

# **GREENING THE DESSERT: DEVELOPMENT AND COLONIZATION IN THAL REGION**



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**BY**

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## **Formal Declaration**

I hereby, declare that I have produced the present work by myself and without any aid other than mentioned herein. Any idea taken directly or indirectly from third party is indicated as such.

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Arfa Khan

## DEDICATION

**THIS RESEARCH IS DEDICATED TO THE FOLK OF THAL**

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## Introduction

### i. Background of the Study

Thal desert is a barren region located in Punjab, Pakistan, and spans a vast area of 10,000 km<sup>2</sup> primarily positioned between the rivers Jhelum and Indus in the vicinity of the Pothohar Plateau. The Thal Desert stretches from latitude 31° 10" N to longitude 71° 30" E. This subtropical sandy desert covers an area of approximately 190 miles in length and 70 miles in width. The Thal Desert is flanked by the foothills of the Salt Range to the north, the floodplains of the Indus River to the west, and the flood plains of the Jhelum and Chenab Rivers to the east. Within its bounds lie districts like Bhakkar, Layyah, Jhang, Khushab, Mianwali, and Muzaffargarh. Sharing geographical similarities with the deserts of Cholistan and Thar, the Thal Desert is host to several notable towns, including Mankera, Dullewala, Hyderabad Thal, Roda Thal, Kundiyan, Piplan, Saraye Muhajir, Kot Aazam, Rang Pur, Mehmood Shaheed Thal, Mari Shah Sakhira, Jandan Wala, Muzaffargarh, and Noor Pur Thal. (Shaheen, Qureshi, Akram, Gulfraz, & Potter, 2014). The Thal has a natural division into three areas i.e. Daggar or Jandi Thal, Thal Kalan and Northern Thal (Haq & M., 2003). What sets this desert apart is its stark and barren terrain characterized by sand dunes and harsh environmental conditions. There was no canal system of irrigation in the desert, rain and tubewell water were used for agriculture. But, with the passage of time, some efforts were taken to irrigate this arid region.

The Thal region's colonial history, marked by British rule since 1849, witnessed various canal projects aimed at fostering agricultural development. The Upper Bari Doab



canal construction in 1851 was among the initial initiatives, laying the foundation for future canal systems. Approval for the Thal Canal project was delayed until 1936, with several proposed projects like Andrews's, Sindh Sagar Colonization Bill, Middleton's, Wood's, and Quinn's between 1873 and 1924. The Anderson Committee's report in 1936 paved the way for the Thal Canal Project, envisioned in 1921 and surveyed in 1923. The subsequent projects, including Quinn's, Lesser Thal, Patti Irrigation (and the final Thal Canal Project of 1936) aimed to harness water resources for irrigation. The canal colonies introduced during the British occupation, like Sidhnai, Sohag Para, Chenab, Jhelum, and Nili Bar, strategically allocated land for cultivation and supported the irrigation network.

The Punjab Government proposed several plans between 1901 and 1925, but they were primarily rejected due to objections from Sindh. The Central Government prioritized projects like the Sutlej Valley, Bakhra Dam, and Sukkar Barrage over the Thal Canal Project. However, in 1936, the Government approved a project to irrigate the western region of Thal along the Indus River, marking the beginning of construction on the Thal Canal Project in 1939. Construction on the Jinnah Barrage at Mianwali and the Main Line Upper began but was halted due to the outbreak of the Second World War in 1942. Work resumed in 1943, and the British government completed the Jinnah Barrage and Main Line Upper before departing from the Indian subcontinent in 1947. (West Pakistan Year Book 1962, 1962). During the partition period, only 139 acres of the Thal desert were irrigated by the Thal Canal, with the construction of the Jinnah Barrage, Main Line Upper, and Dullewala Branch completed. However, desired outcomes were not achieved due to frequent blockages of the water channels by sandstorms. Additionally, the harsh conditions of the Thal desert hindered significant developmental efforts for

local inhabitants. The influx of migrants from India before the partition imposed immense population pressure on upper Punjab, prompting the government to consider relocating people to less populated areas like Thal. Consequently, the Punjab Government established the Thal Development Authority in 1949 to complete the Thal Canal Project and develop the surrounding area for migrant settlement. The TDA operated for the next two decades, from 1949 to 1969, focusing on settlement and development in the Thal region. It played a crucial role in coordinating the region's development alongside irrigation infrastructure, aiming for accelerated returns on investment and favorable developmental outcomes. (Thal Development Act of 1949, 1949).

TDA played an important role to pave the way for prosperity of the region but also for the people of that area. Today, the Thal region, particularly within the geographical jurisdiction of the TDA, has undergone a remarkable transformation, characterized by expansive green fields, reforestation efforts, agricultural lands, and national parks. New market towns and villages have been established, and the residents are content, thriving, and imbued with a sense of optimism.

Consistent with the goal of TDA to revitalize the desert and improve the irrigation infrastructure in Thal. In the 1960s, a canal project, known as the Greater Thal Canal Project (GTCP), was conceived with the aim of irrigating 703,345 hectares (1.738 million acres) of land in the eastern Thal Doab region, encompassing areas within the boundaries of Bhakkar, Layyah, Khushab, Jhang, and Muzaffargarh Districts.. Canal projects in this area have always been contentious and have faced criticisms on the grounds that it would

affect Sindh's vital water interests. Hence, the project could not even get started. The project resurfaced again in 1975 and was considered and deferred by ECNEC in its 1975 meeting. Finally, the project was inaugurated by President Pervez Musharraf on August 16, 2001. The first phase of the project has been completed by WAPDA in 2008 and included the construction of main canal, direct distributories with minor, and the Mankera branch and distribution system. The construction and implementation of the rest of the phases of the project were entrusted to the government of Punjab. The government of Punjab would implement the remaining phases of the project with financial assistance from Asian Development Bank (ADB).

In 2015 the government of Punjab decided to construct the phase II of the project which included construction Chaubara Branch Canal and Distribution System. The government of Punjab had to seek financing from ADB for construction of phase II. A loan of 200 million dollars was approved by the ADB board for the GTC project on 13 December, 2021. Following the approval of loan, the Executive Committee of the National Council (ECNEC) also approved the project in March 2022 and made recommendations for implementation of the project.

Federal, provincial, and inter-provincial consultations were led by Ministry of water resources to reach a consensus on recommendations put forward by ECNEC (Report, 2023). Strong objections were put forward by Sindh on the basis that such projects were not part of 1991 Water Apportionment Accord citing concerns as to where the water flows would come for it. There was also the fear that since telemetry systems were not yet installed, it would be difficult to check whether the water diverted

for the project will be from Punjab's share or will the water share of Sindh be affected. This gave rise to the fear that this project will render Sindh barren while bringing more of Punjab's area under cultivation. In contrast, Punjab claimed that it will utilize its own share of water for the projects, hence, it would not affect the water flows of Sindh (Muhammad, 2023). No consensus was reached and with the government busy in flood recovery activities, ADB did not provide an extension in the loan signing agreement, as such, the validity of loan agreement lapsed in December 2022(Report, 2023) leaving the project in limbo.

In Pakistan a number of developmental programs have been initiated several times with the assistance of international institutions. Such developmental programs merely not add in the economy of the country but also play role in the uplift of the local community. For a while if one sets aside this perspective there comes another one in which critics argue that large developmental programs serve the interest of the capitalist class whose purpose is to acquire the land and displace the local community for their own interests. Such is the case with Greater Thal Canal Project (GTCP). As with every project, similarly, with the Greater Thal Canal Project different perspectives have been attached. It is said that either the very project is a developmental program that serve the interests of the local community or another attempt of displacing the local community and building the colonies for the capitalist who always aspire to serve their own class and fulfill the very interests.

As per the sources, the project would serve the local community and it will add in economic uplift by providing adequate water for the irrigation of the land of the area. The

canal will significantly enhance food production in the country by irrigating the barren areas in the districts of south Punjab. Eight thousand five hundred cusecs of water may be carried by the canal system, which will be 35 kilometers long. The length of the branch canals will be 344 kilometers. The canal system will irrigate 290,000 acres of land in Bhakkar, Layyah, Muzaffargarh, Khushab, and Jhang, improving agricultural output by up to 40% in these districts (Thal Canal project, 2020).

Moreover, food security and rural economic development in Punjab province will both be improved by the planned investment program. In the Punjabi districts of Bhakkar, Jhang, Khushab, and Layyah, a new seasonal irrigation system will be built, increasing agricultural output. Approximately 704,000 hectares of unproductive land will be converted to agricultural area as part of the Greater Thal Canal Irrigation plan. The government fund has either already begun construction on the initiative or has plans to do so. In order to finish the development of the plan and assist farmers with on-farm planning and management, the planned investment program will fund the building of the remaining portions spanning approximately 440,000 hectares (Totsuka, Pakistan: Preparing the Greater Thal Canal Irrigation Investment Program, 2017).

Some studies suggest that in past such attempts have been made in the region which has irked the anger and gave shape to the movements. This is due to the fact that in Southern Punjab, as well as in all of Pakistan's peripheral areas, the disrupting and sometimes destructive impact of infrastructure-led development is encountered and contested through ethnicity, language, and notions of place that are defined by unequal development(Ahmad, 2022).

Another view what suggests that such developments are the form of “colonization” or what is now termed as “Neo-Colonialism” this practice is made across the globe. With the assistance of the International Institutions such projects are being initiated where both international and local capitalist class serve their interests by adopting certain policies on the other side, local community is being displaced or compensated for their property. At the end such large projects bring devastation in the form of environmental degradation and destruction of ecology of such area. This cost the local community double than what they have been paid. So, owing to this such moves are merely not understood by the common people unless and until they have been informed by the assessment of the projects. So, this study aims to attempt that whether the Thal Canal project is a developmental program or another attempt of colonization.

Post-development theoretical perspective which is considered as antithesis of so called current democratic and liberal theories of development has been applied into this topic. Proponents of post-development perspective view that the financial progress and material prosperity dream advocated by such theories is just a nightmare.

During the period of 1980s and 1990s, scholars like Girbirt Rits, Serge Latouche, Arturo Escobar, Gustavo Esteva, Majid Rahnema and Wolfgang Sachs came with the idea of post-development in reaction to development theories. Such scholars had the view that development had always remained unjust and failed. As an illustration, development theorists highlight how the concept of development has led to the classification of nations into developed and underdeveloped categories. Developed nations are viewed as more advanced and superior, while underdeveloped nations are considered inferior and reliant

on assistance from developed nations, aspiring to emulate their development. The post-development school of thought criticizes development models for being ethnocentric, universalist, and based on Western industrialization paradigms, which are deemed unsustainable given the world's finite resources and ineffective due to their disregard for local cultural and historical contexts. Essentially, post-development theorists identify the problem in development and its implementation as a Western-dominated influence or domination. They advocate for a more pluralistic approach to developmental ideas.(khan, 2005).

**ii. Statement of the Problem**

Greater Thal Canal Project has remained one of the controversial issues in Pakistan. A number of questions have been raised on the project since its planning. Now, this project is in its way to completion. Here it is argued that whether the project serve the genuine concerns of the local community, or it is an attempt of colonization by the capitalist class whose aim is to serve their own class by controlling the land.

Across the globe, extensive infrastructure initiatives (including dams, canals) are strategically planned and executed. Governments perceive these projects as avenues for national development. These ventures usually receive financial support from development institutions such as Agriculture Development Bank, the World Bank, and bilateral banks. However, such construction projects don't always help everyone. They can sometimes make things worse, especially for people who are already struggling and living in the areas where these projects happen. Canal projects, for example, can have

good and bad effects. All these projects need land, and when they start, people who use that land lose their homes and their ways of making a living.

It then becomes important to ask critical questions about such projects regarding their true efficacy. Oftentimes the local stakeholders are unaware of the financiers of megaprojects (e.g., development banks) and the activities that will be involved in construction of large-scale projects, and rules and laws which govern the implementation of such projects. Aside from the immediate consequences, it is also important for communities to be cognizant of the future implications of such projects once they are completed. Will the benefits of such projects be commensurate with the cost the community will have to pay in terms of effect on their livelihoods and natural environment? Do such projects ensure the participation of local community so that they may choose a development model which will have an impact which will be positive for them as a whole?

It is the natural conclusion to such considerations that we ask, who does this canal project benefit? It can't be denied that the Greater Thal Canal aims solve problems of agriculture in the region that will not only ensure irrigation of low productive lands, but also impact, as a consequence, the agriculture in the region for better. The project aims to increase the level of agricultural productivity and production of crop and it will do so by developing a new system of irrigation canals (ADB project administration manual, 2021). On the surface, it appears that it genuinely will solve the issue and help increase agriculture output, but the impact, positive or negative, on local community also needs to be studied. Then, we will be able to answer whether this project addresses the intended



issues while benefitting the local community or does it primarily serve the interests of the investors who benefit from it at the expense of local community?

### **iii. Literature Review**

*Improved Land and Water Conservation Practices to Enhance Wasteland Productivity in Thal Desert (Munir, M. U., Ahmad, A., Khan, M. A., & Ashraf, M. (2022)*

This article details the Post-Project Impact Assessment, where the project team conducted on-site visits and interviewed farmers a year after completing project activities. Despite the challenge of comprehensively assessing the project's full impact within such a brief timeframe, certain effects became apparent through farmer interviews and post-project observations. The assessment focused on four key dependent variables: socio-economic conditions, environmental impacts, the transfer of knowledge through technological interventions, and awareness raising. Preliminary findings suggest a significant and rapid increase in the average annual income of farmers, contributing to enhanced livelihoods and socio-economic conditions. Although the observed land cover change had minimal environmental impacts, farmers reported its visibility and effects.

*A Study of Settlement of Refugees in the Thal Desert (1947-1969)(Muhammad Wasim Abbas, Aftab Gillani, Imran Ahmad)* The refugee crisis posed a formidable challenge for the newly formed state of Pakistan in the aftermath of the 1947 partition. With millions of refugees arriving from India, the government faced the daunting task of providing essential provisions like food, medicine, accommodation, and employment. This proved to be a Herculean undertaking for the fledgling state, navigating numerous adversities. This paper concentrates on delving into the intricate process of settling over

thirty-one thousand refugee families in the Thal desert, located in the western part of Punjab, Pakistan, spanning the period from 1947 to 1969. Employing a historical research approach, the study examines how the Thal Development Authority, over two decades, managed the development of the Thal desert, facilitating the settlement of refugees. Despite the challenges, the authority not only successfully resettled the families but also ensured the provision of vital life amenities, including education, health, roads, and employment.

*Institutionalizing inequities in land ownership and water allocations during colonial times in Punjab, Pakistan (Hira Farooqi, Kai Wegerich)* During the period of British control from 1849 to 1880, the management of irrigation systems underwent a significant transformation in Punjab. The British administrators increased their involvement in irrigation, initiating new canal construction projects alongside existing local channels. The introduction of the Bari Doab canal in 1850 marked the inception of British-built perennial canals. Despite this intervention, influential local landlords retained a role in water management, both in indigenously constructed channels and British perennial canals. The colonial social policy favored patronage for specific groups, entrenching privileges for landed elites and hindering an equitable distribution of water. The study emphasizes the enduring link between land and water, asserting that the historical distribution of one resource influences access to the other.

*Infrastructure, Development, and Displacement in Pakistan's "Southern Punjab"*(Ahmed, 2022) this study explores the relationship between infrastructure, uneven developments and displacements in Pakistan's Southern Punjab. While tracing

historical events from colonial era to the present. It helps to understand the agricultural colonization during the colonial/early post-colonial period. Moreover, it also focuses on the Great Indus Flood of 2010. It also suggests that how infrastructure-induced developments ignite the people of the region owing to the dispossession and displacement. It also examined the popular mobilization and resistance which took shape in the region namely Siraiki ethno-nationalism, which worked for the environmental justice in Southern Punjab while taking into the consideration such developmental moves in the region.

*Canals, Colonies and Class: British Policy in the Punjab 1880-1940*(Zafar, 2017), Between the years 1890 and 1940, this study investigates the effect that perennial canals had on the rural landscapes of the Punjab. The purpose of this research was to investigate the shifting attitudes of the colonial government regarding colonization and the effects of those attitudes on the physical environment, production patterns, tenancy relationships, and social order. Based on an exhaustive examination of the archival sources, this study establishes causality between the evolution of the irrigation system and the transformation of rural social structures, in particular the emergence of social stratification. The impact of natural factors in setting land ownership norms has diminished as a result of technological advancements. This is examined by juxtaposing canal colony districts colonized and old proprietary village lands. The colonial authorities, motivated by income and export demand, increased the size of the agricultural land, and employed local structures of power to steer the productivity and related activities of the small grower. The administration depended on large landowners, whose establishment it supported, to accomplish these goals. The wealthier segments of

rural society benefited from commercialization of agriculture, increased cost of land, and a rising trend toward working class in canal-irrigated regions. While the emerging middle class of agricultural laborers confronted not just a shifting agrarian landscape, but also growing costs and deteriorating living conditions, canal development within a rigid colonial context did not decrease the small cultivator's need on local authorities. However, when it comes to the canal construction this study is of worth relevancy in today's society. Because this suggests that despite such developmental projects the lower or growing middle class could not yield much from those developments.

*The Punjab under Colonialism: Order and Transformation in British India*, (Talbot, 2011) this study is also an attempt that how certain practices of Colonial British benefited the large landholders of west Punjab who were loyalist to them. Moreover, it highlights that British policy of encouraging capitalist farming is still relevant in today's Pakistan. Canal colonies which were aimed that to help the local community actually served the interests of the large farming capitalist class of the region. It was because they were loyal to the colonial government and helped them in administering the region. Whereas needs and demands of middle and poor class could not serve by the administration. So, similarly one can relate in today's world as well when it comes to such attempts of infrastructural development that it may serve the bourgeois interest.

*Socio-Economic Engineering and The British Profit Motives in Colonial Punjab, 1885-1922* (Mahmood, 2017) as it is evident from the history that every move of the capitalist in any region cannot be interest free. This study sheds light that how British

gained profit in colonial Punjab. It explores that by devising certain mechanisms the imperial master extracted maximum from the region such as it had started the process of transformation with the restoration of the seasonal irrigational channels, canal colonization schemes which was regulated by the large and leading landowning families and Punjab's economy was transformed from subsistence farming to an export-oriented economy. Such project only aimed to serve the British rulers in the region with the collaboration of landed gentry.

*Blood and Water: The Indus River Basin in Modern History* (Gilmartin, 2020) writes in chapter five which is entitled as "Science, the State, and the Environment" about canals that such moves by the colonial masters was to create a sense of common interest but this ended with vast expansion of canal colonies where the agricultural colonization had been witnessed by incorporating novel scientific methods in irrigation. This in return yield higher outcome in agricultural productivity for the colonial masters.

*The Great Agrarian Conquest: The Colonial Reshaping of a Rural World*,(Bhattacharya, 2020) This seminal account has examined that agrarian colonization, the process created spaced that conformed to the demands of colonial rule. Agrarian colonization paved way for the colonial rulers to conquest by all means to the indigenous population. It totally changed and reordered social fabric of the society which brought changes simultaneously cultural, legal, linguistic, and economic. So, this account suggests that how such developments can play role in any part of the society and could materialize for their own gains by the developers.

*The Roots of Unsustainability: Colonization in Space and Time. Sustainable development policy institute*(Amlaric & Banuri, 2013)that is specifically concerned with the colonization of the Northern nations over the rest of the globe. They are of the view that uneven development is the major outcome of the major schemes of the colonizers which has always kept the local population deprived of their own resources. They have discussed and hoped to promote a new model of time and space in order to secure the marginalized population from future colonization and secure the rights of the future population to come. Their work seems very much in relevance to the area of thal canal project which has apparently been projected as guarantor of the future sustainable development of the people but many people think of it as a new strategy to colonize the area on new modern lines.

Moreover, in 1949, the government of Punjab formulated the Thal Development Act of 1949 which is also called Punjab Act 15 of 1949. It is basically about the TDA and provides explanation and guidelines of TDA, how it was established and what were its duties, authority, rules, limits and working jurisdiction. Further it also highlights audits, finance and dissolution of TDA.

There is also a book which was issued by the Thal Development Authority's public relation division. It is called A Handbook of Thal Development Authority. It is considered as a major source of material about TDA, its history, organization and projects. Its focus is mainly over the development work of first four years of TDA.

(Khokhar, 2002), also contributed his work over the topic with the name, „*Thal Development Authority and Galaxy of Revenue Tenures*“ and this source is vital to

understand the colonizing, adjustment and acquisition of land in the desert especially after the refugees and migrants were asked to settle there. His work also narrates about the historical background of the bhakkar and other cities in Thal.

Thal desert mainly spreads within two districts of Bhakkar and Layyah and for the indepth and comprehensive information about the flora fauna, culture and history of Bhakkar and Layyah the book of Mehar Noor Muhammad Thind's, *Tarekeeh Bhakkar and Layyah*, is an important source to consult.

Other book, *„An Economical Survey of Eight Typical Village in the Thal“*, written by (Qureshi, 1955) is helpful to understand the economic conditions of local village peoples after it was colonized and outsiders were settled here. Other research work contributed in form of book by (Bedi, 1934), *„Indebtedness in the pastoral and agricultural zones of Bhakkar Thal“* is also vital to understand the Bhakkar district and which existed before the partition. It highlights locals' socio-economic conditions, and physical features of the Bhakkar region.

(Ali, 2014) has contributed his work in form of a book, *„Punjab under Imperialism 1885-1947“*; it is significant source of knowledge relating to historical origin of canal colonies during the British era. British also settled people in canal colonies to maximize their own self interests. It conveys that there is always relation of development with the interests of ruling and elite class.

Muhammad Wasim Abbas, contributed his research over this topic and title of his topic was, *Role of TDA in the progress of Thal with reference to Bhakkar Region*. This was the first and only research by an independent researcher. In this work there is plenty

of material about settlement after independence and development of Thal region with more focus on Bhakkar.

There is also a feasibility report (PC-1) about Thal Canal, and it is very informative because it provides considerable information about the historical background of the Greater Thal Canal project.

Public Relation Department Lahore published a A Year Book both in Urdu and English languages from period of 1950 to 1968. This book is major information source regarding the development work which had been carried out during that period. Further there is year wise development related work which covers all those years. It is easily understandable for any researcher studying Thal Desert because it is about the hurdles and challenges which were faced by the TDA officials.

#### **iv. Significance and Scope of Research**

This study is significant in the way that it will provide detailed information about the Thal Desert, its history and area it covers. Further it will explain culture, flora and fauna, and socio-economic conditions of the peoples living in this wide desert area. A detailed analysis and historical background of Greater Thal Canal Project and its current status will be discussed. Study is unique in the sense that there is hardly any study on this topic which is based on local people's and communities' perceptions of the project. It is necessary to know the local perspective, and concerns regarding the project to develop a better understanding of it. It is estimated that this project will serve the interests of local communities but there are genuine concerns of locals relating to displacement, land



allotment, route of main and linking branches of canal, and especially how this is going to impact the landscape, biodiversity and financial conditions of the local communities. So, it is vital to access the estimated development benefits as well as its negative impacts and concerns over it.

This study will contribute to the addition of new literature over the topic, and can be helpful for any researcher or student who wants to study on the project in the future. It can also convey the concerns of locals so that in future such concerns can be resolved.

**v. Objectives of the Study**

- a) To understand the development in real sense and how it can be applied in Greater Thal Canal Project, whether this is a developmental project for locals or any type of colonization.
- b) To explore the perceptions of local and indigenous communities about the Greater Thal Canal Project, how they see it and what their concerns are.
- c) To explain how this Greater Thal Canal Project is going to shape the landscape, biodiversity and financial conditions of the locals.

**vi. Research Question**

- a) Who are the stakeholders of Greater Thal Canal Project and how this project will serve the interest of the local community?
- b) What are the different opinions about the Greater Thal Canal whether the program genuinely address the concerns of local community, or it is another

attempt of colonization?

- c) How is this Greater Thal Canal Project going to shape the landscape, biodiversity and financial conditions of the locals?

## **vii. Theoretical Framework**

This research project will be held under the umbrella of two basic theoretical thoughts i.e. the Dependency Theory of Andre Gunder Frank (1971) and the Norwegian sociologist Johan Galtung's Theory of Structural Imperialism. Although these theories have a very broader and global perspective of colonialism, neo-colonialism, and unequal development and so on but here these theoretical considerations will only be taken on the micro level of development and uneven development in post-colonial independent Pakistan. The role of Pakistan as a neo-colonizer state and its various developmental projects especially the Greater Thal Canal Project will be analyzed in the light of the following theoretical considerations. In order to better understand the theoretical relationship with this research project, we must summarize the concerned theories as following;

**Dependency theory** explains that the worst conditions of the underdeveloped, backward and third world countries is due to ever growing greedy policies of the colonizer countries who developed their countries at the expense of the underdeveloped nations. In other words, the development of backward states was hindered and halted by the colonial policies i.e. the effects of colonialism in Africa, Asia, and Latin America.(Albertini, 1980)

Dependency theory deals with Marxist development in terms of economics and non-Marxist theories covering the socio-political sides of the colonized and colonized dichotomy. Andre Gunder Frank (1971) called this situation a state of dependency.

### **Dependency theory, colonialism and local economies**

Colonialism pushed the backward countries to provide raw material for their massive production industries with cheap labours available there too. Furthermore, they would sell the same products refined in their mother country to the third world countries. Thus, these poor countries and people were forced to purchase their own raw material as refined finished goods but on a much higher price.

### **Dependency theory and Neo-colonialism**

After majority of the colonies were freed from the colonizer's grip, but still they were able to ensure that the underdeveloped countries must not be allowed to become developed as they would still provide them with cheaper labors. As the colonial masters were not having political, economic and administrative control in the colonial independent states, they still managed to control the flow of cheap labor and raw material to the develop countries through various economic tools via Neo-colonialism. On the other hand the newly emerged post-colonial state is now behaving like a neo-colonial master to assert and extract resources from backward areas like Thal of South Punjab and Sui or any other areas of Balochistan. This neo-colonial state is somewhat controlled by the then colonial masters even today via different means and strategies.

Norwegian sociologist Johan Galtung's Theory of Structural Imperialism is yet another dimension of the dependency theory which focuses on the importance of bridgeheads in the process of underdevelopment. According to Galtung, the elites of the outlying areas and those of the metro poles are constantly interacting with each other via bridgeheads. In this way both the elites keep the outlying areas dependent on the metro poles and the local elites (the case of Greater Thal Canal presents almost the same situation)

#### **viii. Research Methodology**

The research is primarily based on a qualitative study. It is aiming that a comprehensive understanding will be developed on the Greater Thal Canal Project (GTCP). Moreover, in this research a theoretical framework will be applied that whether the project is for the wellbeing of the local community, or this will serve the interest of a particular class. Moreover, for this study data will be collected from primary and secondary sources. The primary sources will be in the form of guided interviews and project documents whereas the secondary sources will be used to establish the prior historical background as well as theoretical framework for this study. Furthermore, after data collection, case study analysis will be used as the analysis technique.

#### **ix. Scheme of the Study**

This research project will be conducted under the following tentative scheme of study and might be changed according to the supervisor's insights;

## **Introduction.**

This chapter will majorly explain the brief historical background, statement of the research problem, research questions, research methodology, review of relevant literature and suggested bibliography that may include the literature to be used in future for this research project.

## **Chapter 1. History of Thal Region.**

Overall historical background will be presented in this chapter i.e. land, area, people, social stratification, living, flora and fauna of Thal region etc.

## **Chapter 2. Colonial Setting of Thal Region.**

The ideas behind Thal region development that emerged in the colonial era and what strategies and goals were behind developmental project that were involved i.e. various authorities, policy reports and survey reports of that time will be utilized.

## **Chapter 3. Greater Thal Canal: Greening the Desert**

This chapter introduces Thal Development Authority (TDA), TDA schemes for colonization, Greater Thal Canal (GTCP), History of GTCP, Overview of GTCP Phase II, Aspects of development of GTCP, transformative impact, management of rakhs and stakeholder views regarding biodiversity management.

#### **Chapter 4. Development Projects: Neocolonial perspectives.**

This chapter analyzes the greater Thal canal project using the lens provided by post-development theories of Andre Gunder Frank and Johan Galtung. It also delves into the views of stakeholders to provide a better understanding of the canal project.

#### **Chapter 5. Greater Thal Canal Project: Outputs and Analysis.**

Outputs of the project are discussed and in light of qualitative data and post-colonial data, it will be examined whether the independent Pakistani state is playing its role as its predecessor colonizers in the garb of a neo-colonial state or its strategies and stakes are purely for development of the backward areas like the Thal region.

#### **Conclusion**

An honest, research-oriented and considerable as well as reasonable conclusion will be drawn in the end. This final part of the research will present all the basic findings of the research conducted and recommendations and suggestions will be put forward to contribute to the existing body of knowledge.

## Chapter 1

### Background of Thal Desert.

The Greater Thal region, situated between seventy-one to seventy-two degrees longitude and thirty to thirty-two point five degrees latitude on the map of Pakistan, covers an area of sixteen thousand and five hundred square kilometers. It is surrounded by the Chenab, Jhelum, and Indus rivers, forming the Sindh Sager Thal Doab. Shaped like an irregular triangle, this region, resembling a carrot, has natural boundaries with the Jhelum and Chenab rivers on the east and the confluence of the Indus River on the south, giving it a distinct identity. The Thal region is divided among Mianwali, Khushab, Jhang, and Muzafargarh districts, with the majority situated in Bhakkar and Layyah districts (Abdul Haq, 2003). Historically, Mankera has held a central position in the vast Sindh Sager Thal Doaab desert, located between the Indus River and the Chenab and Jhelum rivers. The Thal land has been a custodian of various ethnicities and cultures since ancient times. Despite its seemingly desolate appearance, the ruins in this region conceal significant historical treasures. History serves as a museum of human experiences, allowing future generations to learn valuable lessons (Khokhar, 2017). Thal boasts a rich political and social history, having been ruled by various local and foreign powers, including Arabs, Turks, Mughals, Balochs, Pathans, Sikhs, and the British. This land has been the birthplace of many noteworthy personalities whose knowledge and art have been acknowledged for centuries (Saqlain, 2022).

Almost a fifth of earth consists of deserts and most of such areas receive minimum rainfall. There are specialized plants and animals which are found in deserts. There are five deserts inside Pakistan and third major desert is Thal Desert. It is located

between the Jhelum and Indus River, and is cultivated through the joint streams of Chenab and Jhelum River. Thal Desert is located in South of Salt Range and it has total area of five million acres. Thal desert looks like irregular triangle having width of 65 and length 175 miles respectively. It is divided in three major parts namely; Thal Kalan, Northern Thal and Daggar Thal. What makes this desert unique is its austere and unproductive landscape with sand dunes, extreme poverty and extreme environmental conditions. There were no canal system of irrigation in the desert rain and well irrigation systems were used for agriculture. Dunes of sand keep on shifting and rolling and daily temperature keeps on changing with high degree. Wind speed is often high in it and grass which is grown here is used for vegetation and animal grazing. Livestock and agriculture are the major economic and living sources for the locals. Population in the Thal desert is scattered and dispersed. It is also fact that Thal desert is not much harsh like other deserts but it has distinct features of its own and there are many natural attractions (Abbas, 2020),

### **1.1. Geography of Thal Desert**

Being the third largest Desert of Pakistan, Thal Desert is sparsely spaded over 6 districts of mainly southern part of Punjab province and major part of the desert lies in Layyah and Bhakkar districts. This desert lies almost 200 meters above the sea level from North side and its height decreases to 120 meters in the South. It is categorized as agro-ecological zone 111 due to the fact that it is sandy, arid, semi-arid environment inside it. All the districts which cover this desert have some common geological features with little bit difference. Mankera, Roda Thal, Dullewala, Piplan, Hyderabad Thal, Kundian, Chok Azam, Saraye Muhajir, Mehmood Shaheed Thal, Rangpur, Noor Pur Thal and



Muzafargarh are basically the main towns and cities in the Thal area. The desert consists of large sand dunes and rigid sand dunes, sand plains which seem to be rolling, and valleys with drier and flatter land. On the upstream flows the river Indus and wind both have contributed in formation of such sand dunes. Such dunes cover a large part of desert. (Rehman et al.,1997).The presently active floodplain of the Indus River extends over 20 kilometers in width at the southern fringes of the desert, while the abandoned floodplain covers even wider areas of elevated terrain. These elevated areas are actively eroded by the Jhelum River, forming escarpments that overlook the floodplain (Greeman et al., 1967). In comparison to the sand in the Upper Indus region, the sand dunes of the Thal desert contain fewer quartz and sedimentary to low-rank meta-sedimentary rock fragments. However, they have higher concentrations of feldspars, volcanic, and metabasite rock fragments, as well as heavy minerals. It is believed that the dune sand originates from various sources, including the Trans-Himalayan arcs (40–45%, primarily from the Kohistan arc), the Karakoram-Hindukush Ranges (40–50%, with approximately one-third coming from the Kabul River), the Nanga Parbat massif (<10%), and the Himalayan belt (<10%,includingrecycled detritus by the Soan River).



The Thal Desert in the Map of Pakistan

## 1.2.Dominant Views about Thal Desert and its Formation

There are many theories and views about the history of this vast desert. Some of the ethnic references suggest that in the remote past there was either sea, or many rivers which used to flow in the area. Other sources tell that in the area of Layyah and its surroundings, there used to be many wild animals like Cheetahs and Lions. In local language lion was called Shenh while locals used the word Waag for the Cheetah. It means that in past sometimes the area was full of deep forests. This view proves that in past there was sufficient amount of water in the area and some of the area was cultivated as well. Mankera is historical city and place located in the middle of desert which usually came from two words of Man and Kara meaning upper bank and lower bank respectively. From this it can be proved that Mankera during sometimes in history used to be located on riverbanks. Seashells also have been found in the sand dunes which are helpful in understanding that such shells came from river. Although there is no exact timeline and

boundaries discovered regarding the presence of river, it is proved that there used to be river in the area. Another related view is that this desert used to be part of a large desert which was sunk in the sea. This is the task of geologists and archeologists to prove what theory is right about the formation of Thal Desert (Mehtar, 2003).

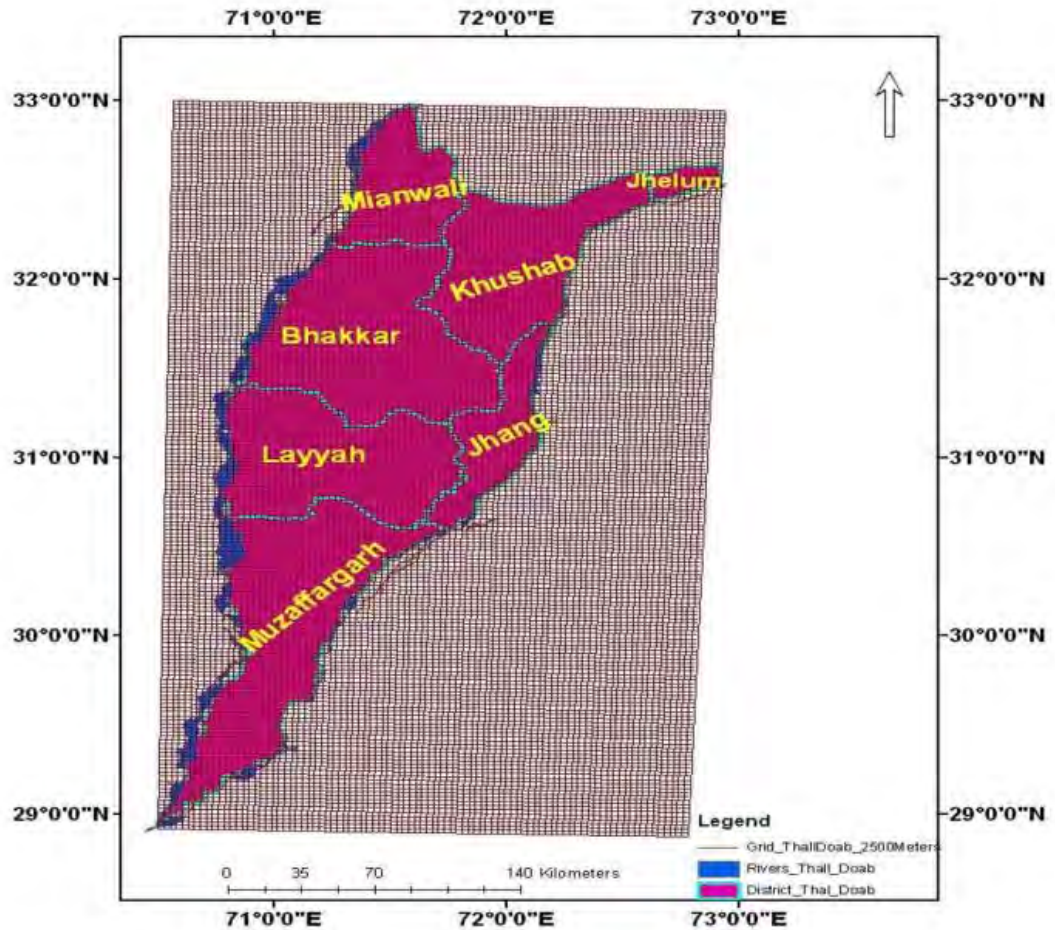
### **1.3.Thal Desert History**

The splendor of the vast Thal desert has endured unchanged from the Stone Age to the contemporary era. Mankera, once part of the Indus Basin, witnessed the reigns of various civilizations, including Aryans, Bhatti, Rajput, Egyptians, Iranians, Greeks, Bloches, Pathans, and Mughals, all incorporating this significant region into their territories. The Jiskani Bloches ruled over Mankera and its surroundings from 1648 to 1789 AD, with Mir Bloch Khan being the first ruler and Muhammad Khan Jiskani being the last. The renowned Mankera Fort, whose ruins still stand, was constructed by the Jiskani Bloch rulers (Shah, 2019). In the later medieval period, the Sadozai Pathans of Multan governed Mankera and its vicinity from 1795 to 1821 AD. Nawab Muhammad Khan Sadozai, also known as Nawab Sirbuland Khan, was a notable ruler during this time. He extended Mankera Fort, built Mubarak Garh Fort in Kot Addu, and established the Jameah Maslid (Comprehensive Mosque) in Mankera. His tomb remains situated within Mankera Fort. The last Sadozai ruler, Nawab Ahmad Khan, ruled from 1815 to 1821 AD until being defeated by Ranjit Singh in 1821 (Kaleem, 1981).

Mankera, once a buffer state during Mughal rule, served as a crucial region in the Indus Basin. Positioned on the route from Lahore to Qandhar (Afghanistan), it gained historical significance. The region was a heartland in the Indus Basin, witnessing the

passage of attackers from Bolan Pass and Khyber Pass who would encamp at Trimon Dwarf. Over time, Mankera became an essential location on the road to Qandhar, elevating its historical importance (Zubairi, 2002). Historical evidence indicates that in the Mankera region, cities like Amwani (Hyderabad Thal), Bhakkar, Mal Kher Kot (old name of Mankera), Kehir Kot (Kror Lal Esan), Loh Kot, Moj Garh, and Kot Machhi were among the oldest cities of that era. Some of these names have disappeared, and newer cities like Johar Abad, Quaid Abad (district Khushab), Fatehpur, Chok Azam (district Layyah), and Sara e Mohajir (district Bhakkar) have emerged later (Khokhar, 2017).

Many ancient cities, once renowned in history, are no longer present except for Multan. Where jungles existed thousands of years ago, now stand urban centers, while industrial cities of the past have turned into ruins. This dynamic transformation underscores the continuous journey of history, where every particle and individual holds a unique historical narrative. History serves as a means to explore the past, allowing individuals to delve into eras millions of years ago (Khokhar, 2017).



#### 1.4. Arrival of Sikhs

Under the rule of Ranjit Singh in Mankera, various governors held office during different periods. Lala Ratan Chand served as governor from 1822 to 1824, followed by Naraen Das Arora from 1824 to 1827, Tej Bhan Arora from 1827 to 1828, Abdul Samad Badozai from 1828 to 1831, Sardar Khizan Singh from 1831 to 1837, and Dewan Jawaya Ram from 1837 to 1839. After the death of Maharaja Ranjit Singh in 1839, his son Kharak Singh ascended to the throne, and Dewan Karam Chand became the governor of Mankera from 1840 to 1844. Ghulam Mustafa Khan Sadozai held the position from 1846 to 1847, and Dewan Ratan Chand served as governor from 1847 to 1848. The British

Empire's influence grew after Maharaja Ranjit Singh's death, eventually leading to their occupation of Mankera on June 30, 1848 AD (Khokhar, 2017).

During Sikh rule in Mankera, several prominent tribes resided in the region, including Muslim tribes like Chheena, Dhol, Bidwal, Sial, Sandilah, Khokhar, Karlu, Bhutta, Khoja Sheikh, Kais, and others. Additionally, Hindu Sikh tribes such as Makar, Sandal, Joneja, and Aahoja were present during this period.

### **1.5. Britishers control over administration**

The British took full control of the state of Mankera and its neighboring regions in December 1848 AD, stripping all powers from the Sikh government officials. They abolished the state's delimitation, revised tax rates, and implemented new revenue rules. The status of the state was changed to Tehsil and incorporated into the Jhang District (Zubairi, 2002). Subsequently, in 1853, the tehsils of Layyah and Mankera were separated from Jhang district and included in the Dera Ismail Khan District. The year 1860 saw the merger of the Multan province into the Lahore province, forming Punjab. During this period, Mankera's Tehsil status was reduced to that of a Police station, and Bhakkar was granted Tehsil status, with Police Station Mankera included in Bhakkar Tehsil. Concurrently, Darya Khan Tehsil was also divided, and Mianwali and Isa Khel were incorporated into the Bannu district.

In 1901 AD, with the establishment of the North-West Frontier Province (NWFP, now Khyber Pakhtunkhwa), Mianwali and Isa Khel were excluded from the Bannu District. In October 1901, Bhakkar and Layyah tehsils of Dera Ismail Khan district were

separated and included in the Mianwali district. Consequently, a complete Mianwali district was formed, comprising the tehsils of Mianwali, Isakhel, Bhakkar, and Layyah, and added to the province of Punjab. In 1908, Layyah Tehsil was detached from Mianwali District and added to Muzaffargarh District. As a result, Mianwali district was left with three tehsils: Bhakkar, Mianwali, and Isakhel (Gazetteer of District Mianwali, 1915).

### **1.6.Administration After the Independence of Pakistan**

After the creation of Pakistan, the newly formed state faced various serious challenges, including the influx of Muslim migrants who were forcefully and violently displaced from their homes, accompanied by massacres and abductions of girls. This orchestrated conspiracy aimed to destabilize the infant state of Pakistan. Migrants arrived in the Mankera region, as in other parts of Pakistan, and the local people of Mankera extended a warm welcome to the refugees, swiftly helping them settle.

The residents of Mankera provided food and accommodation to the refugees, who occupied houses left vacant by Hindus. Residential and agricultural properties were allocated to migrants, and those with agricultural land were temporarily assigned land for sustenance. Additionally, each migrant family in the Mankera Thal region was provided with a handloom to support local industries. The departure of Hindus and Sikhs created a void, which was filled by the settlement of Muslim migrants. The dedication of these migrants, contributing to various sectors of life and business, led to significant prosperity not only in Mankera but in cities across Pakistan (Qureshi, 2014; Abbas, 2020).

Despite the impact of the partition and the subsequent migration on the cultural and traditional landscape of the region, Mankera has remained a cradle of peace and harmony, preserving Sikh, Muslim, and Hindu customs and cultures. After the British occupation downgraded it from a state to a police station, the region's cultural and traditional conditions were influenced. However, the simplicity, generosity, and hospitality of the local community attracted Muslim migrants, fostering unity and mutual understanding. Despite differences in dialects and customs, the peace-loving nature of the region allowed both communities to settle harmoniously, shaping a culture of creative development and reflecting the best of both traditions in its vast foothills.

### **1.7.Thal Soil in Thal Desert**

On the Map of Punjab Province, Thal can be observed in the shape of irregular triangle. On Eastern side of Thal, River Chenab and Jhelum flow while Indus River flows on its Western side. It is important to know about „Nasheb“ which means the area which is lower than Thal, before discussing the type of soil in the Thal Desert. This lower area or Nasheb is further categorized into two parts namely Kacha and Pakka, and the area which is close to River Indus is Kacha and remote or beyond area is called Pakka. Local people of the area who speak Saraiki language, use the term Kachh as well for Kacha as this is the area which is in the armpit of river. The soil of Kacha is mostly fertile and most suited to crops cultivation as this soil is replaced by fresh soil of river when water flow in the river is at peak or when there is flood water crossing the banks of river and scattering in surrounding areas. Kacha area was considered as an employment source in the past and during the introduction of canal system in the Thal area. When it was drought, this Kacha



area provided shelter to the locals as they got closer to the river and water. Due to this reason, one can see that from Layyah to Kalurkot, major cities and towns are stretched near the banks of Indus River. Kacha is basically Nasheb, lower area surrounding the river.

### **1.8.Natural Division of Thal Desert**

The natural division of Thal Desert can be categorized in three parts which are discussed below.

#### **Northern Thal**

This is called as the base of triangle shape of overall Thal Desert. This is the small part of Thal which is stretched from east to west having close proximity with Salt Range. The soil and clay of this part of desert is hard due to presence of mountains in surrounding. Between Niazi and Khundri, Khatak is valley which is enclosed in the hills and mountains and start of a rough sand which mounts slowly and converted into sand dunes. This part of desert is touched by Bhakkar from the southern direction and Khushab from Eastern side. This is the sandy strip from where the Railway line passes through which is source of connection between Khushab and Mianwali.

#### **Daggar Thal or Thal Jandi**

This area of Thal desert lies between Nasheb and Thal Kalan area in form of a long strip. Its characteristic is that sand dunes are not found here rather soil here is stiff and proper for cultivation. In Kundian, the river bank is about 20 feet high. But from here the height keeps on decreasing one foot after 5 miles and when it reaches Layyah the height decreases to 4-5 feet. Going further to Kot Sultan the level of river water and banks looks same. This part of Thal is called Thal Jandi in Layyah and this is due to the

fact that there is abundance of trees like Keekar and Jandi in this area. On the other hand in Bhakkar side this Thal area is called Daggar because and this is due to the fact that in the past there wells in the area.

### **Thal Kalan**

It is consisted of the all the eastern part of Thal Desert. Much of the area lies in Layyah and Bhakkar districts. One can observe only sand in this area which is stretched everywhere. Plants and small meadows can be observed, further there is greenery and trees but all this is scattered and very far between. Direction of sand dunes is from north east to south west like the surrounding rivers. Wind also blows in same direction most of the time. It is task of geologists to understand and explore these facts of the Thal Desert. Sand dunes in the desert are not those of rocky or rough, instead they have layer which covers these dunes. Some dunes which are located between Thal Dagar and Kalan have small size and unique shape. Moving in west direction, dunes become small with small hard land stripe with them which goes parallel to Indus River. At the end of this strip, there lies an area with no population and is called Puwah in local terms (Thind, 2009).

### **1.9.Pastoral society and economies**

In most parts of Thal, Maldari, or the practice of grazing domestic animals, has been a primary profession for centuries. People engaged in the grazing of various animals such as goats, sheep, cows, and camels. Cattle played a crucial role in the Thal's economy, serving the primary purpose of meat delivery. Additionally, cattle were utilized as beasts of burden and a source of motive power in agriculture. Furthermore, cattle contributed secondary products such as milk, cheese, and butter.

Buffalos were relatively rare in Thal compared to sheep and cows and were primarily kept in areas where there was sufficient feed throughout the year, such as the Daggar region. Thal, on the whole, did not have an exceptional variety of livestock compared to other regions in the country. Many cattle grazers owned their animals, while others belonged to Sahukars, and the grazers looked after the animals under agreements known as Shah Gamastha. According to these agreements, grazers received milk and a portion of wool. Traditionally known as Ajri or Chhero, these grazers were akin to shepherds. One Ajri could manage around eighty to one hundred animals simultaneously.

These people, largely dependent on Maldari, led a nomadic or semi-nomadic lifestyle as they had to travel in search of water and grazing fields. It's noteworthy that these individuals generally led content lives without falling into indebtedness. The success of Maldari in Thal can be attributed to several factors, including the presence of trees like Phog, Jand, and Lana that served as valuable fodder for cattle. The specific type of lands known as Rakhs provided grass for grazing, and the ability to easily shift to areas with better conditions in case of insufficient rainfall contributed to the profession's success.

Over time, the region's economy heavily relied on both major and minor waste products. Domestic animals were grazed on these waste products, and the practice of Maldari was intricately tied to these resources. The resilient nature of both the people and the plants in this arid region allowed for a sustainable way of life. Local trees like Phog, Jand, and Lana required minimal rainfall to thrive, showcasing the region's adaptability to its challenging environment.

### **1.10. Thal Desert Forts**

One of the main features of Thal Desert is that it is full of historical forts and buildings constructed by different rulers and tribes in the past. Such forts were built by strategic point of view to save the towns and cities. Although many of them have vanished with the passage of time, but still there are plenty of them which divert one's attention in the past.

Most important forts which still exist are: Noshera Fort, Layyah Fort, Amwani Hyderabad Thal Fort, Kot Sultan Fort, Dhigana Fort, Ladhana Fort, Goharwala Fort, Notak Fort, Shergarh Fort, Dullewala Fort, Kafirkot Fort, Bhakkar Fort, Nawan Kot Fort, Chobara Fort, Kallurkot Fort, Kotaddu Fort, Mankera Fort, Mahmoodkot Fort, Khangarh Fort, and many more.

### **1.11. Famous Historical Places Located in Thal Desert**

Thal desert area is full of historical places, forts and tombs of famous Sufi saints. All of them are related to the history of the area and tells us the stories of different rulers and changes which occurred in the area in the past. Among these historical places the famous places to visit are: Dilkusha Garden, Lion Temple, Masjid Sirbuland Sadozai, Mankera, Nawab Sirbuland Tomb, Norr Qalandar Badshah Tomb, Cannonballs, Chakar Khan Hillock, and Kikki Wala Hillock.

### **1.12. Mela Inayat Shah in Thal Desert**

Numerous events and fairs take place throughout different months of the year in the Thal desert, showcasing the rich local traditions and culture of the region. One such historically significant event is the "Mela Inayat Shah," which has been celebrated in the

area for the past 150 years. Located in Fatehpur city, this event is not just a festival but also a cultural extravaganza. The celebration marks the arrival of the spring season and is known for its captivating camel dances accompanied by human performances.

The Mela Inayat Shah has become a cultural festival that attracts people from various regions. Camel owners from far-flung areas bring their camels to participate in the festival, making it a vibrant gathering. The event serves as a significant source of employment and is deeply rooted in old and local traditions. It goes beyond being a mere spectacle, spreading messages of love, harmony, peace, and friendship among the attendees.

Camels take center stage in this festival, with hundreds of them brought and sold during the event. The activities include camel races, traditional dances, and tent pegging, creating a festive atmosphere. The Mela Inayat Shah stands as a testament to the enduring cultural heritage of the Thal desert, providing a platform for the community to come together, celebrate, and preserve their rich traditions.

### **1.13. Thal Jeep Rally Festival**

One of the main attractions for the tourists in the Thal region is famous Jeep Rally of Thal desert. This event is everywhere held and it is managed by TDCP. Men and women from different parts come and participate in the rally. There is great contribution of TDCP to make this event as a source of attraction and fascination for the tourists. The starting point of this rally is Head Muhammad Wala and every year there is fixed amount

for winners of this rally. There are many famous hotels and restaurants in surrounding areas where tourists can stay and enjoy the food as well.

The Government of Punjab took an initiative to promote tourism and economic development in the Thal region by organizing the Thal Jeep Rally. This event, which ran from district Muzaffargarh to Layyah, proved to be highly successful. The Tourism department and TDCP (Tourism Development Corporation of Punjab) collaborated to arrange not only the jeep rally but also various cultural events in the Thal area.

The Thal Jeep Rally and accompanying cultural activities aimed to boost adventure tourism in these remote areas while providing economic opportunities for the local communities. The festivities included vibrant local dances, traditional joomers, and performances of local songs, all of which were well-received by the public. The desert landscape served as a captivating backdrop for this thrilling event, showcasing the rich regional culture and colors.

In addition to offering entertainment, the Thal Jeep Rally and associated cultural events played a significant role in contributing to the socio-economic uplift of the area. By attracting tourists and participants, the rally brought attention and economic activity to the Thal region, thereby positively impacting the local economy. This initiative demonstrated the government's commitment to fostering tourism, preserving cultural heritage, and promoting economic growth in remote areas like Thal.

#### **1.14. Local Culture, Traditions and Economic Status of Locals**

Majority of the population residing in the Thal desert is of those who are local and indigenous people residing there for centuries. They have their own unique culture and traditions. They are very simple people and always welcome their guests. Locals wear

their local dress of shalwar Kameez, Patka and Manjhla. Locals are close to their soil and have great connectivity with the environment of the desert. Siraiki is the main language which is spoken here, and it is language of the locals. The cultural dance of the locals is Jhummar which is performed on different oceans of happiness. Jhummar is performed by a group of people in form of circle and this dance is very unique and captivating (Hussain, 2012).

People usually are dependent over agriculture and livestock for their living. Due to lack of water they have to grow such crops which are more suited to the soil and temperature of the desert.

#### **1.15. Folk Dance and Music**

There are many traditional events celebrated in the Thal Desert area. People are close to their soil, culture, music and folk dance. The music is rich and language is very sweet. There are gatherings, musical nights and events, and local dance which add beauty to the culture. Often at night locals can be seen and listened singing their local and traditional music of Siraiki Language. There is Table, there is Dhool Been and there is Sitar and their combination with Siraiki language and poetry is very unique. The voice of the musical instruments and singers fill the mind and heart with peace. There is no explanation of such a wonderful and beautiful local dance Jhummar as it is filled with elegancy when a group of locals perform it.

#### **1.16. Flora and Fauna of the Thal: A Bio diverse Landscape**

The ecosystem surrounding the Thal is a dynamic tapestry of flora and fauna, each thread contributing to the intricate balance of life in this region. As water flows

through the canal, it nurtures a diverse array of plant and animal species, creating a vibrant and interconnected web of life. Biodiversity, encompassing all life forms on Earth, including fauna and flora and their species, genetic material composition and ecosystems. Its significance lies in the myriad ways it benefits human beings, offering services such as predation, food, symbiosis, shelter, soil formation, nutrient recycling, oxygen production, pollination, water purification, and water filtration. An Ecosystem which is healthy plays a crucial role in fulfilling the basic needs of both urban and rural populations. Consequently, any adverse impact on biodiversity can disrupt the delicate balance between the environment and development.

Distinctive qualities of Thal's biodiversity include:

- A variety of habitats that sustain thriving wildlife populations, which includes the famous houbara.
- A tightly-knit rural community with strong ties to the land, marked by deep-rooted local traditions and lifestyles.
- A cultivated terrain showcasing locally unique breeds.
- An outstanding network of pathways, featuring rugged trails that offer excellent opportunities for walking, horseback riding, and cycling.
- A scenery that provides inspiration and delight to both visitors and residents.

**Flora:**

The flora of the water scarce Thal region is characterized by its resilience. Plants in this arid environment, much like the people, have adapted to the challenging conditions. Noteworthy plant species include:

- **Jal Tree:** Commonly found in western Thal, the Jal tree's leaves are a preferred



food source for camels. The tree bears Peelo fruits, resembling the size of black gram, which are colorful and tasty, constituting a significant part of the locals' diet. These trees, collectively known as Jhand, withstand the test of time despite their not-so-straight, stout, and tall stems.

- **Kareer (Kari/Karenh):** A bush with thin yet sturdy branches, Kareer is utilized to cover roofs of houses and huts. It also finds use in constructing wells and is consumed by goats and sheep, especially in the form of dry leaves.
- **Beri Tree:** Flourishing near water sources, the Beri tree is cultivated in some parts of Thal due to its strength. Known for its thorny branches, the tree bears Bair fruits, which are sweet and delicious when ripe.
- **Keekar, Jand, Khagal:** These trees, though not fruit-bearing, are valuable for everyday use items. They serve various purposes in daily life.
- **Sheesham, Shrenh, Sars:** While not native to Thal, these trees can thrive if provided sufficient water due to the region's fertile land.

#### **Herbs:**

- **Sarkana:** Grows rapidly near water resources and is historically used in construction, learning materials, and as food for animals.
- **Mounj:** Used for manufacturing various items, including boats by the people of Sind for trade purposes.
- **Khap:** Found in lower parts of Thal, used for making baskets, ropes, and strips

for daily use.

- **Boi:** Abundant throughout Thal, essential for pottery and brick making, serving as a primary fuel source.
- **Phog:** Used year-round as fuel in kitchens.
- **Lariran:** A favorite food of camels; when burned, it transforms into Khar, used for cleaning clothes.
- **Barra:** Used as fuel and for roofing due to its lightweight nature.
- **Khus (Khadi):** A fragrant plant that, when consumed by animals, imparts a pleasant smell to their milk.
- **Ak:** A poisonous plant; its branches are used in making the local version of a smoking pipe called Huqqa.
- **Harmal:** Produces smoke effective in repelling harmful insects at home.

These diverse plant species highlight the resourcefulness of the Thal region's ecosystem, with each serving essential roles in the daily lives of its inhabitants.

## **Fauna**

In the Thal region, animals have adapted to the local nature, weather, and living conditions, resulting in variations in color, height, and habits among the same species in different areas. Here are details about the animals found in the Thal area:

- **Camel:** Referred to as the "ship of the desert," camels are the most valuable

animals in Thal. They are resilient in various weather conditions, capable of surviving long periods without water, and serve as essential beasts of burden. Camels play a crucial role in agriculture and well operations due to the low water table in Thal. Their wool, meat, leather, and milk contribute significantly to the Thal economy.

- **Horse:** While not originally native to Thal, horses are domesticated in cultivated parts. They are often seen in Thal fairs, participating in horse riding, tent pegging, and other competitions. Horses are used for short-distance travel and can bear smaller burdens in everyday rural life.
- **Donkey:** Donkeys are important for short-distance travel, particularly among woodcutters, launderers, and other low-income groups in Thal. They are easy to domesticate, adaptable in their diet, and can carry weights of up to one hundred kilograms. Donkeys quickly become familiar with humans.
- **Sheep and Goats:** Sheep and goats are vital to the Thal economy. Both graze freely, and their products are significant for the locals. Goat's milk is considered healthy, while sheep's milk is used to make ghee, butter, and special shawls. The wool of these animals is woven into dresses for the winter season. Although Thal families typically own twenty to thirty goats, the number of sheep is decreasing.
- **Rabbits and Deer:** While rabbits and deer are native desert animals, they have nearly become extinct in Thal due to hunting. Some individuals, however, domesticate them at home or in designated areas.

- **Wild Animals:** Wolves, locally known as Nehr, are the most famous wild animals in Thal and are frequently encountered.

Other wild animals include jackals, foxes, nevla (mongoose), and hyenas. Thal is also home to snakes and scorpions in abundance.

### **Avians**

Birds are abundant in the Thal region, encompassing both local and seasonal species, including migratory birds from cultivated lands and neighboring rivers. Here's a detailed list of birds found in the Thal area:

- **Grey Partridge:** Ornithologists identify five main kinds, including Mushki, Kala, Pahari, Murgh Kala, Mauqash, and. Kala partridge is a domesticated bird known for its high-pitched sound and preference for thin forests and open plains.
- **Chakor:** Found in the barren hills of Koh-e-Suliman, Chakor is a fast and strong bird with yellow coloring. It is resistant to extreme weather conditions.
- **Quail:** Migrating from northern hilly areas, quails seek refuge in Thal during winter. Their unique voice in approaching spring makes them a target for hunters using nets in fields.
- **Pigeon:** Pigeons, known for their beauty and quick adaptation to humans, have six types, four of which are doves. Pigeon-keeping is popular across Pakistan.
- **Forest Hen and Cock:** Considered ancestors of domestic hens, these birds are found in small flocks in forested areas near cultivated lands.

- **Dirkhan Pakhee:** A pretty bird with a distinctive long beak, Dirkhan Pakhee is commonly seen in Thal, making holes in tree stems for accommodation.
- **Crows:** There are two main kinds, the fully black Cawwa, and the larger Dodar, brownish in the back half of its body.
- **Mena (Lalli):** With seven kinds, Mena is found throughout Thal and is known by the locals as Lalli.
- **Sparrow:** Despite being dependent on humans, sparrows are not very familiar with them. They are known for making noise and damaging ripened crops.
- **Green Sparrow of Yellow Neck:** These sparrows are commonly found in fields and open areas, often moving in flocks.
- **Baya Bird:** Known for its nests made of small sticks, Baya Birds are found suspended from tall tree branches.
- **Bhat Teetar:** Seen in far-off and deserted places, Bhat Teetar can fly long distances and forms small groups.
- **Owl (Chirbal):** A powerful and dignified hunting bird, owls are known for their terrible night vocalizations.
- **Nightingale:** Found in five different types in Thal, Nightingales are known for their melodious sounds and energetic nature.
- **Cuckoo:** Known for its sweet sounds during the romantic days of Sawaan,

Cuckoo birds are black in color.

- **Crane:** Migrating to Thal in September or October, Cranes are known for their loyalty to a lifelong mate.
- **Tilor:** Unique to Thal, Tilor weighs up to fourteen kilograms and runs with its head feathers raised like a hackle.
- **Parrot:** A beautiful and domesticated bird, parrots are known for damaging ripened fruits.
- **Ababeel:** Seen in flocks during sunset, Ababeel moves in circles quickly and doesn't live alone.
- **Tilliar:** A bird of passage, Tilliar, similar in size to the battair, resides in peepal trees, while another type known as Howbra arrives in the beginning of winter season.

### **1.17. People and Social Stratification:**

The Thal region has been inhabited for centuries, with its population comprising diverse communities and social groups. The population of the Thal region is a mix of various ethnicities, including Punjabis, Saraikis, and Pashtuns. This diversity has contributed to a rich cultural tapestry. The social structure of the Thal region, like many agrarian societies, traditionally followed hierarchical patterns. Historically, feudal systems and land ownership played a significant role in shaping social stratification. The

Thal region's semi-arid climate has influenced the livelihoods and living conditions of its residents.

Agriculture, primarily dependent on rainwater, has been the mainstay of the region's economy. Traditional crops like wheat, millet, and pulses are cultivated. Livestock rearing is also a common practice, contributing to the livelihoods of many families. The Thal region's arid conditions and occasional droughts have posed challenges to sustainable agricultural practices, leading to fluctuations in agricultural productivity.

## Chapter 2

### Colonial Settings of the Thal Region

The Thal region, an extensive arid expanse situated in the western part of Punjab, encompasses portions of present-day Punjab and Khyber Pakhtunkhwa provinces in Pakistan. It is distinguished by its semi-desert landscape, which limits its agricultural potential due to aridity. Prior to the colonial period, the Thal region was inhabited by various tribes and communities, including the Jats, Awans, and Khokhars, who predominantly pursued agrarian livelihoods but encountered challenges due to the arid conditions. British colonial influence began to shape the Thal region during the 19th century, with the expansionist policies of the British East India Company leading to the annexation of Punjab in the mid-19th century (Haynes, 1987).

One of the most notable transformations during the colonial period was the introduction of canal irrigation systems. The British initiated the construction of canals such as the Lower Bari Doab Canal and Upper Bari Doab Canal, diverting water from the Indus River to irrigate extensive areas of land, including parts of the Thal region (Haynes, 1987). This irrigation infrastructure revolutionized agriculture in the Thal region, enabling the cultivation of crops like wheat, cotton, and sugarcane that were previously unviable due to water scarcity. To fully exploit the newly irrigated land, the British implemented settlement schemes. These schemes involved incentivizing settlers, often from other regions, to relocate to the Thal and cultivate the land. Consequently, demographic shifts occurred as Punjabi Muslims, Sikhs, and others migrated to the Thal region. Settlers were provided with land under favorable terms and were expected to



contribute to the agricultural development of the region. (Banerjee et. al, 2005).

The agricultural revolution in the Thal region had a profound economic impact, contributing significantly to the overall wealth of British India. Increased agricultural productivity boosted the region's economic prosperity. However, the British administration imposed heavy land taxes, which often fueled resentment among the local populace (Reale et al., 2011). Complaints of high taxes and economic exploitation were widespread during this period. Furthermore, the colonial era brought about social and cultural transformations in the Thal region. Interactions among diverse communities, including Punjabi Muslims, Sikhs, and settlers from other regions, shaped the region's cultural and social dynamics. However, the colonial rule also led to cultural assimilation and conflicts among different groups. The colonial era in the Thal region came to an end with the partition of India in 1947, resulting in significant demographic changes due to population migrations (Reale et al., 2011). The region was divided between India and Pakistan, leading to the displacement of communities and the establishment of new administrative boundaries. In the newly formed republic of Pakistan, urgent measures were taken to address the challenges posed by the refugee influx and to rehabilitate those affected by river actions, water logging, and salinity. The construction of the Greater Thal Canal Colony Projects was initiated to provide housing and agricultural land for the affected population.

British officials held a particularly negative view of the agricultural community in Southern Punjab, attributing their perceived lack of initiative and unwillingness to save to the region's arid geography. According to Sir Malcolm Darling (1930:276), Muzaffargarh epitomized "rural life at its worst," where peasants were described as

lethargic, wasteful, and impoverished, with an exceptionally low standard of living. Similarly, Sir Malcolm Hailey's influential 1902 study of the Thal desert reached similar conclusions regarding pastoral societies. He noted, "The predominant characteristic among the Thal people is their poverty – not just material poverty, but also a lack of initiative and intelligence. Exhausted from constant struggles with the unforgiving and unpredictable natural environment, they lack the energy to make further attempts at improvement" (Cell, 1992: 10).

According to British perspectives, the perceived lack of vitality among Muzaffargarh's peasants was occasionally attributed to their reluctance to move. Darling (1925:106) characterized Southern Punjabi farmers as a "remarkable phenomenon" because they showed little inclination to leave their homes. However, it was not just independence itself that was at issue; even the customary periodic migrations of pastoralists, during which their livestock grazed in the Thal region throughout the winter, faced opposition (Cell 1992:11). The criticism centered on the extent to which both mobility and inactivity were perceived as being focused on sustenance and non-productive expenditure rather than the accumulation of surplus. Southern Punjabi inhabitants' distant relationship with the colonial state also drew censure. According to Hailey, cited in the Thal Development Authority report of 1954:16, they showed a reluctance to register or engage in any form of labor. This independence from colonial authority sharply contrasted with the close ties between Northern/Central Punjab and the British military and commercial interests. Recruits from these areas were favored by Britain and granted irrigated land to strengthen the colonial government's political influence in Sindh following anti-colonial uprisings

(Perera 2003:285, 286).

During the final years of colonial rule, British ambitions to develop Southern Punjab along the lines of the Canal colonies did not materialize. However, after independence, continuous irrigation did become a reality. The Taunsa Barrage, constructed along the Indus River in 1958 under post-colonial administration supervision, provided an extensive waterway system in Muzaffargarh and Dera Ghazi Khan. Additionally, the Thal Development Project, aimed at settling and cultivating vast areas of arid desert in various Southern Punjabi regions such as Layyah and Muzaffargarh under the oversight of the TDA (Thal Development Authority), was closely linked with the expansion of industrial facilities.

The Thal Canal Project serves as a testament to the complex interaction between colonial ambitions, developmental initiatives, and resource management strategies during the colonial period. Situated in the arid regions of present-day Pakistan, the Thal region represented a blank slate upon which colonial administrators, engineers, and policymakers sought to realize their visions of rural reform and authoritative governance. The construction of the Thal Canal encapsulated the diverse inspirations and methodologies that characterized colonial developmental endeavors, emerging at a time when British colonial influence was expanding, and there was a focus on economic and strategic interests (Talbot, 2011).

Examining the colonial context of the Thal Canal Project offers a unique perspective on the interplay between innovative thinking, economic objectives, and the goals of colonial administration (Talbot, 1991). Exploring the historical records and research materials provides insight into the foundational principles upon which the

viability and benefits of the canal were justified. These records offer insights into decision-making processes that sought to balance economic gains with environmental considerations and prioritize public welfare within the context of colonial administration's overarching objectives.

## **2.1. Colonial Projects in Thal Region**

Prior to the partition, the Thal region had been under British rule since 1849. At that time, there were only a few sporadic inundation canals, and the British administration sought to foster development across the subcontinent through a consistent canal system. This initiative led to the commencement of the Upper Bari Doab canal construction in 1851. While the distribution of water resources among the provinces remained harmonious until 1900, subsequent years brought about significant changes in the situation. Various canal construction projects, such as the Sutlej Valley Project, the Bhakra Dam, the Thal Canal in Punjab, and the Sukkur Barrage in Sindh, were proposed and presented to the central government (Abbas, 2020).

The construction of multiple projects along the Indus River raised significant concerns, particularly for the distant province of Sindh (being located downstream, Sindh felt that these projects were an infringement upon their rightful share of river resources. The disputes over water distribution initially arose among Bikaner, Bahawalpur, Sindh, and Punjab. To address the escalating situation, the central government established the Indian Irrigation Commission in 1901. This commission mandated that the Punjab province must obtain prior approval from the Sindh government before initiating any construction projects.

Due to ongoing objections from Sindh, the Indian government could not initially gain approval for the Thal Canal project, even though construction on projects like the Bhakra Dam, Sutlej Valley Project, and Sukkur Barrage had already commenced under the Indian government's supervision. Eventually, in 1936, after a lengthy delay and following the submission of the Anderson committee report, the Government of India granted approval for the Thal Canal project. The implementation of the existing Thal Canal System underwent several revisions.

Between 1873 and 1936, the provincial government of Punjab submitted various projects to the central government:

### **1. Andrews' Project 1873**

In 1873, an initiative was introduced to establish a permanent irrigation system for the region located between the Jhelum and Indus rivers. The proposed project, beginning at Mari on the Indus River, aimed to provide irrigation to this area. Despite the fact that the Central Government did not grant approval for this project, its proposal brought considerable attention to the Thal area in terms of its future development prospects.

### **2. Sindh Sagar Colonization Bill 1901**

In 1901, the Punjab Government enacted the Sindh Sagar Colonization Bill with the objective of irrigating the region encompassed by the Sind Sagar Doab. According to the provisions of this bill, a canal was to be constructed to facilitate irrigation in the designated area. In exchange for this development, seventy-five percent of the Shamilat

Area (land jointly owned and possessed by landowners, meant for common use) was to be allocated to the state

### **3. Middleton's Project (1917)**

In 1915, a survey known as the rectangular survey was conducted in the Thal region. Following the completion of this survey, the Irrigation Department of India devised three different alternative projects, collectively referred to as Middleton's projects. These were then presented to the Central Government for approval. Among these alternatives, the third project received approval from the Chief Engineer and Inspector General of Irrigation in 1918. This scheme, which laid the foundation for the Woods project of 1919, consisted of the following details:

- i. To provide irrigation for the lower section of Thal, a non-perennial canal intended for Kharif (summer) crops would be constructed in the vicinity of the Bhakkar region along the Indus River.
- ii. A perennial canal was planned to irrigate the upper portion of the Thal region, with its origin at Kalabagh on the Indus River.
- iii. A perennial canal would be built to irrigate the entire Thal region, spanning from Mianwali to Muzaffargarh, commencing at Kalabagh on the Indus River.

### **4. Wood's Project (1919)**

The Woods project of 1919 aimed to establish a perennial canal with a discharge capacity of fourteen thousand cusecs, intended to provide irrigation for the entire Thal region. However, when the project was presented to the central government for approval,

it faced rejection. This was due to the government's prioritization of other projects, namely the Sutlej Valley Project, Sukkur Barrage, and Haveli Project.

### **5. Thal Canal Project (1921)**

When the Woods project of 1919 was reintroduced for consideration in 1921, the Indian government requested the Government of Punjab to conduct a comprehensive survey of the Thal region. This survey was sought to ensure the optimal utilization of river water for the purpose of irrigation.

### **6. The Survey of 1923**

Following the guidance of the central government, a rectangular survey was carried out in 1923. The Thal region was meticulously divided into numerous rectangular parcels of land, and stone markers were installed throughout the desert area. This survey is widely recognized as a significant milestone in the developmental history of the Thal desert, marking a crucial step towards its progress and transformation.

### **7. Quinn's Project of (1924)**

Following the conclusion of the survey in 1923, the government aimed to cultivate the entire designated area using a perpetual canal with a water capacity of 16,043 cusecs. However, the comprehensive project, which included numerous branches, distributaries, and smaller watercourses, faced a lack of approval from the government due to strong objections raised by Sindh.

## **8. The Lesser Thal Project (1925)**

To address the water requirements of the western section of the Thal region, the Government of Punjab proposed the Sangster Lesser Thal Project in 1925. This project was designed to establish a canal originating from Kalabagh on the Indus River, with a discharge capacity of 6,750 cusecs. However, the central government rejected this project based on the recommendations of the discharge committee.

The committee's report highlighted that constructing a perennial canal might disrupt the water supply to the Sukkur Barrage. As a result, the report advised the government to wait for a period of ten years to accurately assess the water levels at the Sukkur Barrage. Consequently, the project was postponed for a minimum of another ten years, reflecting the caution exercised in its implementation.

## **9. Patti Irrigation Project**

Patti, a specific area within Thal, was characterized by its flat terrain and suitability for cultivation. The government aimed to focus on cultivating this particular section of Thal due to its favorable characteristics. However, this plan faced a setback as the central government did not grant approval for this selective cultivation strategy.

## **10. Thal Canal Project 1936**

After a decade had passed, the Anderson Committee reevaluated the Thal Project when the water discharge at the Sukkur Barrage provided clarity on the feasibility of the endeavor. The committee recommended the construction of a canal with a capacity of 6,000 cusecs, significantly lower than the initially required capacity of 16,043 cusecs needed to irrigate the entire region. Based on this assessment, the Punjab Government



revived the 1925 project plan to construct a canal starting at Kalabagh with a capacity of 6,000 cusecs. This canal was designed to bifurcate into three branches: Dullewala Branch, Muhajir Branch, and Main Line Lower.

The project was divided into seven assessment circles, as follows:

- i. Pakka Circle in Mianwali Tehsil
- ii. Thal Circle in Khushab
- iii. Daggar Circle in Bhakkar
- iv. Thal Circle in Bhakkar
- v. Jandi Circle in Layyah
- vi. Thal Circle in Layyah
- vii. Thal Chahi Circle in KotAdu Tehsil

The estimated cost of the project was Rs. 154.5 million and construction work began in 1939. Due to the disruption caused by World War II, construction was halted in 1942, but it resumed a year later (Abbas, 2020). By the time of the partition in 1947, the Dullewala Branch, Main Line Upper, and Jinnah Barrage had been completed. Subsequently, the construction of the Thal Project Canals took place between 1949 and 1955, facilitated by the Agricultural Machinery Organization of the Thal Development Authority.

Punjab experienced rapid socio-economic growth during the British occupation and even earlier. By the late 19th century, its contribution to India's economy was significant. However, this development also brought the risk of overpopulation. To alleviate the pressure and utilize the uncultivated western land, the concept of canal

irrigation and migratory settlements emerged, later termed "canal colonies." During their presence, the British introduced various colonies in Punjab, such as the Sidhnai Colony, Sohag Para Colony, Chenab Colony, Jhelum Colony, Lower Bari Doab Colony, Upper Chenab and Jhelum colonies, Nili Bar Colony, and Thal Canal Colony. Each canal project had its unique scheme for land allocation, either to grantees or retained by the government based on the plan. Canal systems varied across colonies. For instance, Sidhnai Colony used a perennial canal system for Kharif harvest, while Rabi crops relied on well irrigation due to water diversion to other areas. Similarly, Chunnian Colony was connected to the Upper Bari Doab canal extension. Jhelum and Chenab colonies had separate, individual canal systems. Nili Bar Colony had a network of channels for both perennial and non-perennial systems. This established an extensive irrigation network in western Punjab, supported by artificial waterways.

The development of canal colonies led to the provision of raw materials for British industries. Canal colonies were strategically established to ensure the British Empire's longevity and stability in India, benefiting from inexpensive labor and raw materials. The British colonial authorities showed a significant preference for the "agricultural castes" as they relied on this caste system to bolster their dominion in British India. The Punjab Alienation Land Act of 1900 played a crucial role in safeguarding agricultural castes' interests, restricting land transfers to these groups. By 1885, the Punjab's economy underwent transformation due to the expansion of agricultural products through canal colonies. The combined irrigation system of the western Punjab and Sindh became one of the world's largest.

## **2.2. Bureaucratic Structure and Infrastructure Development in Colonial Governance**

During the colonial era, the Thal region, located in present-day Pakistan, fell under British governance. This period was marked by extensive British colonial expansion and dominance over various regions of the Indian subcontinent. Large-scale construction projects such as the Thal Canal were initiated within this broader colonial context (Jones, 1976). One significant factor driving these initiatives was the British government's strong desire to boost agricultural productivity in the territories under its control. Economic motives played a key role in this endeavor, as colonial revenues heavily relied on agricultural income. However, the Thal region's extreme dryness and semi-arid climate posed significant challenges to achieving this goal due to water scarcity.

Additionally, the colonial rulers pursued a policy of exploiting the resources of their colonies for personal gain. This included extracting minerals and other natural resources, including water, land, and air. Exploiting the potential for agricultural expansion in the Thal region and managing water resources aligned with these colonial objectives. Recognizing the importance of infrastructure development in maintaining control and facilitating resource exploitation, the British government prioritized the construction of transportation and canal networks. These networks were viewed as vital tools for enhancing connectivity, facilitating trade, and improving communication within the colony (Jones, 1976).

The colonial government relied on a system where local groups provided land revenue (Banerjee et al., 2005). By implementing irrigation projects like the Thal Canal to enhance agricultural productivity, the government aimed not only to increase revenue

but also to assert control over land usage. Throughout the colonial era, there was a prevailing belief in the efficacy of scientific and technological solutions to societal challenges. Engineers, agronomists, and other specialists were tasked with designing solutions to improve agricultural productivity and manage resources effectively. Furthermore, the British government often undertook projects with both economic and strategic military implications. A controlled water supply and increased agricultural output could help ensure the provisioning of military units stationed in the area (Banerjee et al., 2005).

The complex colonial bureaucracy comprised numerous divisions and officers responsible for various administrative duties, including irrigation, agriculture, revenue collection, and public works. Collaborative efforts among these divisions were common in the planning and execution of large-scale projects such as the Thal Canal (Scott, 1972). Public health and sanitation were prioritized by the British government, particularly in areas with limited water resources. Canals and irrigation systems were often promoted as components of plans aimed at providing clean water supplies, containing the spread of diseases, and improving living conditions overall (Scott, 1972).

### **2.3.Colonial Administrative Framework and Infrastructure Development**

The colonial administrative framework and infrastructure development in the Thal region, situated in present-day Pakistan, played a crucial role in shaping the region's governance, economy, and society during the British colonial era. Here is a comprehensive overview of these aspects: The Thal region, akin to other regions of British India, was subjected to the British colonial administrative system (Bayly,

1988). Initially, it was part of the broader Punjab region and later subdivided into administrative districts. At the district level, administration was overseen by British-appointed officials such as Deputy Commissioners and Assistant Commissioners. These officials were tasked with maintaining law and order, collecting revenue, and supervising development projects. During this period, the local population had limited political representation, with colonial administrators wielding significant authority (Bayly, 1988).

One of the primary goals of the colonial administration in the Thal region was to evaluate and gather land revenue (Washbrook, 1981). The British implemented various land revenue settlement systems, including the Permanent Settlement (Zamindari) and the Land Revenue Act of 1887, with the aim of standardizing landownership and revenue collection processes. The introduction of canal irrigation systems brought about changes in land use and ownership patterns, converting previously unproductive land into cultivable areas. To assess land values and taxes, the British conducted revenue surveys. Infrastructure development, particularly the construction of canals, was a transformative aspect of British colonial governance in the Thal region (Washbrook, 1981).

Canals, exemplified by the Lower Bari Doab Canal and Upper Bari Doab Canal, were engineered to divert water from the Indus River, serving to irrigate arid lands. These canal systems not only catalyzed agricultural expansion but also afforded the British colonial administration control over water resources, thus constituting a source of power and revenue. Moreover, the British authorities invested in enhancing transportation and communication infrastructure within the Thal region. This entailed

the construction of roads and railways, which interconnected the Thal region with major urban centers and seaports, thereby facilitating the movement of commodities and populace. The resultant augmentation in connectivity wielded a profound influence on trade dynamics and the transportation of agricultural commodities (Bhattacharya et al., 2022).

To facilitate agricultural progress in the Thal region, the British administration introduced settlement schemes, enticing settlers, often from other regions of Punjab and North India, with favorable land terms. These settlers were tasked with developing and cultivating the land, thereby fostering increased agricultural productivity (Bhattacharya et al., 2022). The colonial administrative structure and infrastructure endeavors yielded significant social and economic ramifications in the Thal region (Washbrook, 1981). The surge in agricultural output contributed to economic growth, yet simultaneously facilitated revenue extraction by the British, a factor that engendered discontent among the local populace. Furthermore, the influx of settlers from diverse backgrounds influenced the cultural and social fabric of the region (Washbrook, 1981).

#### **2.4.The Thal Canal Project: Motives and Objectives of British**

During the British colonial period, the Thal region was characterized by its arid climate and limited agricultural potential, primarily attributed to water scarcity. While the British administration did invest in irrigation infrastructure across various territories of colonial India, their focus in the Thal region was predominantly oriented towards revenue collection and the regulation of water resources, rather than

undertaking extensive irrigation projects. Although canal systems were implemented in other parts of Punjab and northern India to bolster agricultural productivity and revenue generation, these initiatives were not directly extended to the Thal region. In the broader context of Punjab, British colonial objectives were centered around maximizing revenue collection, promoting cash crop cultivation, and maintaining control over the agrarian economy (Agarwal, 2019). Consequently, the British colonial administration in the Thal region primarily emphasized revenue collection and water resource management, rather than embarking on large-scale irrigation endeavors (Reale et al., 2011).

## **2.5. Economic and Military Implications of the Thal Canal for British**

The Thal Canal, a watercourse in Pakistan, originally constructed by the British during their colonial rule, held substantial economic and military implications for the British Empire (Reale et al., 2011). Foremost among its economic benefits for the British was its facilitation of agricultural development in the region. By irrigating expansive expanses of arid land in the Thal Desert, the canal transformed it into fertile agricultural terrain. This augmented agricultural output yielded various economic advantages. The British colonial administration could accrue taxes from the heightened agricultural production, thereby bolstering its revenue streams. Furthermore, the enhanced agricultural productivity contributed to regional food security, mitigating dependence on imported food grains.

The imposition of land revenue on the newly irrigated lands generated supplementary income for the colonial government, crucial for funding its

administrative and military endeavors within the Indian subcontinent (Jones, 1976). The surplus agricultural yield from the irrigated areas could be traded domestically and internationally, enabling the British to maintain a favorable balance of trade through the export of commodities such as cotton and wheat. Additionally, the construction and maintenance of the canal necessitated a substantial labor force, thereby creating employment opportunities and alleviating unemployment. Furthermore, the canal served as a mechanism for labor control and organization, a vital function for the colonial administration (Jones, 1976).

Control over the Thal Canal and its surrounding irrigated territories held strategic significance for the British in maintaining their authority in the Indian subcontinent. It enabled them to safeguard the region against potential threats from neighboring empires and powers, notably the Russian Empire in Central Asia. Additionally, the canal served as a conduit for the transportation of military provisions and personnel to frontier regions (Barrier, 1967). This was particularly crucial during periods of conflict and unrest, necessitating a robust military presence in border areas. In times of local uprisings and rebellions, the British could swiftly deploy troops to suppress disturbances in the newly irrigated zones, thus ensuring the perpetuation of their colonial rule. This capability to swiftly quell dissent within irrigated areas underscored the canal's strategic importance in maintaining law and order and upholding British hegemony (Barrier, 1967).

The irrigated zones surrounding the Thal Canal functioned as a buffer zone between British-controlled areas and potentially adversarial tribal territories. This buffer played a pivotal role in preserving a semblance of peace and order along the



border. The Thal Canal had profound economic and military implications for the British Empire. Economically, it spurred heightened agricultural output, revenue accrual, and expanded trade avenues. Militarily, it assumed a vital role in asserting control over the region, provisioning military forces, and serving as a strategic buffer. The canal constituted a critical infrastructure undertaking that significantly bolstered the overall stability and dominion of the British colonial administration in India (Chand, 2021).

## **2.6. Technological Advancements and Expertise in Colonial Engineering in the Thal Region**

The construction of the Thal Canal project during British colonial rule in India showcased a notable achievement in colonial engineering, necessitating advanced technological proficiency for its successful execution. Several crucial aspects of technological advancements and engineering expertise were involved in the implementation of the Thal Canal project in the Thal region. The design of the Thal Canal had to accommodate the region's arid climate and the imperative to effectively distribute water for irrigation purposes. Engineers were tasked with meticulously planning the canal's trajectory, dimensions, and capacity to ensure optimal water dispersion across the newly cultivated agricultural lands. Precise surveying and leveling methodologies were employed to ascertain the appropriate gradient of the canal, facilitating the regulated flow of water over extensive distances (Barrier, 1967).

Understanding the natural flow patterns of the rivers feeding into the canal, along with the seasonal fluctuations in water availability, was imperative for efficient

water management. Engineers were tasked with devising strategies to capture and retain water during the monsoon season to ensure year-round usage (Akhter et al., 2015). Given the extensive scope of the project, a combination of earthmoving machinery, including steam-powered excavators, and manual labor was utilized for excavating the canal and constructing necessary embankments. The construction of canal infrastructure, such as weirs and regulators, demanded proficiency in masonry and concrete technology. Skilled labor was engaged to construct these structures, designed to endure the region's climatic challenges (Chand, 2021).

To mitigate water seepage and loss, engineers implemented canal lining techniques, utilizing materials such as brick or concrete based on the canal section's characteristics. Additionally, pumping stations were strategically established along certain segments of the Thal Canal to elevate water from lower to higher elevations. The design and functioning of these pumping stations were governed by principles of mechanical engineering. Engineers were conscientious of the environmental ramifications of diverting water from its natural course and its potential impact on the local ecosystem (Condos, 2017). Consequently, mitigation strategies were implemented to alleviate adverse ecological effects. Furthermore, the construction of the Thal Canal necessitated the establishment of road networks and bridges to facilitate the transportation of construction materials and provide access to remote areas (Akhter et al., 2015).

The successful execution and maintenance of the project necessitated a substantial and proficient workforce comprising engineers, surveyors, masons, and laborers. Overseeing the logistical complexities of transporting materials, equipment,

and personnel to the remote Thal region posed a considerable challenge. Sustaining the long-term viability of the Thal Canal demanded a steadfast commitment to regular maintenance and repair activities, aimed at averting issues such as silting, erosion, and structural deterioration. The construction of the Thal Canal underscored the adeptness of British colonial engineers in harnessing contemporary technological innovations, adapting engineering principles to local environments, and orchestrating intricate infrastructure endeavors. Its significance lay in the transformation of barren landscapes into fertile agricultural zones, leaving enduring impacts on the region's economy and agricultural landscape (Barrier, 1967).

## **2.7. Local Impact and Community Involvement in the Thal Canal Project by British**

Constructed by the British during their colonial rule in India, the Thal Canal stands as a testament to both technological advancement and transformative impact on the local communities in what is now Pakistan's Thal region. This ambitious project served as a catalyst for economic revitalization in the area, effectively converting vast stretches of arid and unproductive terrain into fertile agricultural fields. This metamorphosis ushered in a surge in agricultural output, significantly enhancing the economic prospects of the local populace. For smallholder farmers who previously grappled with subsistence farming reliant on erratic rainfall patterns, the provision of irrigated land proved transformative. With newfound access to irrigated plots, these farmers experienced a notable uptick in their incomes. This not only elevated their economic standing but also furnished a more dependable source of livelihood, thereby mitigating the vulnerability of families to the vagaries of periodic droughts and crop

failures (Akhter et al., 2015)

One of the most immediate consequences of the Thal Canal project was the generation of employment opportunities. The construction of the canal necessitated a sizable workforce, drawing laborers from neighboring villages and towns (Chand, 2021). This influx of labor not only provided job opportunities but also stimulated local economies as workers expended their earnings on goods and services within the region. Moreover, the introduction of irrigation via the Thal Canal project induced significant shifts in agricultural practices. With dependable access to water, farmers diversified their crop cultivation, expanding beyond traditional rain-fed staples to encompass a broader array of produce. This diversification served to mitigate the vulnerabilities associated with solely relying on rain-fed agriculture. The resultant enhancement in agricultural output not only bolstered local food security but also facilitated trade opportunities, enabling farmers to vend surplus crops in regional markets (Pray, 1980). Furthermore, the scope of the Thal Canal initiative extended beyond the construction of the canal itself. It encompassed the development of vital infrastructure components, including roads and bridges. These infrastructure enhancements fostered improved connectivity between villages and towns, alleviating isolation and streamlining the transportation of goods and people (Condos, 2017).

The construction of the canal engendered a sense of communal unity among both laborers and residents within the vicinity. Individuals hailing from diverse communities and backgrounds converged to participate in the project, forging bonds and shared experiences in the process. Moreover, heightened economic activity resulting from the project occasionally facilitated the establishment of educational institutions such as

schools, thereby granting local children access to educational opportunities that may have otherwise been unavailable to them. Nonetheless, the Thal Canal endeavor encountered its share of challenges. Disputes often arose among local communities regarding the allocation of irrigated land and water rights (Barrier, 1967). In response, the British colonial administration intervened to establish frameworks for land tenure and water distribution, albeit sometimes exacerbating tensions in the process. Additionally, laborers frequently grappled with grueling working conditions, including prolonged hours and exposure to the elements. Such conditions occasionally precipitated protests and calls for improved wages and working environments, underscoring the intricate nature of managing the labor force engaged in a project of such magnitude (Akhter et al., 2015).

The construction of the Thal Canal precipitated alterations to the natural landscape and ecosystem of the region. While irrigation proved indispensable for agricultural advancement, it wrought modifications upon the local environment, thereby exerting ramifications for the flora and fauna inhabiting the area. These ecological transformations, comprising both favorable and adverse outcomes, necessitated meticulous management to safeguard the enduring sustainability of the ecosystem (Chand, 2021). Moreover, the Thal Canal project bequeathed a lasting imprint upon the cultural and historical tapestry of the region. It is frequently heralded as an emblem of development and advancement, emblematic of both the British engineering prowess and the steadfastness of the local communities.

The Thal Canal project, implemented during the era of British colonial rule, exerted a profound influence on the Thal region, leaving an indelible mark on its

economic, agricultural, social, and infrastructural domains. Despite encountering obstacles and controversies, its enduring legacy persists as a symbol of progress and communal engagement in steering the course of the region's evolution. As a testament to the intricate interplay between colonial engineering endeavors, local community dynamics, and the enduring repercussions of historical infrastructure development, the Thal Canal project continues to resonate within the region (Condos, 2017).

## **2.8.Challenges and Controversies Surrounding the Thal Canal during Colonial Period**

The construction of the Thal Canal during the colonial era in British India represented a monumental engineering feat with the promise of fostering economic development and transforming agriculture in the arid Thal region, now situated within Pakistan (Barrier, 1967). However, beneath the veneer of this ambitious initiative lay a plethora of challenges and controversies that significantly influenced both the project and the communities it impacted. The implementation of the Thal Canal project necessitated substantial financial investment, sparking debates over the allocation of resources. Critics contended that the project's funding diverted vital resources away from crucial sectors like education and healthcare. Moreover, the financial strain on the colonial government raised concerns regarding the fairness of imposing taxes on the local populace to finance a project that predominantly served the interests of the British Empire.

The diversion of water from its natural course by the Thal Canal, coupled with extensive landscape modification, yielded significant environmental repercussions. The disruption of indigenous ecosystems and alterations in water flow patterns led to

inadvertent adverse effects on local flora and fauna. Certain regions witnessed waterlogging and heightened salinity levels, which not only impaired agricultural productivity but also inflicted harm upon the environment. Achieving a delicate equilibrium between the imperative for irrigation and the imperative for environmental conservation presented a persistent challenge (Chand, 2021).

The British colonial administration grappled with the establishment of systems for land tenure and water allocation, which frequently engendered conflicts among various societal factions. Accusations of biased apportionment of benefits surfaced, with influential landholders and elites occasionally obtaining an inequitably large share of the rewards. The labor force engaged in the construction of the Thal Canal encountered arduous working conditions, characterized by extended work hours, exposure to inclement weather, and inadequate remuneration (Akhter et al., 2015). Consequently, protests and calls for improved working conditions ensued, underscoring the inherent tensions inherent in colonial labor practices (Barrier, 1967).

The Thal Canal project's impact on local agriculture, which involved requisitioning farmland for construction purposes, added complexity to labor-related issues. While lauded as an engineering marvel, the project presented significant technical hurdles. Managing water distribution across extensive distances, ensuring the canal's structural integrity, and mitigating issues like water seepage and silting necessitated advanced engineering acumen (Pray, 1980). Sustaining the canal and its infrastructure posed ongoing challenges, demanding regular maintenance to forestall deterioration. Resistance to the Thal Canal project emerged from certain local communities and leaders who perceived it as emblematic of British colonial

exploitation. They opposed British authorities' efforts to procure land and impose alterations to their traditional way of life. Such opposition occasionally escalated into confrontations and disputes, further complicating the project's advancement (Condos, 2017).

The introduction of Western engineering practices and the presence of British personnel had cultural and social ramifications for the local communities (Paustian, 1968). Traditional lifestyles and cultural norms occasionally clashed with the modernizing influence of the canal project. The disruptions stemming from the project's construction precipitated social unrest and alterations in community dynamics (Barrier, 1967). The legacy of the Thal Canal project remains a subject of historical interpretation. Some perceive it as emblematic of colonial exploitation, emphasizing the economic advantages that primarily accrued to the British Empire. Conversely, others regard it as a pivotal infrastructure development that contributed to the region's advancement, notwithstanding its inherent intricacies and controversies (Pray, 1980).

## **2.9. Legacy and Long-Term Effects of the Thal Canal in the Colonial Setting**

The Thal Canal, erected during the colonial era in British India, has left an enduring legacy with profound and far-reaching effects on the region, encompassing both its economic ramifications and historical significance. The most enduring legacy of the Thal Canal lies in its profound impact on the regional economy. The conversion of once arid expanses into fertile agricultural lands facilitated a notable surge in agricultural productivity (Akhter et. All, 2015). This development not only enhanced the economic prosperity of local communities but also bolstered regional and national



economic growth (Chand, 2021). The enduring imprint of this economic transformation persists today, as the Thal region continues to serve as a vital agricultural center in Pakistan, cultivating a diverse array of crops and contributing significantly to the nation's food security (Barrier, 1967).

The construction of the Thal Canal precipitated the establishment of essential infrastructure in the area. Roads, bridges, and transportation systems were erected to bolster the canal project. A significant portion of these infrastructure elements persists to this day, serving as vital arteries that interlink communities and facilitate trade and commerce. The enduring legacy of infrastructure has notably enhanced accessibility and connectivity throughout the Thal region, thus fostering both economic growth and social cohesion. Moreover, the enduring legacy of agricultural progress spurred by the Thal Canal remains palpable (Pray, 1980). Farmers in the region continue to reap the benefits of consistent access to irrigation, thereby enabling the cultivation of a diverse array of crops.

The agricultural productivity of the Thal region remains a cornerstone of Pakistan's agricultural sector, contributing significantly to national food production and export potential (Paustian, 1968). The Thal Canal project introduced principles of water resource management and irrigation techniques that continue to shape agricultural practices in the area. Lessons in water management gleaned from the colonial era persist in contemporary agricultural methodologies, underscoring the imperative of efficient water usage and sustainability. From a historical perspective, the construction of the Thal Canal holds profound significance, serving as a tangible emblem of British colonial engineering and its enduring impact on the Indian

subcontinent. It stands as a poignant reminder of the British Empire's endeavors in India, encapsulating both the strides made in infrastructure development and the intricate socio-economic dynamics that characterized colonial governance (Chand, 2021).

## **Chapter 3**

### **Greater Thal Canal: Greening the Desert**

By 1949, canal water was available for approximately half a million acres of land, yet only 88,000 acres were actually being irrigated due to the obstruction caused by sand dunes. This situation highlighted a significant problem with the project's functionality. The contrast between these two figures underscored the substantial loss in productive capacity and potential revenue. Therefore, the success of the Thal Canal Project depended on the development of the desert area that received canal water. This development process would have taken around eighteen years for settlers and neighboring residents to cultivate the region and maximize the use of irrigation facilities.

During this extended period, the accrued interest on the canal project would have amounted to around sixty million rupees. This calculation excludes expenses incurred for repairing and maintaining the canal system. The Military Families Resettlement Organization undertook colonization efforts in the northern Thal region for military families. However, civilian settlers were discouraged by the harsh desert environment, leading them to relinquish their allotments. Consequently, the need arose to establish an autonomous governing body, the Thal Development Authority (TDA), equipped with ample resources to coordinate the region's development alongside irrigation infrastructure. This approach was deemed essential to expedite the return on capital investment while ensuring effective development outcomes.

### **3.1. Thal Development Authority (TDA)**

The Thal Development Authority was established with the primary aim of accomplishing the following key objectives in the foreseeable future:

- i. Organizing and optimizing the irrigation infrastructure in the region.
- ii. Enhancing the efficiency and effectiveness of the Thal Project canals.
- iii. Generating revenue through the collection of development fees.
- iv. Facilitating the migration of populations from densely populated areas to the Thal region.
- v. Establishing settlements and colonies across the entirety of the Thal area.
- vi. Ensuring equitable development in all aspects within the region.

From 1949 to 1969, the Thal Development Authority introduced several colonization schemes targeted at both local inhabitants and migrants within and beyond the irrigation boundaries.

#### **1. Tube well scheme (1952)**

Under a notification numbered 1486-C and dated October 31, 1952, issued by the Chairman of the Thal Development Authority (TDA), the Government of Punjab allocated state land for the installation of tube wells. These segments of land were granted for tube well installations to local and migrant communities, specifically outside the irrigation boundaries. This initiative was primarily focused on the Bhakkar region.

Each segment of land, referred to as a "lot," consisted of around 1200 Kanals (approximately 150 acres) and was situated in various areas including rakhs of

Hyderabad, Dhinghana, Mankera, Khasor Daggran, Jandanwala and Haitu in Tehsil Kallurkot. The TDA had to revoke a few allocated lots due to non-compliance with the specified terms and conditions mentioned in the notification.

## **2. Well scheme (1952)**

Based on a recommendation from the Government of Punjab in Lahore, the Thal Development Authority introduced a well scheme through notification No. 1486-C dated October 31, 1952, specifically targeted at the Thal region. According to this scheme, the government aimed to allocate state land in the form of 25-acre lots, subject to predetermined terms and conditions. These lots were designated in areas including Rakh Dhignana, Rakh Haiderabad, and Rakh Mankera in Tehsil Mankera; Rakh Daggarn Wali and Rakh Khasor in Tehsil Darya Khan; and Rakh Haitu and Jandan wala in Tehsil Kallurkot, exclusively within the Bhakkar area.

Under this scheme, a total land area of 18,975 acres was allotted to Thal's tenants, including both local residents and migrants. This allocation was distributed across 759 individual lots. Out of these, 198 lots were permanently allocated to their owners, while 122 allotments were revoked due to non-compliance with the stipulated terms and conditions.

## **3. Sheep Breeding Scheme (1952)**

The Thal Development Authority (TDA) introduced a sheep breeding scheme through notification No. 817-Th dated March 28, 1952. This initiative involved carving out lots of 15 acres each of land with the specific purpose of sheep breeding and poultry

outside the irrigation boundaries of the Thal Canal in the Thal region. A total of 3,135 acres of state and TDA land were allocated for a duration of 15 years, contingent upon certain conditions. Under this scheme, allottees were required to maintain a breeding flock of 50 sheep, along with two hens and one cock. They were also responsible for paying rent based on specific terms and conditions outlined in the scheme. This scheme remained in effect until the year 1967.

#### **4. Sale/Auction Scheme (1954)**

Between 1954 and 1964, the Punjab government introduced an open auction scheme through notification No. 331/53-th dated March 15, 1954, to sell land resources within the irrigation limits of the Thal Canal to both local residents and refugees. Under this scheme, land parcels of twenty-five and fifty acres were allocated in Khushab, Mianwali, Bhakkar, and Layyah.

#### **5. Peasant Grant Scheme (1955)**

Popularly known as the "Abadkari" scheme, the 1955 peasant grant scheme was designed for the settlement of migrants arriving from India and the local population of various districts whose lands were impacted by natural elements like Thur, Sem, and river actions. The selection of grantees for the scheme was conducted by the deputy commissioners of the relevant districts, while military personnel were chosen for settlement by the military authorities themselves. Within the irrigation boundaries of the Thal Canal, the Chairman of the Thal Development Authority introduced the development scheme through notification No. 1477-54/2130/Th dated June 27, 1955. Allotments were made at a rate of 15 acres per lot.

## **6. Fixed Price Scheme (1957)**

Implemented under the "Fixed Price Scheme" of 1957, allotments of 25 acres each were allocated to individuals without land who were engaged in agriculture within the irrigation boundaries of Thal. This allocation was carried out through notification No: 44 dated October 18, 1957. The grantees were required to fulfill specific terms and conditions, initially acquiring the land on lease and then transitioning to a fixed rate for permanent ownership.

## **7. Garden- Nursery Scheme (1958)**

The government allocated land parcels of fifty acres each to various types of tenants, including military personnel, for a twenty-year period, at a fixed rate of six percent per acre per harvest. This allocation aimed at facilitating the maintenance of fruit gardens and was carried out under notification No: 8, dated January 24, 1958, and notification 14-15/4-1958. Initially launched as the "Garden Nursery Scheme," it was later transformed into a "Close Sale Scheme" in 1958. According to this modified scheme, land would be offered for sale to the grantees at their discretion, at a rate of seven hundred rupees per acre. However, this rate was subsequently reduced to four hundred rupees per acre due to the significant presence of sand dunes in the area, constituting no less than ten percent of the land.

## **8. Tube-well scheme (1963)**

The Thal Development Authority, acting on behalf of the Government of Punjab, issued a second notification for the previously canceled and vacant lots of the tube well

scheme 1952, under notification No: 629-63/711-CII, dated February 15, 1963, within the Thal area. This marked the second instance in the history of Thal colonization when the tube well scheme was reintroduced. Notably, the terms and conditions of this renewed scheme were substantially different from those of the original tube well scheme 1952.

In this revised scheme, the lease period was extended to twenty years, a notable increase compared to the ten-year term stipulated in the earlier scheme. This extension was granted provided that the tenant successfully fulfilled the terms and conditions established by the authority. A total of 247 allotments were made under this re-introduced scheme.

### **3.2. The Greater Thal Canal Project**

The inception of the Greater Thal Canal Project (GTCP) dates back to 1960 with the aim of irrigating 1.738 ma (703,345 hectares) of land in the eastern Thal Doab, spanning across Layyah, Muzaffargarh, Bhakkar, Jhang, and Khushab Districts. In 1975, the project proposal resurfaced for consideration once again. But it faced rejection by the Executive Committee of the National Economic Council (ECNEC) at that time. However, it wasn't until August 16, 2001, when Pakistani President Pervez Musharraf officially inaugurated the Greater Thal Canal project (GTC). This significant project had an estimated cost of 30 billion rupees. During its meeting on February 28, 2002, the ECNEC granted approval for the Thal Flood-Water Canal Project, with an estimated cost of Rs30.5 billion. This project was structured into two distinct phases, with the first phase anticipated to require Rs21.8 billion and the subsequent phase Rs8.6 billion for



implementation. The completion date was proposed to be 30 June 2008 involving seven years for phase I and two years for the second phase.

The Thal Flood-Water Canal Project involves several key agencies and components. Water and Power Ministry serves as the sponsoring agency, responsible for overseeing the project's overall direction. The Water and Power Development Authority (WAPDA) takes on the role of the executing agency, responsible for managing the project's implementation. Government of the Punjab is the primary beneficiary of the project and assumes the ultimate responsibility for its operations and maintenance.

At the Chashma-Jhelum link canal, the construction of head regulator of GTC was initiated for the facilitation of irrigation in the region of Thal doab. A designated 1.873maf water was apportioned from Punjab's share according to the water apportionment accord (1991), so that sufficient water availability could be ensured. This resulted in allowing the Indus River System Authority (IRSA) to recommend water availability for the allocated areas of the provinces. The project was a part of Water Vision 2025 which was envisioned by the federal government and proposals were put forward to finance with funds from the federal government.

During the inaugural phase of construction, in March 2006, the Federal Government mandated the Punjab Government to assume financial responsibility for the outstanding portion of the project through provincial resources. Despite this, the Punjab Government persisted in its determination to execute the pending tasks associated with the Greater Thal Canal (GTC) and allocated resources towards preparatory endeavors for GTC-Phase-II (Chaubara Branch) in the fiscal year 2016-17. Subsequently in 2020, the

next phase of GTCP, i.e. the Choubara Branch, initiated. The new phase is set to expand irrigation to an additional approximately three hundred thousand acres of the desert land, further contributing to the transformation and development of the Thal region.

Designed as a non-perennial canal, the project aimed to provide irrigation water from April 1st to September 30th, totaling 2.496 million acre-feet (MAF). Within this allocation, 1.873 MAF was anticipated from Punjab's own share under the Inter-Provincial Accord of 1991, and an additional 0.624 MAF was assumed to come from flood supplies during the four-month monsoon period. Interestingly, the detailed project plan (PC-I) did not offer any flood-related data to substantiate this water availability assumption during those four months. The approval of the project was met with opposition from the Sindh government. Their concerns revolved around the potential consequences of diverting water into the proposed canal, particularly its impact on downstream water "escapage" into the sea below Kotri. This diversion could lead to significant ecological, economic, and social repercussions for the region. Additionally, Sindh raised objections due to the existing water shortage in the country.

### **3.3. General Overview of Great Thal Canal Project (Phase II): Nature and Size**

On December 22, 2021, the Ministry of Planning, Development, and Special Initiatives informed the Executive Committee of the National Economic Council (ECNEC), led by the Finance Advisor (now Finance Minister), that the project had received clearance from the Central Development Working Party (CDWP) for consideration by ECNEC. The estimated cost of the project was Rs 38.4 billion, with a Foreign Exchange Component (FEC) of Rs 1.347 billion, as of October 06, 2021. The

project encompasses the construction of the Chaubara branch canal system and the Command Area Development (CAD) of the Main Canal, Mankera branch canal, and Chaubara branch canal systems. Financial support for the project comes from the Asian Development Bank (ADB). The entire project cost was to be covered by the Punjab government. The approval of ECNEC was sought, as the project's cost exceeded Rs. 10 billion.

The overarching goal of the Greater Thal Canal Irrigation Investment Program is to expand the command area by 264,000 hectares (including 40,000 hectares in MC, 104,000 hectares in MBC, and 120,000 hectares in Choubara BC), and to ensure a consistent water supply for both the existing and planned command areas.

The proposed Greater Thal Canal (GTC) originates from the right bank of the Chashma Jhelum Canal, which in turn diverts water from the left bank of the Indus River at the Chashma Barrage. This barrage is located on the Indus River in the Mianwali District of Punjab Province, Pakistan. It lies 304 km northwest of Lahore and is situated 56 km downstream from the Jinnah Barrage. The GTC project area encompasses parts of Bhakkar, Layyah, Khushab, and Jhang districts. Geographically, it is positioned between longitudes  $71^{\circ} 15''$  and  $72^{\circ} 15''$  East, and latitudes  $30^{\circ} 30''$  and  $32^{\circ} 15''$  North.

The command area of the GTC scheme covers a significant 1,738,800 acres (704,000 hectares). Water allotment to the GTC scheme was established and sanctioned in 1991 through the Pakistan Water Apportionment Accord, which allocates water resources among the provinces along the Indus River. The water distribution infrastructure for the GTC consists of a main canal stretching 35 km, drawing water from

the CJ-Link Canal. This main canal subsequently divides the water between four branch canals and one sub-branch canal, as outlined in the provided table. Additionally, the system comprises 111 distributary and minor canals, with a combined length of 1,835 km.

Key features of the GTC irrigation project include:

- i. Construction of the primary Chaubara Branch Canal, extending over 71 km, along with 11 distributary canals covering a total of 251 km and 11 minor canals spanning 124 km. These structures will facilitate the conveyance of irrigation water to around 120,000 hectares of cultivable land.
- ii. To enhance irrigation efficiency and water management, the primary, distributary, and minor canals will be lined, and gated off takes will be installed, potentially with flow measurement devices.
- iii. The construction process will involve private civil works contractors, while a national supervision firm will oversee the construction to ensure its quality.
- iv. To prevent canals from siltation, tree windbreaks will be established along the sides of the canals.
- v. The project's main focus will be on Command Area Development (CAD) within the command zones of the GTC Main Canal (MC), Mankera Branch Canal (MBC), and the Chaubara Branch Canal (CBC). This will contribute to improving on-farm water management and agricultural practices across 264,000 hectares of cultivable land.

- vi. Additionally, the project aims to bolster the government's ability to effectively operate and manage the GTC irrigation scheme, especially concerning the primary, distributary, and minor canal network. It also seeks to enhance the government's monitoring capabilities to assess the impact of the scheme on crop production.

### **3.4. Socioeconomic Profile of the Area**

The Greater Thal Canal traverses the districts of Khushab, Bhakkar, and Layyah, with respective populations of 1,281,299, 1,650,518, and 1,824,230 as per the 2017 census. The canal serves as a lifeline for approximately 4.76 million residents (2017 census) in the command area, directly or indirectly influencing their livelihoods. Specifically, around 2 million individuals (2017 census) directly rely on the irrigation provided by the Thal Canal for their means of living. Agriculture constitutes the primary income source for the majority (65%) of the population in the project area, followed by daily wage labor (30%). The remaining 5% are engaged in diverse occupations, encompassing both government and private employment. The economically affluent families predominantly belong to the agricultural sector.

In the project area, livestock plays a pivotal role in the agricultural society and serves as the third major income source. Approximately 80% of households own livestock, with an average of 1-3 animals per household, and commonly include cows, sheep, and goats. Animal feed, in the form of green and dry fodder, is readily available. Some villages possess community-owned (shamelaat) land, designated for grazing farm

animals. Additionally, the rakhs, which are protected areas managed by the Forest and Wildlife Department (FWFD), serve as vital grazing lands for the local livestock.

### **3.5.Greater Thal Canal: An Aspect of Development**

The execution of the Greater Thal Canal project involved the construction of canals that diverted water from the Indus River to the Thal region, overcoming the water scarcity that had previously hampered agricultural growth.

**Agricultural Transformation:** The canal system allowed for the cultivation of previously barren lands, transforming the Thal region into a productive agricultural zone. The availability of water facilitated diversified crop cultivation and increased yields.

**Economic Growth:** The agricultural productivity boost translated into economic gains for the region. Farmers benefited from increased income sources, and the region's overall economic outlook improved.

**Community Development:** The canal project contributed to the growth of settlements and communities along the canal routes. New villages emerged, and the increased economic activity led to enhanced living standards.

**Irrigation Infrastructure:** At the heart of the Greater Thal Canal project was the creation of an expansive and sophisticated irrigation network. This network was envisioned as a complex system of interconnected canals designed to transport water from the Indus River to the arid Thal region. The project involved the construction of a series of canals and waterways to distribute water from the Indus River to various parts of the Thal region.

**Water Redistribution:** The canal system was designed to distribute water equitably across the arid landscape, providing moisture to cultivate a variety of crops.

**Canal Construction:** The project involved the construction of a series of canals that spanned the distance between the Indus River and the Thal region. These canals were meticulously designed to ensure efficient water transportation while accounting for geographical factors and potential obstacles.

**Water Diversion Structures:** To divert water from the Indus River, the project required the establishment of water diversion structures that could effectively channel water into the newly constructed canals. These structures were crucial in managing water flow and distribution.

**Increased Water Availability:** By bringing water from the Indus River to the Thal region, the project aimed to address the primary obstacle to agricultural growth: water scarcity. The consistent water supply provided by the canal system was expected to fuel increased agricultural activities.

**Crop Diversification:** With access to a reliable water source, farmers could expand their agricultural pursuits beyond the limitations imposed by water scarcity. The project anticipated a diversification of crops, enabling the cultivation of a wider variety of produce. **Improved Crop Yields:** The availability of water for irrigation directly translated to improved crop yields. This was a significant departure from the region's prior struggle with low agricultural productivity due to insufficient water.

**Socio-Economic Development:** Beyond economic benefits, the project was also expected to lead to socio-economic development. Improved agricultural conditions could

uplift the living standards of the local population, creating opportunities for employment and improved livelihoods.

### **3.6. Positive Impacts of the Greater Thal Canal Project:**

The Greater Thal Canal project had several positive impacts that reshaped the Thal region's agricultural, economic, and social landscape, enhancing the overall well-being of the local population.

#### **Livelihood Improvement:**

The project played a pivotal role in improving the livelihoods of the local population in several ways. Improved agricultural productivity directly impacted the income of farmers, leading to increased financial stability and improved living conditions. Dependence on unpredictable rainwater for cultivation was reduced significantly due to reliable canal irrigation, providing a more stable source of income for the agricultural community.

#### **Rural Settlements:**

The Greater Thal Canal project also influenced settlement patterns and community growth in the region. The availability of water through the canal system attracted settlers from other regions, contributing to population growth and the establishment of new villages and communities. The influx of people led to the development of infrastructure such as roads, markets, and public facilities, further enhancing the quality of life in rural areas.

#### **Food Security:**

One of the noteworthy positive impacts of the project was its contribution to food security. The project's success in boosting agricultural productivity led to increased food



production, helping to meet the dietary needs of the local population. The ability to cultivate more crops and secure higher yields acted as a buffer against fluctuations in food availability caused by factors like droughts or poor rainfall.

### **3.7. Benefits to Indigenous communities of Thal Region**

As per insights gathered during community consultations in August 2020, the construction of the canal in the Thal Region is anticipated to bring substantial benefits to the indigenous communities. The participants highlighted that the hundreds of hectares of land currently relying on rain or tube-well irrigation near the rakhs will experience increased value due to the canal's development, leading to manifold improvements. Despite this, the communities expressed a strong commitment to preserving the ecological integrity of the rakhs.

The locals recommended the creation of job opportunities for biodiversity conservation, ensuring a sense of ownership over ecological resources. They acknowledged the positive socioeconomic impact of any irrigation system, foreseeing enhanced agricultural yield and livestock numbers, consequently improving their living standards. While recognizing potential negative environmental impacts such as reduced connectivity, threats to wildlife, and pollution from pesticides, they emphasized the importance of adequate mitigation measures.

Community members expected that the canal's construction might boost ecotourism, generating additional income for the communities and contributing to wildlife protection. To address concerns about the potential division of the rakh into isolated parts, they proposed the construction of pedestrian bridges at various points to facilitate the movement of both humans and wildlife. Recognizing livestock as the primary

livelihood source for small landholders and landless households, they underscored the need for special emphasis in this regard.

### **3.8.Greening the Desert: Transformative Impact of GTC**

The Greater Thal Canal has the potential to significantly contribute to greening the Thal Desert through various agricultural and environmental initiatives. Here are several ways in which the canal can play a crucial role in transforming the Thal Desert:

#### **Irrigation for Agriculture:**

**Increased Water Supply:** The canal can provide a consistent and increased water supply to the Thal region, supporting agricultural activities. This ensures that farmers have access to water for cultivating crops throughout the year.

**Expansion of Cultivable Land:** With a reliable water source, the canal allows for the expansion of cultivable land. More areas can be brought under cultivation, enabling farmers to grow a variety of crops and increase agricultural productivity.

#### **Afforestation and Horticulture:**

**Tree Plantation Programs:** The availability of water from the canal can support large-scale afforestation programs. Planting trees is essential for stabilizing the desert ecosystem, preventing soil erosion, and improving overall environmental conditions.

**Promotion of Horticulture:** The canal water can be utilized for establishing orchards and promoting horticultural practices. Growing fruits, vegetables, and other cash crops can diversify agricultural activities in the region.

**Livestock Development:**

Improved Pasturelands: The canal can contribute to the development of improved pasturelands for livestock grazing. Adequate water availability supports the growth of fodder, enhancing the quality of forage for livestock.

Livestock Watering Points: Water points along the canal can serve as reliable sources for livestock watering. This is essential for the well-being and health of the livestock population in the Thal region.

**Groundwater Recharge:**

Recharging Aquifers: The canal water can contribute to recharging groundwater aquifers. This is vital for sustaining water availability in the long term, especially during dry periods. Groundwater recharge helps maintain a balance in the water table.

**3.9. Biodiversity Conservation:**

Habitat Restoration: The availability of water can support habitat restoration efforts. Rehabilitating natural habitats can attract diverse flora and fauna, contributing to biodiversity conservation in the Thal Desert.

Wetland Creation: Canal water can be used strategically to create artificial wetlands, which can become habitats for various plant and animal species. Wetlands play a crucial role in supporting biodiversity.

**3.10. Community Development:**

Rural Development: The canal project can contribute to overall rural development by creating job opportunities, improving infrastructure, and enhancing the socio-economic conditions of the local communities.

Empowering Local Farmers: Access to reliable water resources empowers local farmers to adopt modern and sustainable farming practices, leading to increased agricultural incomes.

It is important to manage the Greater Thal Canal project sustainably, taking into consideration environmental impact assessments, community involvement, and long-term water resource management strategies. The successful implementation of these initiatives can contribute to the greening of the Thal Desert and improve the overall ecological and socio-economic conditions of the region.

The biodiversity within and around the Greater Thal Canal holds immense significance for the ecosystem and the communities it sustains (Memon, 2002). The flora and fauna contribute to vital ecosystem services such as water purification, soil stabilization, and pest control, benefiting both the environment and human populations. The biodiversity of the canal has cultural significance for local communities, often woven into their traditions, beliefs, and livelihoods. Recognizing the importance of preserving this biodiversity, efforts are made to maintain and protect the canal's ecosystem through sustainable management practices.

### **3.11. Management of Rakhs**

The protected rangelands, encompassing 140,577 acres (56,891 ha) under the Range Management Division, Bhakkar of the FWFD, are officially designated as 'wastelands' according to records of the Revenue Department. These areas boast high biodiversity compared to other habitat types within the project area, owing to minimal human activities, regulated grazing, and strict prohibitions on wildlife hunting.

Historically, the construction of the 'Thal Canal' has gradually transformed certain pockets of the desert from wasteland to productive agricultural land. Various interventions, including research-based range rehabilitation techniques such as reseeding and planting indigenous and exotic grasses, shrubs, and trees, along with stabilizing shifting sand dunes, were implemented by government institutions and progressive farmers. Additionally, modern agricultural technologies and tube-well irrigations contributed to this transformation. While the area of 'rakhs' under Punjab Government control decreased, the potential for improving productivity and range vegetation cover, leading to blooming deserts, exists by involving communities and fostering ownership among them.

The construction of the Greater Thal Canal (GTC) system will have significant impacts on both agriculture and livestock. The GTC system is expected to provide reliable irrigation water to approximately 560,000 ha of land during the monsoon (Kharif) season (mid-April to mid-October). This will not only intensify crop cultivation but also potentially expand croplands at the expense of rangelands. The subsequent increase in agricultural operations is likely to impact wild fauna and flora in the area.

### **Communities' Dependence on and Perception about Rakhs**

The spectrum of community dependence on the rakh and their perceptions are interconnected, with each influencing the other. The extent of dependence and perceptions fluctuates based on factors such as income levels, literacy rates, living standards, daily practices, and primary professions of the communities residing in and around the adjacent areas. Examining the community context reveals a clear reliance on

rakhs for pathways, water sources, fodder, animal grazing, fuel wood, fodder, and unfortunately, illegal hunting.

### **Rakhs' Conservations Value**

The restoration of the conservation value of all rakhs and adjacent areas can be achieved by addressing the various issues that are pertinent to them, each with a varying degree of intensity. Furthermore, enforcing conservation and environmental laws, resolving local conflicts, and providing local employment opportunities to improve livelihoods can contribute to enhancing the conservation value. Above all, the critical constraint of insufficient irrigation water, which impedes the rehabilitation of rakhs, is expected to be alleviated by the implementation of the GTCP.

#### **3.12. Stakeholder Views on Biodiversity Management in GTCP Area**

To gather data and understand the perceptions of relevant departments and communities, consultative sessions were conducted with representatives from provincial departments and communities. The goal was to comprehend the dynamic nature of conservation challenges, identify trends and drivers, and assess the effects of the Greater Thal Canal Irrigation Improvement Project (GTCIIP) on the biodiversity of Thal. Meetings involved representatives from the Forest and Wildlife Department, Agriculture and Livestock Department, Irrigation Department, protected area management experts, and the relevant communities. These discussions facilitated consensus-building and contributed to the development of this Biodiversity Action Plan. Key suggestions from stakeholder consultations include:

- Establishing Rakh Management Committees (RMC) to assist in managing the rakhs in Thal, with the overall responsibility remaining with the Forest, Wildlife

and Fisheries Department, in collaboration with other departments, agencies, NGOs, and communities.

- Promoting increased community involvement in rakh management by including community representation in Rakh Management Committees and engaging them in environmental management.
- Developing grassroots plans, such as village development plans, linked with government policies for successful implementation. Advocating for new legislation, policies, and institutional linkages to encourage community participation.
- Recommending the establishment of a trust/endowment fund operating in conjunction with the Biodiversity Action Plan (BAP) to provide funds for ecological and social aspects of rakh management.
- Controlling illegal hunting and poaching of wildlife species, particularly black francolin, grey francolin, and other important birds, while advocating for a ban on houbara bustard hunting by Arab dignitaries in the area.
- Setting up wildlife check posts in remote areas of the Thal Desert for regular monitoring against illegal hunting and poaching.
- Providing licensed weapons to wildlife rangers for the protection of the area.
- Conducting awareness campaigns, seminars, and meetings in the local community for biodiversity conservation and protection.
- Initiating small-scale credit programs to enable communities to purchase necessary services, equipment, and supplies for improved agricultural production, handling, and marketing.

- Offering technical assistance specifically to improve all forms of water management.
- Designing ecotourism-based development to ensure it does not adversely affect local communities.



## Chapter-04

### Developmental Projects: Neo-Colonial perspectives

The Greater Thal Canal Project, located centrally within the Thal region, presents a compelling subject for delving into the intricacies of development initiatives under the influence of post-colonial and neo-colonial forces. This chapter delves into the historical backdrop of the project, its economic and political ramifications, and employs Dependency Theory as articulated by Andre Gunder Frank (1971) alongside Johan Galtung's Theory of Structural Imperialism to provide a thorough examination.

Dependency Theory, as formulated by Andre Gunder Frank, underscores the exploitative connections between developed and developing nations. It argues that less developed countries find themselves ensnared in a cycle of economic reliance on more dominant states, typically sustained through trade inequities and unequal power relations. The Greater Thal Canal Project carries substantial economic consequences, potentially reinforcing economic dependency. It is crucial to examine how the project impacts the economic advancement of the region, encompassing trade flows, extraction of resources, and market accessibility. Dependency Theory prompts us to assess whether the project amplifies preexisting economic disparities.

Political dynamics wield significant influence in the Thal Canal Project, with neo-colonial forces such as international entities and global financial institutions steering decision-making processes. Understanding these power dynamics is critical for evaluating whether the project serves the interests of the local populace. Dependency Theory underscores the role of resource exploitation in perpetuating dependency. Regarding the Greater Thal Canal Project, it's imperative to explore how the extraction

and utilization of natural resources contribute to the project's economic objectives and impact regional development. Infrastructure development presents a dual aspect: while it can stimulate economic progress, it also risks deepening external control and economic reliance. Examining the infrastructure dimension of the Thal Canal Project aids in understanding its influence on regional dynamics.

#### **4.1. Greater Thal Canal from the Perspective of Dependency Theory**

In addition to its economic and political dimensions, the Greater Thal Canal Project is examined for its social and cultural repercussions. How does the project impact local communities, traditions, and lifestyles? Dependency Theory advocates for a comprehensive viewpoint, urging us to incorporate these elements as fundamental to development assessment. Applying the dependency theory of Andre Gunder Frank to the issues surrounding the Greater Thal Canal project involves examining how economic relationships between provinces contribute to patterns of dependency and underdevelopment:

##### **4.1.1. Economic Hegemony of Punjab**

Dependency theory suggests that certain regions or countries can dominate others economically. In the context of the Greater Thal Canal, Punjab might be seen as the economic hegemonic, controlling key resources (water, agricultural output) and benefiting disproportionately from the canal project. Provinces downstream (such as Sindh) may become economically dependent on the canal for water supply, making them vulnerable to any fluctuations or changes in water allocation. This dependency could result in economic hardships if the canal's water is not distributed fairly or if there are

disruptions in its operation.

#### **4.1.2. Unequal Exchange of Resources**

It is expected that the province of Punjab where the canal is situated will experience economic growth due to increased agricultural productivity and water availability. Meanwhile, other provinces, particularly those downstream, face challenges such as reduced water flow, impacting agricultural outputs and economic development. The province hosting the canal i.e. Punjab exports agricultural products produced with canal water to other provinces. However, the economic returns from these exports largely benefit the exporting province, creating an unequal exchange where certain regions become net importers of goods and services.

#### **4.1.3. External Influence and Foreign Investment**

Foreign investors such as ADB, attracted by the economic potential of the Greater Thal Canal, provide funding for the project. In return, they gain considerable control over the canal infrastructure and associated economic activities, potentially influencing decision-making processes to maximize their returns.

#### **4.1.4. Economic Exploitation and Local Economies**

The construction and operation of the Greater Thal Canal lead to significant economic activities and benefits primarily concentrated in Punjab. This province experiences increased agricultural productivity, improved irrigation, and a boost in trade related to the canal. As a result, Punjab's local economies, particularly those directly connected to canal activities, witness growth and development.

Downstream provinces might experience challenges in their local economies,

such as decreased agricultural yields, increased competition for water resources, or reduced economic opportunities. This could lead to a situation where these provinces are economically disadvantaged compared to Punjab, reinforcing a pattern of economic exploitation and dependency.

#### **4.1.5. Technological Dependence**

If Punjab relies on external technologies or expertise for the construction and maintenance of the canal, dependency theory would point to a situation where the province is technologically dependent. This dependency can influence decision-making processes and potentially give external actors leverage over Punjab's economic activities.

It is essential to evaluate the Thal Canal Project's impact on regional sovereignty and autonomy. Dependency Theory underscores the importance of considering the degree to which external actors influence decision-making processes and impede the region's capacity to determine its own trajectory. It is also important to consider the disproportionate impact of dependency on international development institutions for funds for completion of project. Not only will the project be implemented according to the terms and conditions set by such institutions (ADB in this case), the stringent conditions set for approval and release of funds may become a hindrance in the completion of the project.

This has been the case with Greater Thal Canal Project, the government of Pakistan failed to secure the loan from ADB due to lapse of validity of loan, as the government of Pakistan failed to sign the loan agreement within the stipulated time. ADB refused to extend the deadline and requires final agreement on the project to be reached before allowing the loan amount to be disbursed.

While the demands of ADB appear reasonable, it shows how dependence on such institutions can cost a country when their conditions are not met. Punjab is set to lose hundreds of thousands of tons of agriculture produce each year in unrealized potential as a result of this pendency. International institutions usually face no consequences of such delays and it is the province in which GTCP is located which suffers due to lag in implementation. More so, the people of the region who expected to benefit from the project and were dependent on its completion to realize the benefits will suffer as well. This also shows that Punjab isn't empowered to make decisions about critical aspects of the project which negatively impacts project implementation. Dependency theory suggests that international institutions ignore such considerations in the beginning of the project so that such projects can be started even if they might not be fully approved by other stakeholders (other provinces). Once the project starts, and the client can't risk abandoning the project midway, such institutions then look to implement rules rigorously costing the client province in both material and financial outcomes. This helps them maintain their image as agents of development while at the same time benefitting at the expense of the local community.

Dependency theory also helps us predict that once the project is completed and the expected outcomes are achieved, it is likely that the local community will not enjoy the full benefits. While the agriculture output may be increased, the urban sector still remains powerful and will decide the prices of their commodities. Farmers may not get good prices for their produce while the urban centers will increase their profits. In this way, from international development institutions to local urban centers, the local farmer is dependent on outside actors and is unable to fully benefit from the canal.

## **4.2. Galtung's Theory of Structural Imperialism**

Galtung's theory of structural imperialism applied to developmental projects highlights how seemingly benevolent initiatives can embed structural inequalities and perpetuates domination between powerful and less powerful nations. The focus is on understanding the underlying power dynamics and promoting more equitable, participatory, and sustainable development approaches. Applying the theory to greater Thal canal gives us insights into the neocolonial underpinnings that might underline this project:

### **4.2.1. Developmental Projects as Tools of Domination**

According to Galtung, development projects initiated or supported by powerful nations or international organizations can be used as tools of structural imperialism. These projects may appear benevolent on the surface, but they often serve the interests of the dominating nation or institution. Galtung points out that development assistance is not always equitable. Powerful nations may dictate the terms of assistance, imposing conditions that favor their economic and political interests. This can create a form of dependency and perpetuate structural inequalities.

Developmental projects, when driven by unequal power relations, may benefit the donor nation more than the recipient. The terms of loans, trade agreements, and project implementation may favor the interests of the powerful, reinforcing a structural imbalance.

Foreign actors, corporations, or financial institutions exert significant influence over the project. This influence could be manifested through financial investments,

technology transfer, or the imposition of certain economic policies. In the case of Greater Thal Canal, ADB as an external financier, acts as an instrument of imperialistic dominance.

#### **4.2.2. Dependency on External Inputs:**

Neocolonial phenomena often involve a dependency on external inputs, where less powerful regions become reliant on more powerful entities for resources and technology. For example: If the Greater Thal Canal project relies heavily on technology, expertise, or financial support from external entities, it may create a dependency relationship, reinforcing neocolonial dynamics. Examining the level of involvement and empowerment of communities is crucial to understanding whether the project fosters or undermines local agency.

Galtung points out that development assistance is not always equitable. Powerful nations may dictate the terms of assistance, imposing conditions that favor their economic and political interests. This can create a form of dependency and perpetuate structural inequalities.

#### **4.2.3. Structural and Cultural Dimensions:**

The decision-making processes related to resource allocation and development policies in the Thal region are centralized and decisions regarding the project are usually taken in the provincial or Federal capital, with limited representation or influence from local communities. This leads to a structural power imbalance, where external or centralized authorities shape the region's development trajectory without considering the needs and perspectives of the local population.

The implementation of policies or projects that disregard or undermine the traditional agricultural practices or cultural heritage of the Thal region could be seen as a form of cultural imperialism. For instance, if external actors impose modern farming techniques without considering the local knowledge and practices, it may erode cultural diversity and autonomy.

Galtung's theory tries to explain how capitalism spreads to new places, why some countries develop more than others, and how economic systems can lead some countries to dominate others. Applied in the context of GTCP, it provides a good framework for understanding the dynamics surrounding the project. Projects of big magnitudes are not funded by international institutions solely for the benefit of local community. According to structural imperialism theory, in such projects, the local community and their interest is of little interest. Often there are overarching goals which international institutes have in mind and which are more rigorously pursued rather than development of local community, which may become an afterthought.

International institutions dictate the terms and conditions of such projects and dictate the direction it will take. In addition, the local capitalist class and stakeholders in the urban centers also have a stake. They too work and benefit at the expense of local community during and after the project. International institutions also rely on these groups to extract benefit from the projects as their direct involvement may not be feasible. During the development work, the local capitalist will also derive disproportionate benefit by using the development work to enhance his capital with no consideration for the far-reaching implications of implementing such project. Due to technological dependence, The technological expertise required for future maintenance



of the canal will also be a concern as no plan for local capacity building has been made, perpetuating dependence in the long run.

The local farmer is at the mercy of capitalist to determine the price of produce and is unable to sell it a better price. The increase in productivity is not necessarily a sign of prosperity for the farmer in the long term as much as for the capitalist who will be determining the prices. In addition, introducing modern farming practice without training and educating farmers is unlikely to be beneficial.

Structural imperialism theory helps us highlight the dependence and exploitation that lies at the heart of GTCP. While it is not completely possible for the canal to be built without international assistance, this theory helps us to understand the implications of such assistance, the role of local capitalist class, its impact on local community and future consequences for the farmers. The canal project needs to be completed so that the agricultural benefits associated with it can be realized, but at the same time it needs to be ensured that no one class of stakeholder benefits disproportionately at the expense of other.

#### **4.3. Stakeholder Views regarding the GTCP**

Public consultations were held by ADB regarding the project. The public consultations underscored the significance of engaging stakeholders in an inclusive and transparent manner. By addressing their concerns, incorporating their local knowledge, and involving them in various stages of the project, a more effective and community-driven project design and implementation was expected to be achieved.

Two distinct categories of stakeholders were identified within the project context:

- i. Primary Stakeholders: This group comprises individuals or collectives directly affected by the project interventions. The primary stakeholders encompass the following subgroups; **a)Affected villagers:** Individuals or communities whose residences, workplaces, or lives are directly impacted by the project interventions. This includes those who might face changes to their living conditions or access during the construction phase or due to project actions **b) Farmers:** Individuals engaged in agricultural activities within the project area. While they stand to benefit from increased water availability through the proposed canal, they might also face potential disruptions during the construction phase.
- ii. Secondary Stakeholders: These are individuals or groups indirectly influenced by the project but are not directly impacted by its activities. They include entities such as government agencies, NGOs, and other organizations that might have interests in the project's outcomes or contribute to its success in various ways.

Extensive consultative discussions were conducted with the primary stakeholders to address their concerns. Women stakeholders highlighted several key concerns and provided feedback related to the project:

- Women expressed the need for support to restore their economic activities, recognizing that their livelihoods might be impacted by the project.
- Women emphasized that their daily routines and jobs should remain unaffected by the project's implementation.

- Uninterrupted Passage/Crossing: Women sought assurance that their ability to cross the canal at various points would not be disrupted during civil works.
- A major expectation was the enhancement of health and education facilities, especially for women, as a direct benefit to the local community.
- Women proposed the organization of vocational training to equip them with skills for income-generating activities. This training aimed to contribute to the overall household income.
- Concerns were raised about the potential negative impact of relocating business structures. Proper compensation and assistance for relocation were deemed essential to mitigate this effect.
- Women advocated for job opportunities for male household members within the project area. This approach was seen as a means to enhance social safety by keeping family members within the community.

Secondary stakeholders, institutions indirectly affected by the project, play a crucial role in ensuring the project's success. In response to concerns raised by primary stakeholders, consultations were conducted with secondary stakeholders, yielding the following key outcomes:

- Most areas along the canal's route lack major highways except for the Jhang-Bhakkar Road. Bridges will be rehabilitated as the canal primarily intersects roads. Bridges may also be reconstructed at the crossings to mitigate impact on transportation.

- Rehabilitation and reconstruction of bridges will be focused at crossing points, contributing to the reduction of transportation disruptions.
- Level of land erosion is expected to be low; however, efforts will be made to enhance the landscape along the canal route.
- Managing construction-related issues including waste disposal and potential hazards for neighboring communities will be a top priority throughout the project's construction phase.
- Steps to be taken to ensure construction contractors do not utilize private land for construction machinery parking. Measures to be put in place so that construction material will not be dumped along highways or medians.
- Steps will be taken to reduce smoke, noise pollution and dust, as well as to prevent spillages from machinery.
- Appropriate traffic diversions will be established while construction is underway to prevent hazards, dust emissions and congestion. Construction-related activities will be scheduled strategically to minimize disruptions to traffic flow.
- Job opportunities will be generated for local residents during construction, contributing to community development.
- For the safety of local residents residing along the canal side, particularly in relation to potential land sliding and rolling stones, appropriate measures will be a priority.

## Chapter 5

### Greater Thal Canal Project: Outputs and Analysis.

The Greater Thal Canal project is designed to bring about a marked improvement in agricultural productivity and production within the targeted project area. The project aims to achieve the following outputs:

#### 5.1.1. First Output of GTCP

Output 1 of the project encompasses the establishment of infrastructure for irrigation system for the Choubara system, comprising several essential activities: a) Erecting the branch of Choubara system. b) Planting trees along the irrigation canals of the Main Canal, Choubara and Mankera branch systems to act as windbreakers, preventing sediment infiltration. c) Clearing sediment from the Main Canal and Mankera branch systems. d) Constructing and refurbishing buildings for use by the Punjab Irrigation Department (PID), serving operational and administrative purposes, e) Implementing an action plan for social development for addressing the needs of the augmented population in labor associated with agricultural activities. This involves procuring equipment for a basic health unit, enhancing a girls' school, and offering vocational training. The construction of the Choubara branch system entails construction of more than 400kms for branch canals and the adjoined secondary and tertiary canals. Specifically, the branch canal extends to a total of 72kms, then 251km of eleven secondary canals and finally, another 127km of tertiary canals extending from the secondary canals.

### **5.1.2. Second Output of GTCP**

Output 2 of the project focuses on the development of the on-farm command area, while enhancing the capacity of beneficiaries. Activities associated with the development of command area within the Main Canal, Choubara and Mankera areas encompass the following:

- i. Establishment of on-farm community watercourses, including the development and construction of field channels through contracts with farmers. This involves social mobilizing the social elements in the area and the forming Water User Associations (WUAs).
- ii. Pilot initiatives to enhance productivity of water, by increased watercourse boundary lining, adoption of irrigation systems which ensure high efficiency such as trickle irrigation, implementation of watercourses which are pipe dank construction of water storage ponds.
- iii. Conducting campaigns to spread awareness and provide training to farmers to develop capacity of improved management of water resources and modern practices in agriculture increasing resilience. This includes but is not limited to initiatives like providing seeds of higher quality which will increase yield and establishing farmer schools to train farmers.
- iv. Capacity building of the agriculture department Punjab to enhance its effectiveness in overseeing agricultural development activities.

### **5.1.3. Third Output of GTCP**

Output 3 of the project focuses on strengthening the institutional framework for management of water resources and schemes of irrigation. The aim of this output is to increase the capacity of the irrigation department, Punjab to deal with management of water resources and improve it. It also focuses on the effective maintenance of irrigation systems to ensure long term sustainability of operations. The activities under this output include:

- i. To better manage and monitor irrigation infrastructure, an asset management system will be developed which will be based on GIS i.e., geographical information system.
- ii. Equipment will be installed for monitoring and developing of groundwater modeling for the whole GTC area.
- iii. Installing a canal flow water measurement system to monitor and promote efficient water usage.
- iv. Initiatives for building capacity of staff of irrigation department, which includes training programs for short- and long-term training.
- v. Development of monitoring system based on geographical information system.
- vi. Various institutional capacity enhancement efforts will be implemented, which may be included in ADB's ongoing capacity development technical assistance for the PID. These efforts could involve developing a system for decision making involving asset management and various procedures and actions required for the enactment of the Punjab Water Act 2019.

In summary, the outputs involve a range of actions to empower beneficiaries and improve the productivity and sustainability of agricultural practices within the CAD areas of the Main Canal, Mankera, and Choubara branch canal systems. While also aiming to bolster the PID's capabilities in managing water resources and maintaining irrigation systems through various technical enhancements, capacity development, and improved monitoring and evaluation processes.

## **5.2. Interview's Analysis**

In this section, we are going to discuss the interviews that were conducted from people of Thal. In the interviews conducted, the respondent provided valuable insights into the Thal canal project, shedding light on its perceived impact on regional development, specifically within the Thal area of Pakistan. The discussion encompassed various aspects, ranging from the potential benefits to the local community and concerns about displacement to the broader implications for the state and stakeholders. The interviewee offered a positive perspective on the project, emphasizing its transformative potential for agriculture, economic growth, and societal advancement. The subsequent analysis delves into the key points raised during the interview, providing a nuanced examination of the interviewee's viewpoints and addressing the multifaceted aspects of the Thal canal project's implications.

### **5.2.1. Interview 1**

In the first interview (appendix A), the respondent expressed a positive stance on the Thal canal project, emphasizing its potential for regional development, particularly in the agricultural sector. The completion of the canal was envisioned to transform the Thal



desert area into cultivable land, addressing the longstanding issue of water scarcity and irrigation resources in the region. The respondent saw this as a pivotal step toward the overall development of the area. The anticipated impact of the project was discussed in terms of economic and social benefits. The interviewee foresaw enhanced economic standards for the residents of Thal, attributing this improvement to increased agricultural productivity resulting from the irrigation of their lands. Moreover, the project was expected to elevate the social status of the local community, indicating a broader positive impact on the social sector.

Addressing concerns about displacement, the interviewee expressed optimism that such a scenario may not arise. In the event of displacement, the suggestion was to provide alternative agricultural land in nearby areas with available uncultivated government land. This approach aligned with the interviewee's overall positive outlook on the project, emphasizing the minimal disruption to the local population. The respondent underscored the significance of the Thal canal project for the greater benefit of the region. Describing it as a lifeline for the people of Thal, the interviewee emphasized the project's importance in driving the development of the area. The positive language used throughout the interview conveyed a strong belief in the transformative impact of the canal on the lives of the residents.

Lastly, the interviewee acknowledged the broader benefits of the project to the state, stakeholders, and the community. The state was expected to benefit through increased agricultural produce, contributing to income generation and reducing reliance on imports. The interviewee considered the project as crucial not only for the country but

also for the people and the community of the Thal desert, foreseeing a transformation of the entire region into cultivated agricultural land.

### **5.2.2. Interview 2**

In the second interview (appendix A), the respondent provided a comprehensive analysis of the Thal Canal project, examining its potential impacts on regional development. The evaluation spanned economic, environmental, and social dimensions, emphasizing the potential for economic growth through enhanced agricultural productivity. The respondent recognized the multifaceted benefits, including improvements in the atmosphere, climate, and land. The project was seen as a catalyst for positive change in social-cultural and socio-economic conditions, ultimately enhancing the overall lifestyle of the local population. The projected crop benefit of 5.58 billion rupees per year underscored the economic significance of the endeavor. The interviewee anticipated the project's wide-ranging impact, suggesting positive outcomes across economic, educational, and social spheres. The conversion of 704,000 hectares of low-productivity rain-fed land into irrigated areas was highlighted as a crucial step towards rural economic growth in Punjab. While acknowledging the potential positive effects on local communities, such as increased agricultural opportunities and improved crop output, the respondent remained mindful of the challenges, including displacement, land acquisition, and legal complexities. The need for comprehensive community engagement was emphasized to address these potential issues effectively.

Regarding displacement concerns, the interviewee pointed to existing policies and frameworks, including the Pakistan Environmental Protection Act of 1997 and

international standards like ADB's SPS 2009 and AIP 2019. The Punjab Protection Act of 1997 was highlighted as a mechanism for protection, conservation, rehabilitation, and environmental improvements, incorporating provisions for documentation, public disclosure, citizen engagement, and grievance redressed in the context of the project. The respondent recognized that the success and benefit of the Thal Canal project for the region hinged on careful planning, execution, and management. While underscoring the advantages such as food security, rural economic growth, and improved irrigation systems, the interviewee acknowledged the importance of considering potential drawbacks. The estimated impact on around five hundred thousand farmers underscored the project's scale and potential significance for local communities.

Lastly, the interviewee acknowledged varying interests among stakeholders, including the state, directly affected parties, investors, and constructors. The importance of public transparency and accountability was emphasized as crucial in managing these diverse interests. This analysis reflected a balanced perspective, weighing both the potential benefits and challenges associated with the Thal Canal project in fostering regional development.

### **5.2.3. Interview 3**

In the third interview (appendix A), the respondent offered a cautious and nuanced perspective on the Thal Canal project, recognizing its potential benefits for regional development if executed with careful planning and management. The success of the project was seen as contingent upon factors such as sustainable water management, environmental protection, and the equitable distribution of benefits. The interviewee

anticipated positive impacts in economic, educational, and social domains, emphasizing potential advancements in agriculture, job creation, economic growth, and overall living conditions for the local community. The discussion acknowledged the dual nature of the project's impact, emphasizing the need for effective management to address potential challenges like displacement and environmental damage. Compensation for displaced individuals was deemed crucial, encompassing financial support, resettlement in suitable locations, and assistance for rebuilding lives. The overall assessment suggested that the Thal Canal project could be a positive step for the greater benefit of the Thal region, provided it aligned with principles of transparency, inclusivity, and long-term sustainability.

Stakeholder interests, including the state, local government, investors, farmers, and environmental organizations, were recognized as essential components for the project's success. The interviewee emphasized the need for collaboration among these diverse stakeholders to ensure effective and responsible project management.

#### **5.2.4. Interview 4**

In the fourth interview (appendix A), the respondent presented a balanced perspective on the Thal Canal project, acknowledging both positive and negative effects. The project was seen as having the potential to provide crucial benefits such as improved access to water for irrigation, enhanced agricultural productivity, and economic growth. The interviewee emphasized the positive impact on various sectors, including economic, educational, and social, anticipating an overall improvement in living conditions for the local community. However, concerns were raised about potential negative consequences,

particularly the risk of environmental disruption and the possibility of displacement for local residents. Compensation for displaced individuals was highlighted as a critical aspect, emphasizing the importance of adhering to legal frameworks and providing adequate support for affected communities to rebuild their lives sustainably.

The respondent expressed optimism about the project's potential to address long-standing neglect in the Thal region, citing historical factors such as lack of awareness, poor policies, and feudal systems. The perceived benefits included not only increased agricultural output but also improved living standards, economic opportunities, and enhanced food security. Regarding interests from state authorities, stakeholders, and other parties, the interviewee recognized the diverse concerns of these groups. State authorities were likely interested in regional development and increased agricultural productivity, while stakeholders, including local farmers and water management organizations, had specific concerns related to their respective domains. Environmental advocacy groups were mentioned as potential interested parties concerned about ecological impacts. The importance of community engagement and effective project execution was underscored, emphasizing the need for monitoring, follow-up, and impact assessments involving third parties.

#### **5.2.5. Interview 5**

In the fifth interview (appendix A), the respondent expressed a positive outlook on the Thal Canal project, viewing it as a significant catalyst for the development of the Thal region. The completion of the project was seen as crucial for improving the economic status and living standards of the local community. The emphasis was placed on the

project's role in addressing the scarcity of water and irrigation resources in the vast Thal area, potentially transforming it into fertile land suitable for cultivation. The respondent anticipated that the economic impact of the project would be concentrated in the Thal area, particularly benefiting the agricultural sector. The prospect of enhanced irrigation and water resources was highlighted as a key factor that could contribute to the prosperity of the local farmers. Concerns about displacement were downplayed, with the respondent suggesting that the area was less populated, minimizing potential hurdles related to relocation.

In the event of displacement, the respondent asserted that the state would be responsible for compensating and adjusting affected individuals, emphasizing the overall positive impact on the locality. The completion of the Thal Canal project was portrayed as a landmark initiative that had the potential to elevate the living standards of the people in the Thal region. The respondent underscored the belief that the project would substantially increase land cultivation and contribute to the natural fertilization of the previously uncultivated land. The respondent saw this as a positive step that aligned with the agricultural development goals of the Thal area.

Furthermore, the respondent emphasized the interests of the state and stakeholders in the project, emphasizing that the state's primary interest lay in the development of Thal and increased agricultural production. The economic benefits, including potential revenue generation and surplus product for export, were highlighted as crucial factors that would benefit both the local farmers and the state.

### **5.2.6. Summary of the Interviews**

The interviews collectively present a diverse range of perspectives on the Thal Canal project, offering insights into its potential impact on the region's development, the local community, and various stakeholders. While there is an overall recognition of the project's potential benefits, such as boosting agricultural productivity, improving economic conditions, and addressing water scarcity issues, there are also concerns and varying opinions regarding its implementation. Many respondents express optimism about the Thal Canal project, seeing it as a pivotal development that could elevate living standards and transform uncultivated land into fertile agricultural areas. The emphasis on economic growth, increased water resources, and improved overall quality of life is evident across several interviews.

However, the interviews also reveal certain reservations and challenges associated with the project. Concerns about potential displacement, environmental impacts, and the need for proper compensation mechanisms are raised. It is acknowledged that careful planning, adherence to environmental protection laws, and inclusive strategies are essential to mitigate negative consequences. The economic benefits of the project are emphasized, including the potential for revenue generation, increased agricultural output, and surplus products for export. The project is viewed as a positive step for the greater benefit of the Thal region, especially in terms of food security and rural economic growth. The role of the state and stakeholders is underscored, with an acknowledgment that their interests may vary. Stakeholder engagement, transparency, and accountability are highlighted as crucial elements in ensuring the success and sustainability of the

project. The need for collaboration among various parties is emphasized to balance diverse interests.

In summary, the critical analysis of the interviews indicates a generally positive outlook on the Thal Canal project, with an understanding of the challenges it poses. The interviews collectively underline the importance of careful planning, environmental considerations, and inclusive practices to maximize the positive impact of the project while addressing potential drawbacks.

## **Conclusion**

The Thal Desert, situated in Pakistan, stands out as a distinctive and historically significant region that has shaped the nation's history, culture, and progress. Encompassing multiple districts in the southern reaches of Punjab province, this expansive desert boasts a diverse landscape characterized by sand dunes, valleys, and arid conditions. Throughout this exposition, we have examined the multifaceted aspects of the Thal Desert, encompassing its geographical features, historical importance, the ramifications of the Greater Thal Canal project, cultural diversity, economic endeavors, hurdles, and notable landmarks. In geographical terms, the Thal Desert ranks as the third-largest desert in Pakistan, distinguished by its triangular configuration and demarcated boundaries defined by the Indus and Chenab Rivers. Its rugged and infertile terrain, punctuated by shifting sand formations and harsh environmental circumstances, has historically presented obstacles for agricultural activities and human settlement. Nevertheless, this very topography renders the Thal Desert a distinctive and captivating component of Pakistan's landscape. Exploring its historical relevance reveals captivating



revelations. Accounts from history and local folklore allude to a bygone era when the Thal region boasted a vastly different landscape, characterized by abundant water sources, dense woodlands, and thriving wildlife. Throughout the centuries, the region has witnessed the influence of diverse rulers and tribes, including the Balochs and Pashtuns. The annals of the Thal Desert's history unfurl a rich tapestry of conquests, settlements, and cultural intermingling.

One of the pivotal milestones in the history of the Thal Desert is undoubtedly the implementation of the Greater Thal Canal project. Originally conceived during the era of British colonial governance and ultimately materialized post-independence in 1947 under Pakistan's administration, this ambitious endeavor aimed to tackle the persistent water scarcity plaguing the region. Through the intricate construction of a canal network diverting water from the Indus River, the once-barren desert underwent a remarkable transformation, evolving into a thriving agricultural center. This monumental project catalyzed agricultural expansion, encouraged crop diversification, fostered economic advancement, and substantially enhanced the living standards of the indigenous populace.

From a cultural perspective, the Thal region stands as a bastion of heritage, its native inhabitants preserving distinct traditions, dances, and musical forms. The captivating Jhummar dance, performed in circular formations, serves as a poignant emblem of the Thal Desert's cultural ethos and serves as a vibrant avenue for artistic expression. Economically, the local populace predominantly relies on agriculture and livestock husbandry for sustenance. The advent of the Greater Thal Canal project emerged as a pivotal juncture in augmenting the region's economic landscape, furnishing

a steady revenue stream through enhanced agricultural activities. However, the Thal Desert grapples with multifaceted challenges. The ceaseless movement of sand dunes, coupled with extreme climatic conditions and formidable wind velocities, poses persistent hurdles for its inhabitants. While developmental initiatives have yielded commendable outcomes, concerns linger regarding equitable water allocation and environmental repercussions. Alongside its storied forts and landmarks, the Thal locale plays host to an array of cultural festivities such as Mela Inayat Shah and the Thal Jeep Rally Festival, enriching the tapestry of tourism and safeguarding cultural heritage.

The Thal Canal stands as a pivotal component of British colonial infrastructure in India, emblematic of the broader economic and strategic interests of the British Empire (Barrier, 1967). Its establishment underscored the intricate nexus between economic imperatives and military strategies within the framework of colonial governance. The Thal Canal and its associated infrastructure yielded profound economic and strategic ramifications during the British colonial era in the Indian subcontinent. By facilitating the conversion of arid terrain into agriculturally productive zones, the canal contributed significantly to revenue generation and economic stability. Concurrently, its strategic value in asserting control over the region and fortifying frontier defenses against potential threats underscored the multifaceted nature of colonial infrastructure initiatives. The enduring legacy of the Thal Canal Project serves as a testament to the nuanced interplay between economic pursuits and military tactics inherent in British colonial administration. Moreover, the Thal Canal's impact transcended mere engineering prowess, profoundly influencing territorial demarcations and geopolitical boundaries in the region. Serving as a physical delineation between British-administered territories and

princely states, the canal corridor played a pivotal role in shaping economic development trajectories along its trajectory while also engendering cross-border complexities. Following the partition of British India, the Thal Canal assumed international significance as a delineating border. Its narrative exemplifies the transformative potential of infrastructure endeavors in shaping and delineating geopolitical landscapes, leaving an indelible imprint on the region's contemporary dynamics and inter-state relationships (Condos, 2017).

The TDA Settlement Programs, which allocate state and leased land to settlers, warrant examination through the lens of Dependency Theory to assess whether these allocations primarily benefit external actors, potentially to the detriment of the local population. Dependency Theory advocates for scrutinizing how economic benefits are distributed, particularly concerning resource extraction, such as valuable agricultural or mineral resources, associated with land allocations. Within the context of TDA settlement programs, analysis suggests that the economic gains from land allocation predominantly accrue to external interests, such as government bodies or corporations, contributing to economic disparities and potentially exacerbating dependency. These programs tend to favor certain groups over others, thereby reinforcing dependency dynamics. External entities, including government bodies, wield considerable influence over land and resource management policies, impacting land use and agricultural production in the region. While TDA Settlement Programs may contribute to sustainable economic development, their emphasis on short-term gains may conflict with Dependency Theory's preference for initiatives fostering long-term self-sufficiency. Dependency Theory advocates for initiatives that create employment opportunities for the local population to

reduce dependency. However, the implementation of TDA Settlement Programs may result in disparities in labor practices, with settlers and laborers facing either fair labor conditions or exploitative circumstances. Thus, Dependency Theory underscores the importance of critically evaluating the socio-economic implications of land allocation programs to mitigate dependency and promote equitable development.

The Theory of Structural Imperialism underscores the significance of evaluating how structural control is wielded, particularly in initiatives like the TDA Settlement Programs. External actors play a pivotal role in shaping the design and implementation of these programs, often prioritizing their interests over local development needs. Conditions attached to land allocations or investments tend to favor external stakeholders, highlighting the asymmetrical power dynamics inherent in such initiatives. Examining the extent of political influence exerted by external actors in the planning and execution of the TDA Settlement Programs involves scrutinizing government policies and international agreements that influence these initiatives. These programs often align with broader political agendas that prioritize external interests, impacting resource allocation and trade patterns in the region.

While the programs may ostensibly promote self-sufficiency, they may also facilitate resource extraction that primarily benefits external actors, potentially limiting the development of local industries. Dependency Theory and the Theory of Structural Imperialism provide valuable frameworks for evaluating various aspects of the Thal Canal Project, including resource allocation, economic benefits distribution, ownership and control dynamics, long-term economic impact, job creation, labor conditions,

structural control, political influence, and trade patterns. This comprehensive analysis offers insights into whether these programs genuinely contribute to local economic development or perpetuate historical patterns of economic dependency and structural control, shedding light on the complex dynamics at play within colonial infrastructure projects.

The Thal Canal Project, situated in the arid Thal region of Pakistan, has elicited significant debate and interest. This essay seeks to conduct a critical examination of five interviews offering diverse perspectives on the project. Each interviewee provides distinct insights into the potential benefits, challenges, and ramifications of the Thal Canal Project concerning regional development, spanning economic, social, environmental, and political dimensions. These interviews present a broad spectrum of viewpoints on the Thal Canal Project, revealing a consensus on its potential for regional development while also highlighting various concerns, opportunities, and recommendations.

The diverse range of opinions underscores the multifaceted nature of large-scale infrastructure endeavors and emphasizes the necessity of comprehensive evaluation. Despite differences in perspective, there is a shared belief among the interviewees in the economic potential of the project. The Thal Canal Project is anticipated to transform agriculture in the Thal region by providing a dependable water source for irrigation. This anticipated increase in agricultural productivity is expected to elevate the economic status of the local populace and bolster food security. However, the realization of these

economic benefits is contingent upon effective project management and equitable distribution of resources.

In addition to economic factors, the interviews underscore the potential social implications of the project. The anticipated improvement in access to water resources is expected to mitigate water scarcity challenges, leading to enhanced living standards, upgraded healthcare facilities, and improved infrastructure. Moreover, the projected economic benefits of the project may indirectly enhance educational opportunities and overall quality of life by empowering families to invest in their children's education. However, concerns regarding potential challenges, particularly related to displacement, are acknowledged, emphasizing the necessity of adequate compensation and mitigation strategies.

Despite the potential advantages, the Thal Canal Project prompts concerns regarding environmental sustainability. Interviewees express apprehensions about potential disruptions to natural ecosystems and the prospect of exacerbating water scarcity issues. This underscores the importance of conducting thorough environmental assessments and implementing stringent mitigation measures to minimize environmental harm. An essential ethical and practical consideration highlighted in the interviews pertains to the compensation and resettlement of affected communities. In the event of displacement, there is consensus among interviewees that displaced individuals should receive fair compensation, suitable housing, and assistance to rebuild their lives. This aspect of the project's implementation is deemed critical to its overall success.

The interviews also highlight the diverse array of stakeholders invested in the Thal Canal Project, each with their own set of interests and priorities. These stakeholders encompass a spectrum of entities, ranging from regional development agencies and governmental bodies to private investors, agricultural associations, water management organizations, and environmental advocacy groups. The complex interplay of these interests underscores the importance of transparency, collaboration, and accountability in ensuring the success and sustainability of the project. Transparency and accountability are repeatedly emphasized in the interviews as fundamental principles that must underpin the project's management and execution. Public engagement, third-party monitoring, and comprehensive impact assessments are viewed as indispensable tools for fostering transparency and accountability.

Inclusivity in decision-making processes emerges as a recurring theme, emphasizing the importance of soliciting input from all stakeholders, particularly the affected local communities. By incorporating diverse perspectives and interests into the decision-making process, the project can better address the needs and concerns of all stakeholders. A common thread across the interviews is the recognition of the need for a long-term vision to guide the Thal Canal Project. This entails meticulous planning, execution, and management strategies that account for both the potential benefits and drawbacks of the project. Sustainability, equity, and responsible stewardship are identified as guiding principles that should inform all aspects of the project to ensure its overall success and maximize its positive impact on the Thal region.

In summary, the comprehensive examination of the interviews underscores the complexity inherent in the Thal Canal Project. While it holds promise for economic advancement, enhanced quality of life, and societal advancement, it also poses environmental and displacement hurdles. The project's efficacy hinges on prudent planning, fair allocation of benefits, transparent practices, and adept management of various stakeholders' concerns. Ultimately, the Thal Canal Project has the capacity to transform the Thal region, yet its enduring impact will be determined by its ability to navigate these multifaceted challenges while upholding principles of sustainability and fostering inclusive growth.



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## Appendices

### Appendix (A)

#### Interview 1

##### **Q1. How do you see the Thal canal project? Is it good for the region development or not?**

Thal canal project is very good for the region and especially the development of the area regarding agriculture because Thal area does not have any resources of water or irrigation resources. So, if the Thal canal is completed and its command area is completed whole of the Thal desert area will be converted into a very good cultivated land. So it would be very good for the development of the area

##### **Q2. In which area (economic, education, social, etc.), do you see the project will serve?**

##### **What will be its impact on local community?**

Project will serve especially in the economic and social area. The economic standards of the people who are living in Thal area will be enhanced and they will be having a very good resource of agriculture produce when their land is irrigated so, it will serve for the economic development of the area and for the people of the area and it will also improve their social status and it will serve the social sector also.

##### **Q3. If the people from the area are displaced, how will they be compensated?**

People of the area may not be displaced because I don't think there is any need for displacing the people of the area. But if they are displaced in any case they can be given an alternative agriculture land in the adjoining areas where there is lot of government land laying uncultivated in the whole of the area.

**Q4. Do you think this is a good step for the greater benefit of the Thal region?**

It is a very good step for the development of the Thal area and it is a very important [step] and [it is a] lifeline for the people living in Thal area. So, its importance in the development of the area can't be ignored. It is a very good development and will serve the people of the area.

**Q5. Is there any interest to the state or stakeholders or any others from this project?**

There is great benefit of the state because the social status of the people living has ... and the state really has get income in the form of produce which is a great service for the state in the era when we are importing lot of agriculture products and commodities from other countries which will save the foreign exchange and will add to the reserves of the state of Pakistan and all the stakeholders will benefit from this project which is a very important and crucial project not only the country [will benefit] but the people of the area the community [as well] and whole of the Thal desert will be change into cultivated agriculture land.

**Interview 2**

**Q1. How do you see the Thal canal project? Is it good for the region development or not?**

Considering the Thal canal project impact on the regional development requires a thorough evaluation of its economic, environmental, and social consequences. It can provide a boon to the economy by boosting agricultural production. It can also improve our atmosphere, climate, and land. Improvements in social-cultural and social-economical conditions could improve overall lifestyle of the local people. Considering all the factors it could provide a crop benefit of 5.58 billion rupees per year.

**Q2. In which area (economic, education, social, etc.), do you see the project will serve?**

**What will be its impact on local community?**

The project impact could span across various areas including economic development through increased agricultural productivity, potential improvements in education and infrastructure, and social benefits through enhanced water availability. This project will contribute to enhanced food security and rural economic growth in Punjab province. It will convert seven hundred and four thousand hectares of low productive rain fed land into irrigated and productive lands which will hugely contribute to the economy of Pakistan.

The impact on local communities could be both positive and negative. It may lead to increased agricultural opportunities such as replacement of tube well, no fuel burden on farmers, support of field school training by CAD, hydrological change of other command areas, better crop output, but it could also impose challenges such as displacement, permanent land acquisition, litigation measures, tree removal, and community engagements are essential to address these impacts.

**Q3. If the people from the area are displaced, how will they be compensated?**

If people are displaced due to the project, compensation and resettlement plans are ensured by the policy framework of PEPA [Pakistan Environmental Protection Act] 1997 and international standard policies of ADB's SPS 2009 and AIP, 2019. Moreover that, Punjab protection act, 1997, which provides framework for protection, conservation, rehabilitation, and improvements of the environment. It also provides guidance for proper documentation, and public disclosure of environment information as well as for citizen engagement and institution of a grievous redressal mechanism of the project.

**Q4. Do you think this is a good step for the greater benefit of the Thal region?**

Whether the project is a good step for the greater benefits of the Thal region depends on the careful planning execution and management of the project considering both its advantage and potential drawbacks. This project will provide a lot of benefits to the Thal region like food security, rural economic growth, development of new irrigation system, seven hundred and four thousand hectares will be converted into irrigated land, will provide support to farmers for own farm development and management in the areas of MC, MBC, NCBC, which means around five hundred thousand farmers will be targeted through this project

**Q5. Is there any interest to the state or stakeholders or any others from this project?**

Well, the project interest to the state, stakeholders, and other parties may vary. State interest might involve regional development and economic growth. While stakeholders [interest] could include those directly affected as well as investors or constructors involved in the project. Stakeholder interest could include, to enhance irrigation, water supply, better income, and crop productivity. But public transparency and accountability are crucial in managing these interests.

**Interview 3**

**Q1. How do you see the Thal canal project? Is it good for the region development or not?**

The Thal canal project can potentially be beneficial for the development of the region if it is well planned, managed, and its impacts are carefully monitored. Its success depends on factors such as sustainable water management, environmental protection, and equitable distribution of benefits.

**Q2. In which area (economic, education, social, etc.), do you see the project will serve?  
What will be its impact on local community?**

The project is likely to have an impact in several areas like economic, it can boost agriculture productivity create jobs and stimulate economic growth in the region. Improved economic condition may lead to increased investment in education and development. Access to water can enhance overall living conditions including healthcare and infrastructure. The impact on local community can be positive if the project is managed effectively. It can lead to increased income, improved access to basic services and living standards. However potential negative consequences such as displacement or environmental damage must be addressed through appropriate compensation and mitigation measures.

**Q3. If the people from the area are displaced, how will they be compensated?**

If people are displaced due to the project, they should be adequately compensated which may include financial compensation, resettlement in suitable locations with access to basic facilities and support for rebuilding their lives. Ensuring the wellbeing of affected communities is essential.

**Q4. Do you think this is a good step for the greater benefit of the Thal region?**

The project can be a positive step for the greater benefits of the Thal region if it is carried out with transparency, inclusivity, and long-term vision. Sustainability, equality, and responsible management are key factors in determining its success.

**Q5. Is there any interest to the state or stakeholders or any others from this project?**

The Thal canal project is likely to be of interest to various stakeholders, including the state, local government, investors, farmers, environmental organizations. The state and local governments would be interested in regional development while investors might seek economic opportunities. Environmental organizations would be concerned about ecological impacts and the project should align with national development goals. Effective collaboration among these stakeholders is essential for successful project

**Interview 4**

**Q1. How do you see the Thal canal project? Is it good for the region development or not?**

The canal project has both effects, positive and negative, positives include access to water for irrigation, irrigation system can become better, water resources can be increased, [clean]drinking water can be made available. But it can also have a negative impact on the environment as it can disturb natural habitat, scarcity of water can [also] happen sometimes.

**Q2. In which area (economic, education, social, etc.), do you see the project will serve?**

**What will be its impact on local community?**

The Thal Canal Project has the potential to serve various areas. It can enhance agricultural productivity by providing a reliable water supply for irrigation, potentially boosting the agricultural sector's growth. This, in turn, can contribute to economic development in the region. Improved access to water resources can indirectly benefit education by supporting families' livelihoods, making it easier for them to invest in their children's education. Enhanced water

availability can improve the overall quality of life by addressing water scarcity issues and providing better sanitation facilities, potentially leading to improved health and living conditions.

The impact on local community can be both positive and negative. Locals will get good productivity from land, and they will get more resources, opportunity, water resources. But they are also at risk of displacement where it might be difficult to fully benefit.

**Q3. If the people from the area are displaced, how will they be compensated?**

It should be as per law of the land. Adequate compensation, housing, and livelihood support should be provided to ensure that those affected can rebuild their lives in a sustainable manner.

**Q4. Do you think this is a good step for the greater benefit of the Thal region?**

Yes, I think it is a good step for the Thal region as Thal has been neglected for years due to lack of awareness, poor policy and feudal system and has not had a project of this scale which can ultimately improve the whole region. This project will not only help increase the agriculture output but also will improve the living standards of people, making access to basic necessities easier and improving the overall quality of life. It will also help the people to benefit economically and the government will also get economical benefits as well as food security.

**Q5. Is there any interest to the state or stakeholders or any others from this project?**

There may be various interests from state authorities, stakeholders, and other parties in the Thal Canal Project. State authorities may be interested in boosting regional development and agricultural productivity. Stakeholders could include local farmers, agricultural associations, and water management organizations. Other interested parties might include environmental advocacy

groups concerned about the project's ecological impact. Balancing these interests is essential for the project's overall success and sustainability.

Community stakeholders' engagement is important. How the government will involve local communities and how it will be executed. It depends solely on monitoring of the interventions, its follow up and further impact assessment through involving third parties. And most important how the project being implemented in its full spirit without any gaps

## **Interview 5**

### **Q1. How do you see the Thal canal project? Is it good for the region development or not?**

Thal canal project is very good for the development of Thal and the region too because this project is basically situated in the area where there is Thal so especially it is very good for the development and the economic status for the people of Thal region because if this project continues and is completed in time it will increase the living standard of the people living in Thal. And it will add up as a very good resource of irrigation for the people of Thal area because there is no source of water or irrigation in this area because basically it is a vast land and, it is not well developed to have water resources for the farmers living there. So, if this project completes it will add up to the life value of the people of the area

### **Q2. In which area (economic, education, social, etc.), do you see the project will serve?**

#### **What will be its impact on the local community?**

It will serve especially in Thal area and in the economic zone of the area because [if] this canal project completes it will add a great value to the irrigation sector there and they will get water resources easily and will cultivate a very good land there. If we talk about the impact on the local community or their displacement from the area it is not such a big deal or big hurdle there



because it is a very less populated area. I don't think there are many people in adjacent areas of the project.

**Q3. If the people from the area are displaced, how will they be compensated?**

If there is any displacement the state will adjust them, the state will compensate them in their losses if they have to be moved from the project area so I don't think it will have a bad impact on the locality living there. Hence, we can say that it will have a very good impact on the people living there because it will add to their life standards it will increase their life standards, so it will be a landmark project if it completes in time for the people of Thal.

**Q4. Do you think this is a good step for the greater benefit of the Thal region?**

It will basically increase the cultivation of the land because before this project started, there was no source of water there, there was no source of irrigation so with the completion of this project, if one third of the land is cultivated before this project, then whole of the land will be naturally fertilized land inshallah.

**Q5. Is there any interest to the state or stakeholders or any others from this project?**

The only interest of the state will be the development of the Thal area and agri production because this project will enhance the cultivation of the land there. It will add a very great value to the populated land. Moreover, it will also benefit the state in the form of revenue and all stakeholders will also get the revenue so ultimately it is a very good project especially for the people of Thal. Ultimately., it is also very good for the state as the production will be in surplus. So, the state can also export the surplus product so it will add financial value to the farmers of

the area first and then to the state in the form of the revenue, or taxes or whatever the mechanism.