector	Fuel	MW	Cost USD	Cost PKR	Status	Source
Construction of Breakwaters	Balochistan	Port	-	-	123,000,000	-	Announced/Under Negotiation	http://cpec.gov.pk
Construction of Burhan Havelian Expressway (E-35) 29.1 Km (Revised)	KPK, Punjab	Road	-	-	246,500,721.50	34,165,000,000	Under Construction	http://cpec.gov.pk
Construction of Inland Revenue Zonal Office (IR) at Mansehra	KPK	Intermodal	-	-	533,288,043.48	58,875,000,000	Preparatory Works	http://cpec.gov.pk
Construction of Motorway from Burhan - Hakla on M-I to Dera Ismail Khan (DI Khan)	Punjab	Road	-	-	795,151,515.15	110,208,000,000	Under Construction	http://cpec.gov.pk
CPEC Emergency Medical Center in Gwadar	Balochistan	Health & Human Services	-	-	1,600,000	-	Complete	http://pk.chineseembassy.org
D.I Khan (Yarik) –Zhob (N-50)	KPK, Balochistan	Road	-	-	692,807,971.01	76,486,000,000	Preparatory Works	http://cpec.gov.pk
Dasu Hydro Power Project (4320mw)	KPK	Power Plant	Hydro	4320	8,600,000,000	-	Under Construction	http://www.cpecinfo.com

Project Name	Province	Sector	Fuel	MW	Cost USD	Cost PKR	Status	Source
Development of Gwadar Free Zone (Infrastructure Development for Free Zone & EPZs, Gwadar)	Balochistan	Intermodal	-	-	32,000,000	-	Under Construction,	http://cpec.gov.pk
Development of Industrial Park on Pakistan Steel Mills Land at Port Qasim near Karachi	Sindh	Intermodal	-	-	NULL	-	Preparatory Works	http://finance.gov.pk
Diamer-Bhasha dam (4500MW)	Gilgit-Baltistan	Power Plant	Hydro	4500	14,000,000,000	-	Shelved	https://www.reuters.com
Doubling / Improvement of Existing Track from Port Qasim to Bin Qasim Station	Sindh	Rail	-	-	14,202,898.55	1,568,000,000	NULL	http://cpec.gov.pk
Dredging of berthing areas	channels	Balochistan	Port	-	27,000,000.00	-	Announced/Under Negotiation	http://cpec.gov.pk
Engro 2x330MW Thar Coal Power Project	Sindh	Power Plant,	Coal	660	995,400,000	-	Complete	http://cpec.gov.pk

Project Name	Province	Sector	Fuel	MW	Cost USD	Cost PKR	Status	Source
Establishment of CPEC Support Unit (CSU) for Projects and Activities in GPA	Balochistan	Technical Assistance	-	-	409,646.46	56,777,000	Started	http://cpec.gov.pk
Establishment Of Pakistan Academy Of Social Sciences	Unknown	Education	-	-	NULL	NULL	Announced/Under Negotiation	http://cpec.gov.pk
Establishment of Project Management Unit (PMU) on China Pakistan Economic Corridor Industrial Cooperation Development Project (CPEC-ICDP)	Unknown	Technical Assistance	-	-	2,447,914.86	339,281,000	NULL	http://cpec.gov.pk
Expansion and reconstruction of existing Line ML-1	KPK, Punjab, Sindh	Rail	-	-	8,172,000,000	-	Preparatory Works	http://cpec.gov.pk

Project Name	Province	Sector	Fuel	MW	Cost USD	Cost PKR	Status	Source
Expansion and Upgradation of NGMS (3G/4G) Services and Seamless Coverage along KKH in Gilgit Baltistan	Gilgit-Baltistan	ICT	-	-	21,608,946.61	2,995,000,000	Started	http://cpec.gov.pk
Feasibility Studies for Updation of Existing Main Line-II (ML-II) and Upgradation & Extension of ML-III in connection with CPEC (Revised)	Nationwide	Rail	-	-	3,838,383.84	532,000,000	Complete	http://cpec.gov.pk
Feasibility Study for Construction of Break Water	Balochistan	Port	-	-	1,659,451.66	230,000,000	NULL	http://cpec.gov.pk
Feasibility study for Rail Link from Havelian to Pak China Border (682 K.M)	KPK, Gilgit-Baltistan	Rail	-	-	4,293,478.26	474,000,000	Started	http://cpec.gov.pk
Gilgit KIU Hydropower	Gilgit-Baltistan	Power Plant	Hydro	100	NULL	-	Announced/Under Negotiation	http://cpec.gov.pk

Project Name	Province	Sector	Fuel	MW	Cost USD	Cost PKR	Status	Source
Greater Peshawar Region Mass Transit	KPK	Rail (Metro)	-	-	NULL	-	Preparatory Works	http://cpec.gov.pk
Greater Thal Canal	Punjab	Canal	-	-	440,000,000	-	Under Construction	https://cpec-centre.pk
Gwadar – Turbat – Hoshab (M-8)	Balochistan	Road	-	-	93,795,093.80	13,000,000,000	Complete	http://cpec.gov.pk
Gwadar East-Bay Expressway	Balochistan	Road	-	-	168,000,000.00	-	Under Construction	http://cpec.gov.pk
Gwadar Port Operation and Development of Free Zone	Balochistan	Intermodal	-	-	250,000,000	-	Complete	http://pk.chineseembassy.org
Gwadar Smart Environmental and Sanitation System and Landfill	Balochistan	Water & Sanitation	-	-	16,370,851.37	2,269,000,000	Started	http://cpec.gov.pk
Gwadar Smart Port City Master Plan	Balochistan	Smart City	-	-	4,000,000	-	Complete	http://cpec.gov.pk
Hakla D.I Khan Motorway	KPK, Punjab	Road	-	-	1,170,876,856.73	122,181,000,000	Under Construction	http://cpec.gov.pk

Project Name	Province	Sector	Fuel	MW	Cost USD	Cost PKR	Status	Source
Havelian Dry port (450 M. Twenty-Foot Equivalent Units)	KPK	Intermodal	-	-	65,000,000	-	Started,	http://cpec.gov.pk
HUBCO Coal Power Project, Hub	Balochistan	Power Plant	Coal	1320	1,912,200,000	-	Complete	http://cpec.gov.pk
HUBCO Thar Coal Power Project (Thar Energy) (330MW)	Sindh	Power Plant	Coal	330	497,700,000	-	Started	http://cpec.gov.pk
Hydro China Dawood Wind Farm(Gharo, Thatta)	Sindh	Power Plant	Wind	49.5	112,650,000	-	Complete	http://cpec.gov.pk
ICT Model Industrial Zone, Islamabad	Punjab	ICT	-	-	NULL	-	Announced/Under Negotiation	http://finance.gov.pk
Improvement and widening of Chitral-Booni-Mastuj-Shandur	KPK	Road	-	-	120,891,053.39	16,755,500,000	Preparatory Works	http://cpec.gov.pk

Project Name	Province	Sector	Fuel	MW	Cost USD	Cost PKR	Status	Source
Improvement, Upgradation and Widening of Jaglot - Skardu Road (S-1, 167 km) Revised	Gilgit Baltistan	Road	-	-	233,229,437.23	32,325,600,000	Under Construction	http://cpec.gov.pk
Iron Ore Mining, Processing & Steel Mills Complex At Chiniot	Punjab	Mine	-	-	NULL	-	Started	http://cpec.gov.pk
Kachhi Canal	Punjab	Canal	-	-	729,166,666.67	80,500,000,000	Under Construction	https://cpec-centre.pk
Karachi - Lahore Motorway (Land Acquisition) (CPEC)Sukkur-Hyderabad	Sindh, Punjab	Road	-	-	367,965,367.97	51,000,000,000	Preparatory Works	http://cpec.gov.pk
Karachi Circular Railway	Sindh	Rail (Metro)	-	-	2,600,000,000	-	Preparatory Works	http://cpec.gov.pk
Karachi-Hyderabad-Lahore-Peshwar capacity expansion for rail	Sindh, Punjab, KPK	Rail	-	-	NULL	-	Announced/Under Negotiation	http://documents.worldbank.org
Karot Hydropower Station	Punjab, AJK	Power Plant	Hydro	720	1,698,260,000	-	Under Construction	http://cpec.gov.pk

Project Name	Province	Sector	Fuel	MW	Cost USD	Cost PKR	Status	Source
Kashgar-Islamabad Fiber-optic Line (Rawapindi to Khunjrab)	Gilgit Baltistan, Punjab	ICT	-	-	44,000,000	-	Complete	http://cpec.gov.pk
Keti Bunder Sea Port Development Project	Sindh	Port	-	-	NULL	-	Announced/Under Negotiation	http://cpec.gov.pk
Khuzdar-Basima Road N-30 (110 km)	Balochistan	Road	-	-	173,822,463.77	19,190,000,000	Preparatory Works	http://cpec.gov.pk
Khuzdar-Quetta– Chaman Section (N-25)	Balochistan	Road	-	-	520,728,891.07	80,500,000,000	Preparatory Works	http://cpec.gov.pk
KKH Phase II (Thakot -Havelian Section) (Havelian - Abbottabad - Mansehra - Thakot)	KPK	Road	-	-	1,315,000,000	-	Under Construction	http://cpec.gov.pk
KKH Thakot-Raikot N35 remaining portion (136 Km)	KPK, Punjab	Road	-	-	73,822,463.77	8,150,000,000	Preparatory Works	http://cpec.gov.pk
Kohala Hydel Project, AJK (1,124MW)	AJK	Power Plant	Hydro	1100	2,364,050,000	-	Delayed	http://cpec.gov.pk

Project Name	Province	Sector	Fuel	MW	Cost USD	Cost PKR	Status	Source
Kurram Tangi Dam Multipurpose Project (KPK)	KPK	Water Reservoir	-	-	NULL	-	Preparatory Works	http://cpec.gov.pk
Lahore-Abdul Hakeem Section (230 km) (M3)	Punjab	Road	-	-	1,364,719,429.35	151,000,000,000	Complete	http://cpec.gov.pk
Lyari Expressway (LEP)	Sindh	Road	-	-	98,519,920.71	9,940,660,000	Complete	https://www.dawn.com
M2/M3 Bridge Faisalabad-Multan	Punjab	Road	-	-	NULL	-	Complete	http://documents.worldbank.org
Matiari (Port Qasim) —Faisalabad Transmission Line Project	Sindh, Punjab	Transmission Line	-	-	1,500,000,000	-	Announced/Under Negotiation	http://cpec.gov.pk
Matiari to Lahore ±660kV HVDC Transmission Line Project	Sindh, Punjab	Transmission Line	-	-	1,658,340,000	-	Preparatory Works	http://cpec.gov.pk

Project Name	Province	Sector	Fuel	MW	Cost USD	Cost PKR	Status	Source
Mirpur – Muzaffarabad - Mansehra Road Construction For Connectivity With CPEC Route	KPK, Sindh, Punjab	Road	-	-	1,704,875,686.1	264,000,000,000	Started	http://cpec.gov.pk
Mohmand Marble City	FATA	Intermodal	-	-	NULL	-	Preparatory Works	http://finance.gov.pk
Moqpondass SEZ Gilgit-Baltistan	Gilgit Baltistan	Intermodal	-	-	NULL	-	Preparatory Works	http://finance.gov.pk
Muzaffargarh Coal Power Project (1320mw)	Punjab	Power Plant	Coal	1320	1,600,000,000	-	Shelved	http://cpec.gov.pk
Naukundi-Mashkhel-Panjgur Road Project Connecting With M-8 & N-85	Balochistan	Road	-	-	181,159,420.29	20,000,000,000	Preparatory Works	http://cpec.gov.pk
Necessary facilities of fresh water treatment, water supply and distribution (Gwadar)	Balochistan	Water & Sanitation	-	-	130,000,000	-	Announced/Under Negotiation	http://cpec.gov.pk

Project Name	Province	Sector	Fuel	MW	Cost USD	Cost PKR	Status	Source
New Gwadar International Airport	Balochistan	Airport	-	-	230,000,000	-	Under Construction	http://cpec.gov.pk
Orange Line - Lahore	Punjab	Rail (Metro)	-	-	1,626,000,000	-	Complete	http://cpec.gov.pk
Pak China Friendship Hospital (addition of new beds)	Balochistan	Health & Human Services	-	-	100,000,000	-	Under Construction	http://cpec.gov.pk
Pak-China Technical and Vocational Institute at Gwadar	Balochistan	Education	-	-	10,000,000	-	Under Construction	http://cpec.gov.pk
Pak-China Year of Friendly Exchanges Programme	Nationwide	Education	-	-	2,748,917.75	381,000,000	NULL	http://cpec.gov.pk
Pak-Iran Import-1 (Iran-Pakistan gas line, Gwadar - Nawabshah)	Balochistan	Pipeline	-	-	2,000,000,000	-	Shelved	https://www.ilf.com
Pak-Iran Import-2 (to Iranian border)	Balochistan	Pipeline	-	-	NULL	-	NULL	https://www.wsj.com

Project Name	Province	Sector	Fuel	MW	Cost USD	Cost PKR	Status	Source
Peshawar-Karachi Motorway (Multan-Sukkur Section) 'Motorway of Friendship'	KPK, Punjab, Sindh	Road	-	-	2,889,000,000	-	Complete	http://cpec.gov.pk
Phandar Hydropower Station	Gilgit Baltistan	Power Plant	Hydro	80	70,000,000	-	Announced/Under Negotiation	http://cpec.gov.pk
Pilot Project of Digital Terrestrial Multimedia Broadcast (DTMB)	Punjab	ICT	-	-	4,000,000	-	Complete	http://cpec.gov.pk
Pre-Feasibility - Installation of 300 MW Coal Fired Power Plant at Gwadar	Balochistan	Power Plant	Coal	300	181,159.42	20,000,000	NULL	http://cpec.gov.pk

Project Name	Province	Sector	Fuel	MW	Cost USD	Cost PKR	Status	Source
Preliminary Design/Drawings for Upgradation/rehabilitation of main line (ML-1) and Establishment of Dryport near Havelian & hiring of design / drawings vetting consultants	KPK	Rail	-	-	68,722,208.59	10,641,634,000	Started	https://www.pc.gov.pk/
Purchase of Land for Establishing Directorate of Transit Trade at Gilgit for CPEC Trade Facilitation	Gilgit Baltistan	Intermodal	-	-	516,304.35	57,000,000	Preparatory Works	http://cpec.gov.pk
Quaid-e-Azam 1000MW Solar Park (Bahawalpur) Quaid-e-Azam: Phase I	Punjab	Power Plant	Solar	400	520,000,000	520,000,000	Complete	http://cpec.gov.pk
Quaid-e-Azam 1000MW Solar Park (Bahawalpur) Quaid-e-Azam: Phase II	Punjab	Power Plant	Solar	600	781,000,000	-	Under Construction	http://cpec.gov.pk

Project Name	Province	Sector	Fuel	MW	Cost USD	Cost PKR	Status	Source
Quetta Mass Transit	Balochistan	Rail (Metro)	-	-	NULL	-	Delayed	http://cpec.gov.pk
Quetta Water Supply Scheme From Pat Feeder Canal	Balochistan	Water & Sanitation	-	-	288,600,288.60	40,000,000,000	Under Construction	http://cpec.gov.pk
Rahim Yar (rahimyar) Khan imported fuel Power Plant 1320 MW	Punjab	Power Plant	Coal	1320	1,600,000,000	-	Shelved	http://cpec.gov.pk
Rashakai Economic Zone, M-1, Nowshera	KPK	Intermodal	-	-	NULL	-	Started	http://finance.gov.pk
Rehabilitation of D.I Khan Mughal Kot 50 km Section N-50	KPK, Balochistan	Road	-	-	36,465,996.38	4,025,846,000	Under Construction	http://cpec.gov.pk
Sachal Wind Farm (Jhimpir, Thatta)	Sindh	Power Plant	Wind	49.5	134,000,000	-	Complete	http://cpec.gov.pk
Safe City Project Islamabad	Punjab	Smart City	-	-	124,000,000	-	Complete	https://china.aiddata.org
Sahiwal 2x660MW Coal-fired Power Plant	Punjab	Power Plant	Coal	1320	1,912,200,000	-	Complete	http://cpec.gov.pk

Project Name	Province	Sector	Fuel	MW	Cost USD	Cost PKR	Status	Source
Salt Range Mine Mouth Power Project (Gaddani Power Park (1320mw))	Balochistan	Power Plant	Coal	1320	590,000,000	-	Shelved	http://cpec.gov.pk
Special Economic Zone at Mirpur	AJK	Intermodal	-	-	NULL	-	Announced/Under Negotiation	http://finance.gov.pk
SSRL Thar Coal Block-I 6.8 mtpa & Power Plant(2×660MW) (Shanghai Electric)	Sindh	Power Plant	Coal	1320	1,912,120,000	-	NULL	http://cpec.gov.pk
Suki Kinari Hydropower Station, Naran,Khyber Pukhtunkhwa	KPK	Power Plant	Hydro	870	1,707,000,000	-	Under Construction	http://cpec.gov.pk
Sukkur - Hyderabad Section (296 km)	Sindh	Road	-	-	1,585,144,927.54	175,000,000,000	Preparatory Works	http://cpec.gov.pk
Sukkur - Shahdadkot - Besima (M8) (new road)	Balochistan, Sindh	Road	-	-	NULL	-	Complete	https://www.usip.org
Sunnec Wind Farm (50mw), Jhimpir	Sindh	Power Plant	Wind	50	125,000,000	-	Shelved	http://cpec.gov.pk
Surab-Hoshab (N-85)	Balochistan	Road	-	-	162,771,739.13	17,970,000,000	Complete	http://cpec.gov.pk

Project Name	Province	Sector	Fuel	MW	Cost USD	Cost PKR	Status	Source
Surface mine in block II of Thar Coal field, 3.8 million tons/year,	Sindh	Mine Coal	-	-	1,470,000,000	-	Complete	http://cpec.gov.pk
Swat Motorway Project, Phase II (Chakdara - Fateh Pur / fatehpur) (81 km)	KPK	Road	-	-	393,929,609.30	61,000,000,000	Announced/Under Negotiation	https://epaper.dawn.com
Tarbela IV	KPK	Power Plant	Hydro	2160	928,000,000	-	Complete	https://www.reuters.com
Tarbela V	KPK	Power Plant	Hydro	2160	796,000,000	-	NULL	https://www.reuters.com
Thar Mine Mouth Oracle Power Plant (1320MW) & surface mine	Sindh	Power Plant	Coal	1320	2,000,000,000	-	Complete	http://cpec.gov.pk
Three Gorges Second and Third Wind Power Project	Sindh	Power Plant	Wind	100	150,000,000	-	Complete	http://cpec.gov.pk
UEP Wind Farm (Jhimpir, Thatta)	Sindh	Power Plant	Wind	99	250,000,000	-	Complete	http://cpec.gov.pk

Project Name	Province	Sector	Fuel	MW	Cost USD	Cost PKR	Status	Source
Updation of Feasibility Studies up-gradation of existing Railway Link from Rohri to Kohi-Taftan via Quetta including the realignment of Sibi-Spezand Section (1022 Kms) and Feasibility Study of Rail Link from Quetta to Kotla Jam (538 Kms)-ML-III	Sindh - Balochistan	Rail	-	-	1,793,478.26	198,000,000	Complete	http://cpec.gov.pk
Western Energy (Pvt.) Ltd. 50MW Wind Power Project in Jhampir, Thatta	Sindh	Power Plant	Wind	50	88,455,000	-	Announced/Under Negotiation	http://cpec.gov.pk
Zhob Quetta (N-50)	Balochistan	Road	-	-	431,598,320.96	66,833,000,000	Under Construction	http://cpec.gov.pk
Zonergy 300MW Solar Project	Punjab	Power Plant	300	-	460,000,000	-	Complete	http://pk.chineseembassy.org