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17 September 2020

Online at <https://mpra.ub.uni-muenchen.de/103451/>
MPRA Paper No. 103451, posted 19 Oct 2020 15:22 UTC

A Tale of Two Punjabs and CPEC

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Abstract

China-Pakistan Economic Corridor (CPEC) is a multi-dimensional development project that offers a unique opportunity to Pakistan for equitable and sustainable development. This study investigates the potential of selected districts of Punjab alongside CPEC routes, based on six social and economic indicators to assess whether these districts are on an equal footing to capitalize upon such a mega-investment project. Results indicate wide disparities between the selected districts in terms of infrastructure and human capital, which are not captured by conventional indices of development. While developed districts can provide the necessary kick-start to CPEC. For the second phase of CPEC, the Punjab government must devise tailormade policies to suit the resource endowments of less developed districts.

JEL Classification: I38, O15, O18, R10

Key Words: *CPEC, Regional Disparity, Inclusive Sustainable Development, Punjab*

1. Introduction

China-Pakistan Economic Corridor (CPEC) has entered its second phase after completion of the first. While the first phase focused on infrastructure and energy projects, the second phase has wide-ranging objectives including poverty alleviation, agriculture and industrial development, cooperation in technology and innovation, and setting up Special Economic Zones (SEZs)¹. Much has been said about the benefits that CPEC will entail for Pakistan. It has been celebrated as a “game-changer” that will lead the country on the path of prosperity and lift millions of its people out of poverty, and adulated to equip Pakistan with the right ‘tools’ (software and hardware) for the fourth industrial revolution². Further, the expansion of the Free Trade Agreement (FTA) to the second phase between China and Pakistan is expected to open market access for Pakistan and serve as a supplementary catalyst for the CPEC second phase of development.

CPEC is expected to have a profound impact on the socio-economic development of the country. It is expected that the CPEC will increase GDP growth by 1.5 percent and investment to GDP share by 5.5 percent annually (Naseem, 2015). It is also anticipated that the private investment will add 0.5 percent to the GDP. This increase in investment will come through enhanced productivity via infrastructural projects (Aqeel, 2016; Ramay, 2016). On the employment front, CPEC projects are expected to create 0.7 million jobs during 2015-30 (Nation, 2016). Furthermore, transport and infrastructure projects are expected to provide easier and cheap access to domestic and international markets through its three routes. CPEC does not offer just direct economic advantages in the traditional sense but it is expected to uplift and upgrade cities from within through economic zones, strengthen our communication, infrastructure and provide new trade routes externally.

However, concerns regarding fulfillment of these expectations are increasing due to rather lackluster performance of such corridors in other countries like Sri Lanka, Africa, and Cambodia due to the ‘debt-trap diplomacy’ of these Mega Development Projects³. CPEC, too, faces many challenges in its implementation. On the external front, repayment of loans, competition from the Chinese market, and increased cost of production for the local investors may be difficult to counter. Whereas, internally, a gaping mismatch of skill level with its Chinese counterpart, technological constraints, and disparities among the provinces due to unbalanced growth in the region would be serious obstacles. To add insult to injury, our state has limited capacity to implement mega projects. Pakistan ranks as a Middle Human Development country (at 152 out of 189 countries) on Human Development Index (HDI, 2019), and performs below par even among the South Asian countries as

¹ CPEC is focusing on both economic and social sectors (LTP 2017). The Long Term Plan (2017) is divided into eight categories which include “Energy sector, Integrated transportation and IT systems including road, rail, port, air and data communication channels, Agriculture development and poverty alleviation, Economic zones, industries and industrial parks, Financial collaboration, Cooperation in employment generation, Human resource development and Tourism cooperation and people to people communication.

² See Aqeel 2016, Haq and Farooq 2016, Naseem 2015, Ramay 2016, the Nation 2016.

³ See Assef, N. A. (2018), Chheang, V. (2017), Heng, K., & Po, S. (2017), Kotoski, K. (2017), Var, V., and Po, S. (2017)

India and Bangladesh are ranked at 129 and 135, respectively. In the Global Competitiveness Index (GCI), Pakistan is ranked at 110th position out of 140 countries as compared to India placed at 68th rank (WEF 2019). Moreover, in Ease of Doing Business 2019, Pakistan ranked at 136th position out of 190 countries with India at 77th position (Doing Business 2019). These development indices show that Pakistan is underperforming in the socio-economic indicators. With CPEC in its second phase, there will be many constraints to the domestic development with such low performing indicators in social and economic domains.

Hence, economic corridors not only offer tremendous opportunities for growth, but they also come with many challenges as well. Table 1 below summarizes key opportunities and threats associated with Economic Corridors.

Table 1: Economic Corridors: Challenges and Opportunities

Opportunities	Threats
Improving Cross-border infrastructure and their management	Ensuring that investment is efficient; not directing investments to politically motivated projects
Reducing trade rules and costs, Boosting trade flow and Global Value Chain Participation	Coordinating large scale infrastructure investments
Improving investment climate and boosting cross-border investment	Ensuring transparency of data and information, transparency in public procurement
Improving growth, employment and poverty reduction	Managing social, environmental and governance risks
Developing lagging and isolated regions	Sustaining public debt, finding innovative finance to complete projects on time

Source: UNDP 2019

While the table above identifies economic corridors as an opportunity for underdeveloped and isolated regions to catch-up with the developed regions, this study postulates that unless targeted policies are devised to build human capital and optimally utilize the resource endowments of the lagging regions, they may not benefit much from such large-scale development project solely because they do not have the capacity to absorb this investment. That is, they are so lacking in the hardware (infrastructure) and software (human capital/institutions) of development that they may miss the opportunities offered by a mega project such as CPEC and investment may flow to regions with better human capital and a good business environment thus causing further disparities. The

Punjab province too has large disparities between the South⁴ and the North regions⁵. If appropriate steps are not taken to fill the gap, the lagging regions may face further deprivation. This threat of widening inequalities remains neglected in literature.

Using seven districts from Punjab, a mix of developed and underdeveloped districts alongside CPEC routes, this study investigates the potential of selected districts based on six social and economic indicators⁶ to assess whether these districts are on an equal footing to capitalize upon such a mega-investment project. We identify disparities in the socioeconomic structures of these districts. Being cognizant of these differences will help identify and tackle economic, social, and human capital inequalities along with capacities and constraints of these districts to benefit from CPEC. The paper also provides policy prescriptions to overcome constraints faced by the lagging districts.

2. Socio-Economic Development under CPEC

CPEC, a Mega- development Project of more than \$64 billion, has the potential to affect economic development and social welfare because of its broad and encompassing agenda. As its three routes pass through major cities of all provinces, it is expected to have a profound impact on the remote areas of the provinces in term of growth and employment generation. CPEC is divided into two main categories; Chinese financed projects (45 in number) and projects financed by Pakistan (21) under Public Sector Development Program (PSDP). Though CPEC does not have separate category for social development projects, they, however, are made a part of the infrastructural and other projects such as “fresh water treatment plants, water supply and distribution, Pak China Friendship Hospital, Technical and Vocational Institute at Gwadar, People to People exchanges, Transfer of knowledge in different sectors (Fariddudin (2017).” These projects constitute 0.04% of the CPEC’s total outlay and include investments in education, health, water and sanitation and vocational trainings. The investment under CPEC is huge and constitutes a fifth of annual GDP and twice the total FDI of Pakistan. It is expected that it will boost Pakistan’s GDP by 15% (Ramachandran 2015). Another study found that average impact on social welfare will be 3.5% in Punjab and 6.31% in Sindh (Haq and Farooq 2016).

The Long Term Plan of CPEC has divided the Project into three phases; early harvest projects to be completed by 2020 (phase 1), medium- term projects to be completed by 2025 (phase 2) and long-term projects to be completed by 2030 (phase 3). One of the major principles of CPEC Long-term Plan is to improve livelihoods through sustainable development. To achieve these goals, seven key cooperation areas have been identified in which projects related to infrastructural development, energy, industrial cooperation, agricultural development, tourism, improving livelihoods and financial cooperation are included (LTP 2017). As CPEC has now moved into its second phase, the

⁴ South Punjab is a commonly used name for districts in the south and southeast of the province.

⁵ North Punjab includes Rawalpindi, Lahore and Faisalabad. Though Faisalabad lies in the Central Punjab and Lahore on the East, in comparisons between Southern part of province and North, the central and eastern part are amalgamed with the North.

⁶ We will discuss these indicators below.

priority will shift to agriculture and industrial development. In case of industrial development, specialized economic zones (SEZs) are planned in all the provinces⁷. In case of agricultural development, establishment of modern agricultural zones, adoption of new techniques to enhance the production capacity and promotion of horticulture will be the part of the Long-term plan. In this way, CPEC will not only have an influence on the infrastructural development but will also integrate the socio-economic development of the regions through its inclusive agenda.

2.1 Socio-Economic Status of Punjab Province

Punjab is the most populous province with a population of 110 million people of which 40 million live in urban and 70 million live in rural areas (Population Profile Punjab, 2019).⁸ It has a literacy rate of 59.6%. Punjab has a strong agricultural and industrial base. It houses approximately 50,000 industrial units and shares about 68% of the food production of the country. According to Human Development Report (HDR) 2017, Punjab is ranked as the most developed province. However, there is a clear division between the Northern Punjab and Southern Punjab for the HDI levels. Overall, Punjab is placed in the high-medium level of HDI, which is the highest level of all the other provinces. Similarly, Punjab performed better than other provinces in Education Index (EI), Health Index (HI) and Living Standard Index (LSI) under the sub-categories of HDI (Najam and Bari, 2017).

Naveed and Ali (2012) ranked districts based on poverty and found that Punjab had the least poverty and rural-urban disparity of all other provinces. However, as is the case with HDI, there is clear disparity between the southern and northern regions of Punjab in the incidence of poverty. Overall, only 19% of the population in Punjab fall below the poverty line but the districts of Rajanpur and DG Khan have more than 40% of their population under poverty line.

Punjab has industrial clusters in Lahore, Sialkot, Gujranwala, Multan and Faisalabad with large as well as small-scale industries. These industries mainly consist of textile, agro-based products, leather goods, surgical goods, sports goods, pharmaceuticals and fertilizers (SBP 2018a). These articles make up heavy share of exports of Pakistan and hence, can be utilized as a potential resource in the second phase of CPEC. However, in order to meet the requirements of the industrial and agriculture-based investments, skill level of the workforce is the most determining factor of the successful implementation of the project. Despite of the expanding workforce by 1.5 million people per year, the skilled labor workforce is still a challenge for Pakistan, which makes it detrimental to the sustainable development in any sector.

The above literature review further motivates us to explore implications of CPEC in the Punjab region based on socio-economic profile of the selected districts. This study covers the literature gap by analyzing the status of the districts of Punjab on CPEC routes, highlighting their potentials and

⁷ This will include relocation of industries and joint ventures

⁸ Punjab has 36 districts and a total area of 205,344 square km.

weaknesses based on social and economic indicators, which has not been analyzed as a collective approach in the studies done so far.

2. Data & Methodology

We have selected seven districts from Punjab province on CPEC route based on 1) the priority projects of CPEC passing through the districts, 2) districts that are close to the CPEC route but are not directly attached. Hence, following districts from Punjab were chosen: 1) Lahore, 2) Faisalabad, 3) Rawalpindi, 4) Multan 5) Mianwali 6) Dera Ghazi Khan, and 7) Rajanpur. Both developed and underdeveloped regions were chosen to assess socioeconomic depravity in these districts.

We selected six domains for the comparison. The domains include Demography, Health, Education, Agriculture, Industry, Housing & Infrastructure. Each domain has sub-indicators (See Table I below). Both main domain and sub-indicators are drawn from the SDGs framework.

Table 2: Indicators Used for Analyses

Sr.no	Domains	Sub-Indicators
1.	Demography	Population Density (people per square km) Urban Proportion Multi-Dimensional Poverty Index (MPI) Human Development Index (HDI)
2.	Education	Net Enrollment Rate (NER) at Secondary level Adult Literacy Rate Number of Universities (Public and Private) Number of Government Vocational and Technical Institutes
3.	Health	Infant Mortality Rate (IMR) Number of Basic Health Units (BHUs) Prevalence of Stunting in Children (below the age of 5)
4.	Agriculture	Cultivated Area Number of Livestock
5.	Industry	Number of Registered Industrial Units Labor Force Employment
6	Infrastructure and Housing	Metaled roads Housing Units with Electricity Housing Units with Piped Water Housing units with Gas Connections

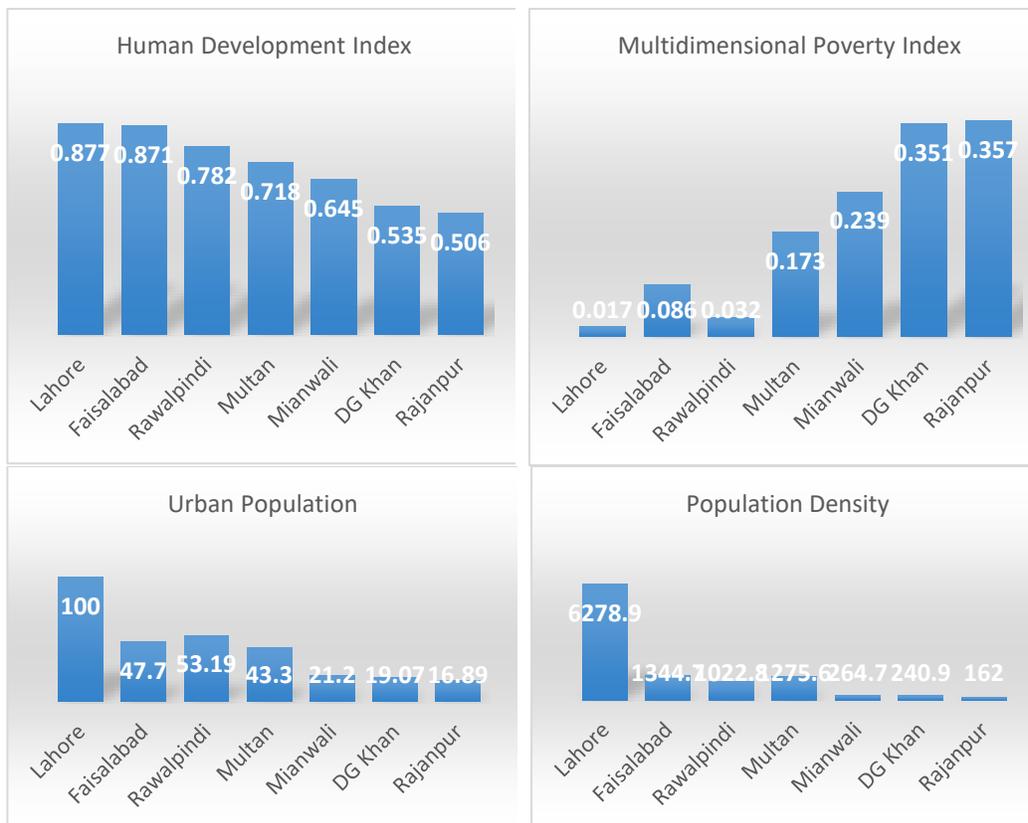
3. Socioeconomic Disparities among Districts of Punjab

Having selected the indicators, the following section compares the seven districts on these indicators.

3.1 Demography

The Human Development index (Figure1) shows that the Central and North Punjab are ahead of their Southern counterparts. While Lahore, Faisalabad, Rawalpindi, and Multan have HDI scores which put them in the league of Very High to Highly developed districts, Mianwali has medium, and DG Khan and Rajanpur have low scores. So, while districts with high HDI have capabilities to benefit from CPEC, others may not be in a position to do so.

Figure 1



These disparities become more evident when we look at the MPI (Multidimensional Poverty Index). Rajanpur and DG Khan have MPI values which compares with the poorest of countries (Benin and Guinea in Sub-Saharan Africa) in the world. The difference in the incidence of multidimensional

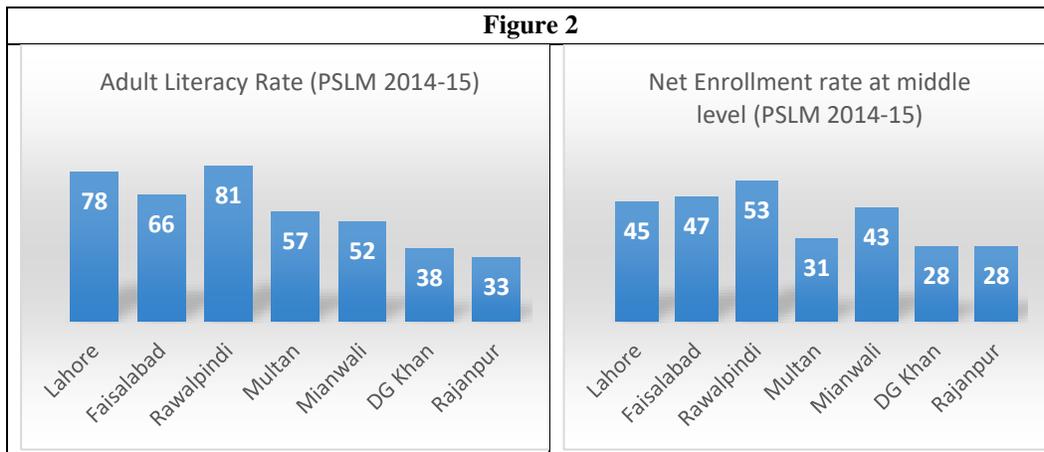
poverty is stark. It will be an enormous task for these less privileged districts to benefits from CPEC on their own. The government would have to strategize for these districts to take advantage of this opportunity.

Regions with high urban population and population densities are the incubators of innovation and creativity⁹. They also offer employment opportunities, better living, educational and healthcare facilities. Lahore is the most urbanized district with a high population density, followed by Rawalpindi, Faisalabad, and Multan. These districts can provide relatively skilled and productive human capital for generating economic activity along the route.

Mianwali, DG Khan and Rajanpur not only have low urbanization rates but are sparsely populated as well. Given the demographic profile of these three districts, what opportunities do they offer for prospective investors under CPEC? We discuss the economic structure of these districts further below.

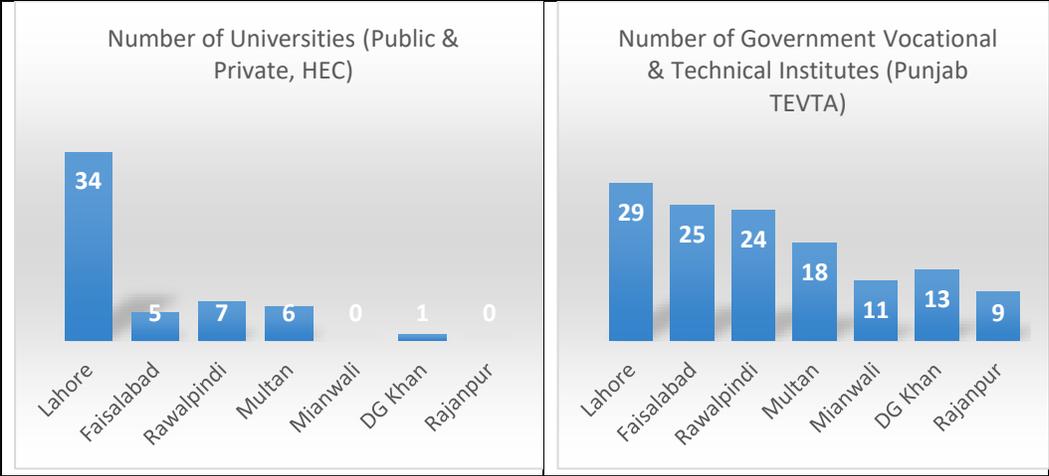
3.2 Education

The educational differences between North and South Punjab are vast. The adult literacy rate¹⁰ depicts the huge disparities between the developed districts in the North Punjab- Lahore (78), Rawalpindi (81) and Faisalabad (66) against the under-developed districts of South Punjab - D G Khan (38) Rajanpur ((33). The situation is no different for secondary education. D.G. Khan and Rajanpur have a very low enrollment rate at the middle level, which eventually reflects in dismal level of human capital accumulation as depicted in the poor HDI scores for these districts.



⁹ and hence induce rural-urban migration.

¹⁰ Which is a crude estimate of literacy.



The number of universities is disproportionately high for Lahore, but technical and vocational institutes are low in all the districts¹¹. Though, Lahore has 29 institutes and Rajapur has 9, these numbers are not enough to upgrade skills of the huge number of unskilled workers in Pakistan¹². This aspect needs urgent attention as vocational and technical institutes are the baseline for skill development of labor force. Barring technical education, Rawalpindi and Lahore can provide educated human resource. The Government of Punjab has drafted a “Punjab Skill Sector Plan 2018” to enhance skill level of its labor force and align it with market demand. The data on skills is sketchy at best. One study estimates the total supply of skilled labor force in Pakistan to be around 320000, against a demand of 491000 workers. Of the total demand, only 20 percent was from the domestic sector. Punjab had the highest demand of skilled workers, accounting for 43 percent of total domestic demand. Karachi demanded the most skilled worker (15.4%) followed by Lahore at 10 percent. Most demand was generated from the manufacturing, services, maintenance and repair, and construction sectors. The report estimates the overall gap of about 67 percent between the supply and demand of skilled labor force (NAVTTTC, 2017). Lack of skilled labor force can be a major obstacle in capitalizing gains from the CPEC.

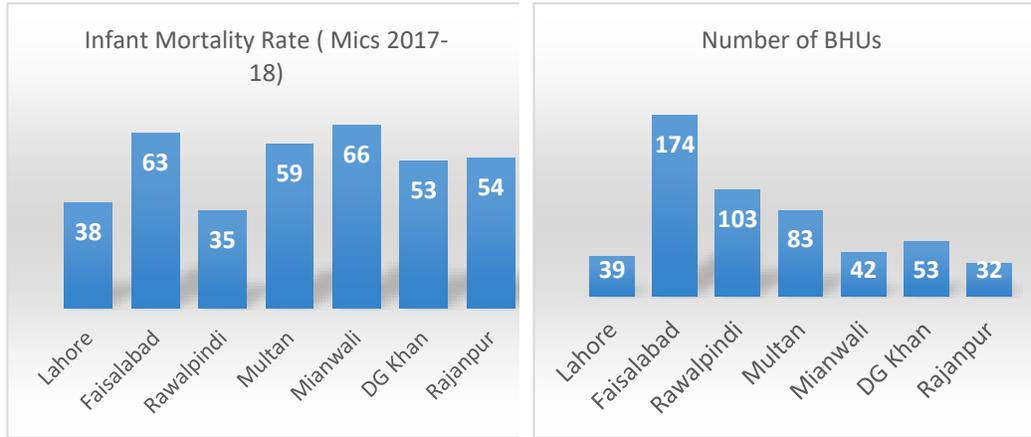
3.3 Health

Infant Mortality Rate (IMR) presents a mixed picture where Faisalabad and Mianwali have the highest rates. Barring Lahore and Rawalpindi, all other districts have an IMR which are on the higher side.

¹¹ Lahore has more than 30 universities while the rest of the districts have less than 10 universities in their regions. Rajapur and Mianwali have no main university campus

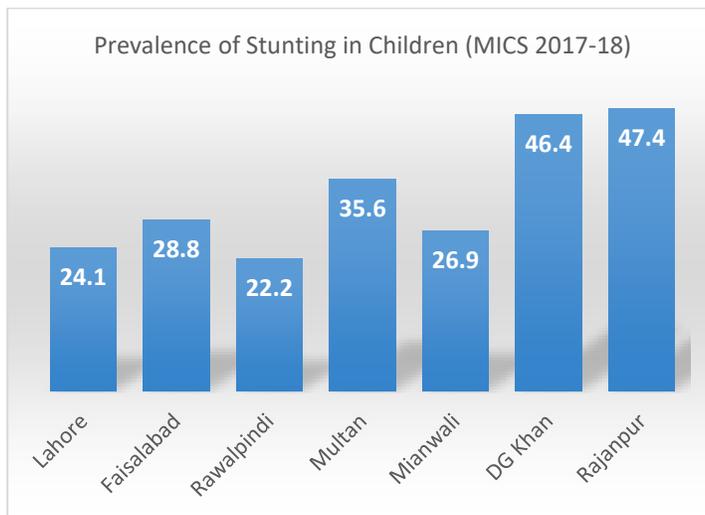
¹² Pakistan has a large informal labor force (44.28 percent of working population aged 10 years and above).

Figure 3



Faisalabad has the highest number of BHU followed by Rawalpindi. Lahore lags behind with 39 BHUs but this number is largely compensated by a large number of Government Hospital (54) in the district. Mianwali, DG Khan and Rajapur rank the lowest¹³. D. G. Khan and Rajapur also paint a grave picture for nutritional status of children. Both districts have high level of stunting in children under five years of age. There is a clear division between the developed North and underdeveloped South Punjab in all domains of health. This poses the question of how a healthy workforce can be raised in South Punjab with these vast differences in health status of children.

Figure 3.1

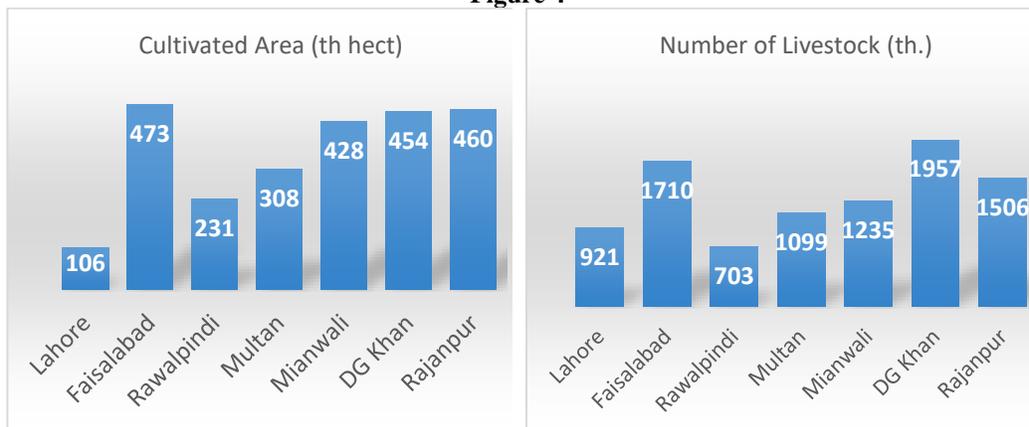


¹³ Rajapur and Mianwali have only 6 Government hospitals each.

3.4 Agriculture

Rajapur, DG Khan, Mianwali and Faisalabad have sizeable cultivated area. These districts with strong agriculture base can prove to be the potential source of development in the long-term plan of CPEC in which agriculture is considered among the key areas of cooperation.

Figure 4

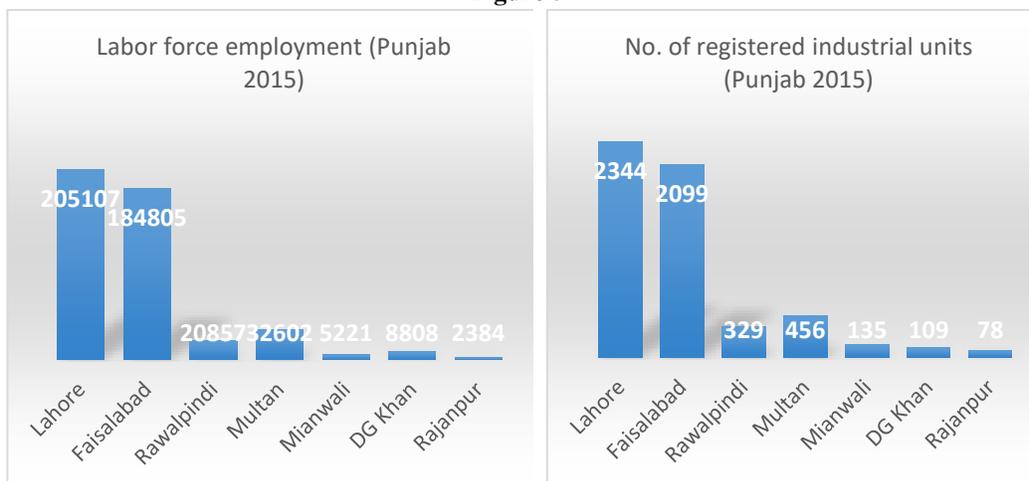


For livestock again, DG Khan, Rajapur, and Faisalabad have a significant number of livestock. Many agro-based industries like dairy products and small businesses like slaughterhouses, poultry farms, cattle farms depend on livestock. These districts can be the potential source of growth of these small businesses.

4.5 Industry

Lahore and Faisalabad have the highest number of industrial units. Whereas DG Khan and Mianwali are a picture of gaping disparity between the North and South Punjab.

Figure 5

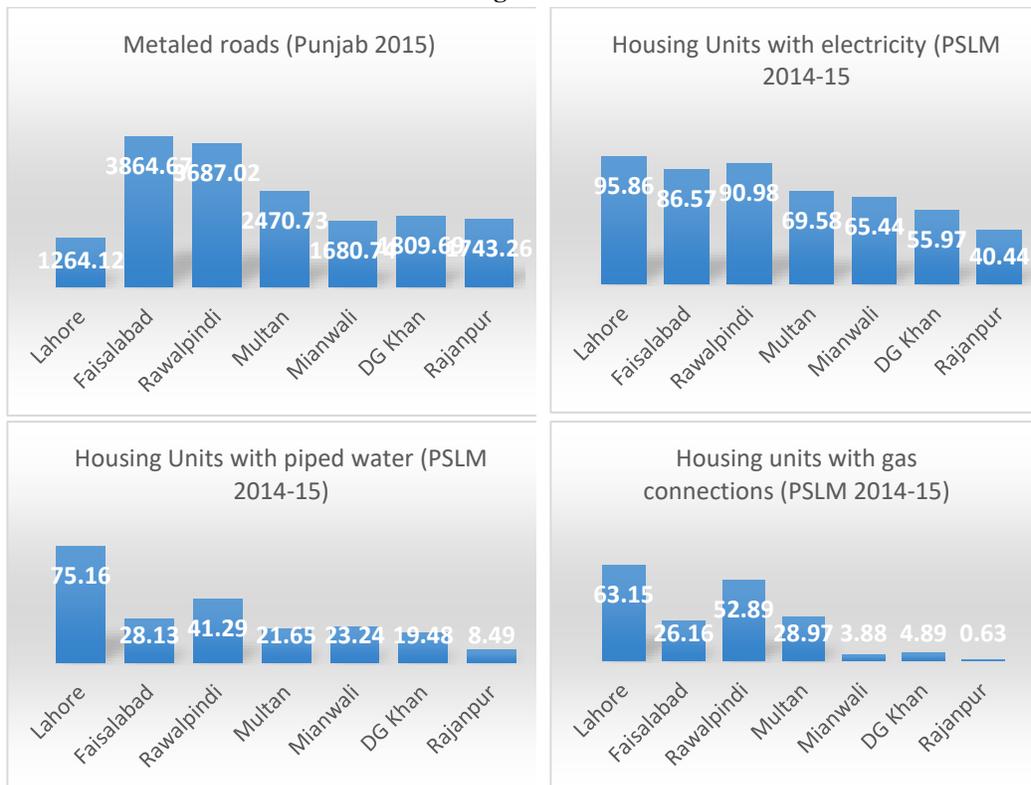


Lahore and Faisalabad which have a strong industrial base can provide the necessary employment for the Special Economic Zone in Faisalabad. SEZs can provide these industries to expand their businesses on international as well as domestic level. These districts can jumpstart the industrial projects and can be the breeding grounds for technical training and skill development of labor force which can compete with the Chinese labor force in CPEC projects. Lahore is also recognized as the largest industry of Information Technology¹⁴. The district can serve as growth center for the region.

4.6 Infrastructure and Housing

Infrastructure is one of the most important factors for the sustainable economic growth of any country (Srinivasa and Rao 2013). There is a positive relationship between infrastructure development and economic growth as well as between infrastructure development and poverty reduction (Patra and Acharya 2011)

Figure 6



¹⁴ Lahore is now considered as the Silicon Valley of Pakistan (Softsolutions, undated).

Almost all the districts have metaled roads connecting regions with each other¹⁵. It is expected that the infrastructure projects of CPEC will bring further improvement in means of transportation and communication.

Housing conditions, however, exhibit wide disparities. While 96% of the houses in Lahore have access to electricity, only 40% houses have electricity in Rajanpur. Situation is not different when we look at houses with access to piped water and to gas connection. The deprivation is severe in both dimensions. Together these determine the living conditions in these districts, which show huge disparities in living conditions.

4.7 Summing Up

4.7.1 Strengths and Weaknesses of the Selected Districts in Punjab Province

Three districts out of seven in the Punjab province (Lahore, Faisalabad, and Rawalpindi) are highly urbanized and have good educational, health and housing facilities. These districts also possess strong industrial base and skilled labor force, connectivity and are well positioned to avail opportunities offered by the CPEC. These districts can provide sufficient resources for industrial development and social sector development to kickstart the growth process in the initial stages of CPEC project. On the other hand, Mianwali, DG Khan and Rajanpur lag on most socioeconomic indicators and need immediate attention of the government for them to capitalize on opportunities offered by CPEC and pave way for an inclusive development. These districts offer potential for agriculture and livestock development.

4.7.2 Opportunities for the Selected Districts in Punjab Province

CPEC is an all-inclusive initiative and its projects are planned in all provinces of the country covering developed and underdeveloped districts. The long-term plan of CPEC (2017-30) focuses on seven key cooperation areas including regional connectivity through integrated transport system, up-gradation and developing information network infrastructure, energy related development, promotion of economic zones and industrial parks, agriculture development and poverty alleviation, tourism, livelihood and financial cooperation¹⁶. Its social development projects are focused on health, education and safe drinking water, which will benefit the less developed districts, as identified in the previous sections. Districts with strong agriculture base will complement the development of industrially strong districts. The potentials and weaknesses identified must be catered in such a way that the developed and underdeveloped districts would be able to support and complement each other in the areas which these districts have comparative advantage.

4.8 Proposed Policy Recommendations

Below we propose policy inputs that are though generally relevant for all the districts (Skill Development) , but are particularly essential for the South Punjab which has tremendous potential for agriculture development, and may prove to be the game changer for this region

¹⁵ Now, it is important to mention here that the districts with the lowest figures do not mean that these districts lacked proper road infrastructure. In fact, it is the area of the district that determined the length of road, therefore, districts with less area have low figures for road distance and districts with large area have high figures for road length.

¹⁶ See Annex III.

4.8.1 Human Resource Development as Key Priority Area alongside with the Infrastructure Development

As examined above, Lahore, Faisalabad, Rawalpindi, and Multan are urbanized regions with good human capital. Mianwali, DG Khan and Rajanpur are less urbanized and low in human capital. These lagging regions need immediate measures in the education and healthcare by the provincial authorities.

1. Development of human capabilities is a right that has been denied to the majority of population in South Punjab. The provincial government must pull up its socks and provide education and health facilities to this region.
2. In addition, and since training people in formal education can take a longtime, vocational and technical training can be focused upon with respect to the demand of CPEC projects in those districts. We have seen above that technical and vocational institutes are almost nonexistent in the underdeveloped districts. This initiative will produce skilled labor force in these districts¹⁷.
3. The Government of Punjab trained 2 million graduates between 2015-18 as per the Punjab Growth Strategy 2018, but it was a strong supply side push and did not take demand side factors into account (PGS, 2023).
4. Training programs were of short duration (stitching, beautician, ICT, healthcare, construction, trade and commerce), preparing trainees for self-employment with no focus on high value-added growth skills (PGS 2023).
5. Punjab Growth Strategy (2023) promises several reforms (establishment of Punjab Skills Development Authority, strengthening testing and certification regimes etc.). However, private sector remains skeptical of these initiatives, insisting that these trainings do not prepare an employable workforce.
6. Public-private partnership be encouraged to have a demand led skills training.
7. Pakistan need to revisit its educational system where vocational training forms a vital part of skill formation.
8. On health front, a taskforce must be formed to tackle the issue of unsafe drinking water and nutritional needs. The projects related to healthcare in CPEC could play role of pilot projects which could be extended to other districts after their evaluation. Provision of clean drinking water can save many resources spent on healthcare due to drinking unsafe water.
9. Lahore has 54 Hospitals whereas D G Khan and Rajanpur have one each. It is about time a fair allocation of resources for quality healthcare facilities is made for the South Punjab.

4.8.2 Agricultural Development Facilitation

Pakistan has a huge potential for agriculture export to China, which it has not used to its benefit. Pakistan's three major exports to China in 2019 were Cotton (\$818 M¹⁸), Copper (\$308 M) and cereals (\$278 M). A large portion of China's agriculture imports consists of Oilseeds, fat and oils, cotton, wool

¹⁷ Despite the fact that skill training was an important aspect of both the Punjab Growth Strategy (2018) and Punjab Skills Development Sector Plan 2018.

¹⁸ M=million

and fibers, Hides and skin, Meat and dairy, Cereals (wheat, rice, corn, barley etc.), Fruits, vegetables and nuts, and sugar (CDPR 2018).

As detailed out in the LTP (2017), China will cooperate with Pakistan in 1) modernization and upgradation of agriculture infrastructure, 2) harvesting and efficient use of water, 3) reclaiming low yield land and most importantly 4) developing agriculture value chains in Pakistan. The plan also includes introducing ICT technology in agriculture, agriculture product processing, storage and transportation, and innovative marketing techniques of agriculture produce.

The Punjab Government's Agriculture Sector Plan (2015) also envisions to modernize the agriculture sector, facilitate farmers with access to inputs, credit, modern technology, knowledge about current market trends and agriculture value chains.

The Trade and Development (undated) has identified five potential areas for Exports. The agriculture related products include, 1) Semi-milled or whole-milled rice, 2) Guava and Mangoes. The Southern belt of Punjab can gain much by engaging in the facilities offered by CPEC.

Together these plans offer a comprehensive plan for agriculture development. Mianwali, DG Khan and Rajanpur stand to gain from it, but drive for change has to come from within. Given their agrarian base, these districts should prepare themselves to avail the opportunities coming their way through CPEC.

4. Conclusion

An Economic Corridor can kick-start development in any state or region because it generates economic activities on macro level based on 'software' and 'hardware' developments in the region. Software development focuses on the human resource development, strengthening institutional framework, implementation of policy measures in every field, identification of priority areas and reducing inequality in the region. Whereas, hardware development is the investment in physical infrastructure (roads, railways, telecommunications, energy and logistics) and establishment of trade zones, special economic zones or industrial hubs. Hardware and software development work in parallel to each other under the Economic Corridor.

CPEC is a development initiative that is in the interest of both China and Pakistan. It gives China a short route to the warm waters of the Arabian sea and offers tremendous opportunities for Pakistan. The investment under CPEC is one fifth the size of current GDP of Pakistan. China is keen to establish collaborative research centers focusing on agriculture and seed sector of Pakistan, enhance productivity and add value in the agriculture sector of Pakistan, boost agriculture exports and provide jobs to people at massive level. CPEC also offers great socio-economic opportunities in the form of SEZs across the country which will promote industrialization and economic growth through sustainable development.

CPEC is considered as an initiative of livelihood improvement of the people of Pakistan, especially in the deprived regions. However, this study finds that the backward districts of Punjab are so lacking in the software (human capital, institutions) and hardware (infrastructure) of development that they may not be able to avail the opportunities offered by CPEC. These regions need a tailor-made plan to uplift their status, as one size fits all policies will not work for them. We have discussed some policy options for human capital and agriculture development that can put these districts on a path of sustainable development. Much, however, depends on a strong entrepreneurial community within them to support

the process of development. It also provides a benchmark for the current status of the districts in the early stages of CPEC which can be helpful for comparison of the future status of these districts after CPEC would reach to its medium term.

References

- Aqeel, M. (2016). Impact of China Pakistan Economic Corridor. *Impact of China Pakistan Economic Corridor*. Arcada. Retrieved from https://www.theseus.fi/bitstream/handle/10024/113730/Muhammad_Aqeel.pdf
- Assef, N. A. (2018) China's Belt & Road Sri Lankan Projects - White Elephants or Strategic Dormant Assets? (May 21, 2018). Available at SSRN: <https://dx.doi.org/10.2139/ssrn.3182351>
- Bureau of Statistics Punjab, Planning & Development Board, Government of the Punjab. (2018). Multiple Indicator Cluster Survey Punjab, 2017-18, Survey Findings Report. Lahore, Pakistan: Bureau of Statistics Punjab, Planning & Development Board, Government of the Punjab.
- CDPR (2018). Agriculture sector opportunities in the context of China-Pakistan Economic Corridor. Consortium for Development Policy Research. S-37414-PAK-1.
- Chheang, V. (2017, July 6). Cambodia Embraces China's Belt and Road Initiative. © ISEAS Yusof Ishak Institute. <http://hdl.handle.net/11540/7213>.
- Fariduddin, S. (2017, January). Where is Social Development in CPEC? A White Paper by NGO Resource Centre. doi:10.13140/RG.2.2.31816.57609
- Haq, R., & Farooq, N. (2016). Impact of CPEC on Social Welfare in Pakistan: A District Level Analysis. *Proceedings of 32nd Annual General Meeting and Conference* (pp. 13-15). Islamabad: Pakistan Society of Development Economists, Pakistan Institute of Development Economics.
- Heng, K., & Po, S. (2017, September). Cambodia and China's Belt and Road Initiative: Opportunities, Challenges and Future Directions. *UC OCCASIONAL PAPER SERIES, I(2)*, 1-18.
- Kotoski, K. (2017, April 20). Kingdom's debt grows to nearly \$6 billion. Phnom Penh. Retrieved from <https://www.phnompenhpost.com/business/kingdoms-debt-grows-nearly-6-billion>
- Long Term Plan (2017). *Long Term Plan for China-Pakistan Economic Corridor (2017-2030)*. Retrieved from Government of Pakistan, Ministry of Planning, Development & Reform: <https://www.pc.gov.pk/uploads/cpec/LTP.pdf>

- NVTTC (2017) Skills Trend Analysis: National and International. National Vocational & Technical Training Commission. Islamabad.
- Najam , A., & Bari, F. (2017). *Pakistan National Human Development Report 2017*. United Nations Development Program (UNDP). Retrieved from <https://www.undp.org/content/dam/pakistan/docs/HDR/PK-NHDR.pdf>
- Naseem, A. (2015). *Impact of China Pak Economic Corridor - A Bird's Eye View*. BMA Capital. BMA Capital. Retrieved from <https://www.scribd.com/document/281995726/Economic-Corridor-a-Birds-Eye-View>
- Nation, T. (2016, December). CPEC to create over 700,000 direct jobs: expert. Karachi, Pakistan. Retrieved from <https://nation.com.pk/26-Dec-2016/cpec-to-create-over-700-000-direct-jobs-expert>
- Naveed , A., & Ali, N. (2012). *Clustered Deprivation: District Profile of Poverty in Pakistan*. Sustainable Development Policy Institute SDPI. Retrieved from <https://www.sdpi.org/publications/files/Clustered%20Deprivation-district%20profile%20of%20poverty%20in%20pakistan.pdf>
- News, T. (2019, April 23). Pakistan to access 90pc of Chinese market. Islamabad, Pakistan. Retrieved from <https://www.thenews.com.pk/print/461593-pakistan-to-access-90pc-of-chinese-market>
- Patra, A. K., & Acharya, A. (2011, February). Regional Disparity, Infrastructure Development and Economic Growth: An Inter-State Analysis. *Research and Practice in Social Sciences*, 6(2), 17-30
- Government of Punjab (2019). Punjab Growth Strategy (2023). Planning and Development Board. Punjab.
- Government of Punjab (2015). Punjab Growth Strategy (2018). Planning and Development Department. Punjab.
- Government of Punjab (2015) Punjab Skills Development Sector Plan (2018). Planning and Development Department. Punjab.
- Population Profile Punjab. (2019). Retrieved from Population Welfare Department, Government of the Punjab: https://pwd.punjab.gov.pk/population_profile
- Ramachandran, S. (2015). ChinaPakistan Economic Corridor: Road to Riches? The Jamestown Foundation. 7/31/2015. <https://jamestown.org/program/china-pakistan-economic-corridor-road-to-riches/>.
- Ramay, S. A. (2016, February). China Pakistan Economic Corridor; A Chinese Dream Being Materialized Through Pakistan. 8. Sustainable Development Policy Institute (SDPI). Retrieved from <https://think-asia.org/bitstream/handle/11540/6694/ChinaPakistan.pdf?sequence=1>
- SBP (2018a). *First Quarterly Report FY18; Special Section 1: CPEC and Potential Opportunities for Industrial Transformation in Pakistan*. State Bank of Pakistan.

- SBP (2018b). *Special Section 1: CPEC LTP: Opportunities for Agricultural Advancement in Pakistan*. State Bank of Pakistan. Retrieved from <http://www.sbp.org.pk/reports/annual/arFY18/Anul-index-eng-18.htm>
- Softsolutions (undated). How Lahore has become a hub of IT Services in Pakistan. Available at <https://www.softsolutions.com.pk/blog/how-lahore-has-become-a-hub-of-it-services-in-pakistan>
- Srinivasu, B., & Rao, S. (2013, January). Infrastructure Development and Economic growth: Prospects and Perspective. *Journal of Business Management & Social Sciences Research (JBM&SSR)*, 02(1): 81-91
- TDAP (undated) Pakistan-China Bilateral Trade. Trade Development Authority of Pakistan. Available at: <https://www.tdap.gov.pk/word/china-ppt-website.pdf>
- UNDP. (2019). Pakistan Development Advocate. December 2019. United Nations Development Program. Islamabad
- UNDP. (2019). *Human Development Report 2019: Beyond Income, beyond averages, beyond today: Inequalities in human development in the 21st century*. United Nations Development Program. Retrieved from http://hdr.undp.org/sites/all/themes/hdr_theme/country-notes/PAK.pdf
- UNDP. (2017) Pakistan National Human Development Report. Unleashing the Potential of a Young Pakistan. United Nations Development Program. Retrieved from <https://www.pk.undp.org/content/pakistan/en/home/library/human-development-reports/PKNHDR.html>
- Var, V., & Po, S. (2017, March 18). *Cambodia, Sri Lanka and the China debt trap*. Retrieved from East Asia Forum Organization: <https://www.eastasiaforum.org/2017/03/18/cambodia-sri-lanka-and-the-china-debt-trap/>
- WB. (2018). *Human Capital Index- Pakistan; Country Briefs*. World Bank. Retrieved from https://databank.worldbank.org/data/download/hci/HCI_2pager_PAK.pdf
- WB. (2019). *Doing Business 2019: Economy Profile of Pakistan*. World Bank. Retrieved from <http://www.doingbusiness.org/content/dam/doingBusiness/country/p/pakistan/PAK.pdf>
- WEF. (2019) The Global Competitiveness Report 2019. World Economic Forum. Geneva.
- WHO. (2017). *World Health Statistics 2017: Monitorinh Health for SDGs, Sustainable Development Goals*. Geneva.

Annex I: Variables Selected for the Domains

1) Demography

- *Population Density*: The population density is the population-count per unit of total land area of a country¹⁹
- *Urban Proportion*: Proportion of a population living in urban areas²⁰
- *Human Development Index (HDI)*: A composite index measuring average achievement in three basic dimensions of human development -- a long and healthy life, knowledge and a decent standard of living.
- *Multidimensional Poverty Index (MPI)*: A measure identifying poor while considering the intensity of deprivation they suffer.

2) Education

- *Adult Literacy Rate*: Percentage of population aged 15 years and over who can both read and write with understanding a short simple statement on his/her everyday life²¹.
- *Net Enrollment Rate at Secondary Level*: Total number of students in the theoretical age group for a given level of education enrolled in that level, expressed as a percentage of the total population in that age group²².

3) Health

- *Infant Mortality Rate*: The infant mortality rate is the number of deaths under one year of age occurring among the live births in a given geographical area during a given year, per 1,000 live births occurring among the population of the given geographical area during the same year²³.
- *Basic Health Units*²⁴
- *Prevalence of Stunting in Children under 5*: Child has low height for age due to malnutrition²⁵.

4) Agriculture:

- *Cultivated Area*: Area under temporary (annual) and permanent crops. This refers to the physical area cultivated meaning that land which is cultivated twice a year is counted only once²⁶.
- *Livestock*²⁷

5) Manufacturing

¹⁹ <https://stats.oecd.org/glossary/index.html>

²⁰ Ibid

²¹ <http://uis.unesco.org/en/glossary-term/adult-literacy-rate>

²² <http://uis.unesco.org/node/334718>

²³ Source: Bureau of Statistics. Government of Punjab. MICS 2017-18.

²⁴ Punjab Bureau of Statistics

²⁵ Source: Bureau of Statistics. Government of Punjab. MICS 2017-18.

²⁶ Punjab Bureau of Statistics.

²⁷ Ibid.

- *Number of Registered Industrial Units*²⁸
- *Labor Force Employment Rate*²⁹

6) Infrastructure and Housing

- *Metaled Roads*³⁰
- *Housing Units with Electricity*³¹
- *Housing Units with Piped Water*³²
- *Housing Units with Gas Connections*³³

Annex II: List of Selected Districts from CPEC Routes

Sr. no	District	CPEC Route
1.	Lahore	Eastern Route
2.	Faisalabad	Eastern Route
3.	Rawalpindi	Eastern Route
4.	Multan	Eastern Route
5.	Rajanpur	Eastern Route
6.	DG Khan	Central Route
7.	Mianwali	Western Route

Annex III: Key Cooperation Keys and Relevant Strategies of CPEC Under CPEC Long Term Strategy

²⁸ Punjab Bureau of Statistics.

²⁹ *ibid*

³⁰ Punjab Bureau of Statistics.

³¹ PSLM 2014-15

³² *Ibid.*

³³ *Ibid.*

Sr.no	Key Cooperation Areas	Strategies	Related Projects
1.	Connectivity	Construction of an integrated transport corridor through joint planning and development of highways, railways, ports, aviation and infrastructure.	Construction & development of road infrastructure along; Kashgar-Islamabad, Peshawar-Islamabad- Karachi, Sukkur-Gwadar Port and Dera Ismail Khan-Quetta-Sohrab-Gwadar Capacity expansion of existing railway lines especially ML-1 Construction and development of Gwadar city and port
		Improvement of Information network infrastructure and connectivity through advancement in the information technology and broadcast systems	Cross-border optical fiber cables between China and Pakistan Upgrading of Pakistan's national network data center and the second submarine cable landing station Adoption of China's Digital Terrestrial Multimedia Broadcasting (DTMB) standard IT industrial Parks and clusters E-governance system and ICT Training centers in Pakistan
2.	Energy Related Fields	Enhancing and upgrading the power generation, transmission from renewable resources (oil, gas, hydropower)	Establishing oil refineries and storages along CPEC route Research based development of oil and gas resources Optimization of coal resources for power generation Accelerating the hydropower development process through proper river planning Construction of high voltage class power grids and power transmission and distribution networks Manufacturing of energy sector equipment
3.	Trade and Industrial Parks	Strengthening cooperation and bilateral trade relations between China and Pakistan	Establishing special economic zones \and free zones in all provinces and regions Improving value addition and competitiveness in the manufacturing sector

			<p>Targeted manufacturing in sectors like chemicals, pharmaceuticals, engineering goods, iron & steel, electronics, construction</p> <p>Promoting B-to-B links in industrial sector</p>
4.	Agriculture Development & Poverty Alleviation	Focusing on comparative advantage in improving agriculture sector	<p>Improving the agricultural infrastructure in the regions along CPEC routes</p> <p>Construction of water-saving modern agriculture zones</p> <p>Improving drip irrigation technology for water-saving</p> <p>Promoting crop farming, livestock breeding, forestry and food growing, fishery, horticulture</p> <p>Strengthening agricultural inputs production</p> <p>Research-based initiatives to promote agriculture efficiency</p>
5.	Tourism	Promoting the potential advantages of tourism resources along CPEC border areas through research based development	<p>Construction of “2+1+5” tourism spatial structure in Pakistan with two centers, one axis and five zones</p> <p>Improving the tourism related public service system in border areas</p> <p>Building a tour route to coastal areas of Pakistan with the theme of ‘coastal leisure and vacationing. Decided route is; Keti Bandar- Karachi- Sonmiani- Ormara- Jhal Jhao- Gwadar- Jiwani</p>
6.	Cooperation in areas concerning people’s livelihood and non-governmental exchanges	Improving the governance systems on local level to strengthen communications between people and government and building a friendly social environment for the people	<p>Adopting urbanization strategy of China to improve city life through pilot projects</p> <p>Trainings for the Pakistani government officials in China and offering the students to acquire higher education in Chinese universities</p> <p>Promoting vocational training in Pakistan</p> <p>Focusing on R&D and technology transfer related activities through the assistance of Academy of Central Asia Regional Economic Cooperation</p> <p>Medical assistance to be included within CPEC coverage and upgradation of existing medical facilities</p> <p>Planning of utilizing and preserving and conserving water resources</p>

			Disaster management, prevention and relief
7.	Financial Cooperation	Establishing multi-level cooperation mechanisms and strengthen policy coordination in the financial domain	<p>Improving financial regulation and controlling financial risks to create environment for the businesses</p> <p>Promoting financial cooperation between the centrals banks, financial markets and other financial institutions of the two countries through the assistance of Asian Infrastructure Investment Bank (AIIB)</p> <p>Promoting bilateral currency swaps, cross-border credit system, export credit financing, e-banking to ease the financial process</p> <p>Construction of Gwadar port free zone similar to the Shanghai Pilot Free Zone</p>

Source: CPEC Official Website, Section CPEC Long-term Plan (2017-2030)