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Measuring Socio Economic Impacts of CPEC: A Framework for Info Structure

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Measuring Socio-Economic Impacts Of CPEC: A framework For Info-Structure

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I. INTRODUCTION

This concept note is the outcome of second workshop which was conducted in the centre of excellence, CPEC-SE Division from 18-23 December 2017 to strengthen the evidence base planning, intervention and CPEC impact assessment. After giving a brief background of CPEC including its context within the framework of SDGs part first explain the procedure of measuring the socio-economic impacts including its methodological approach, sampling framework and size for collecting population based data. Part second discusses the data gathering including the use of advance digital technology and analysis procedures. Part third explain the research output in the form of score cards, facts sheet, reports and proof of impacts. Part four explain the data scope and priorities, such as, the socio-economic indicators, questionnaire/instrument and tools. Finally, the secondary and qualitative data collection and tentative work plan are given in the end.

II. BACKGROUND

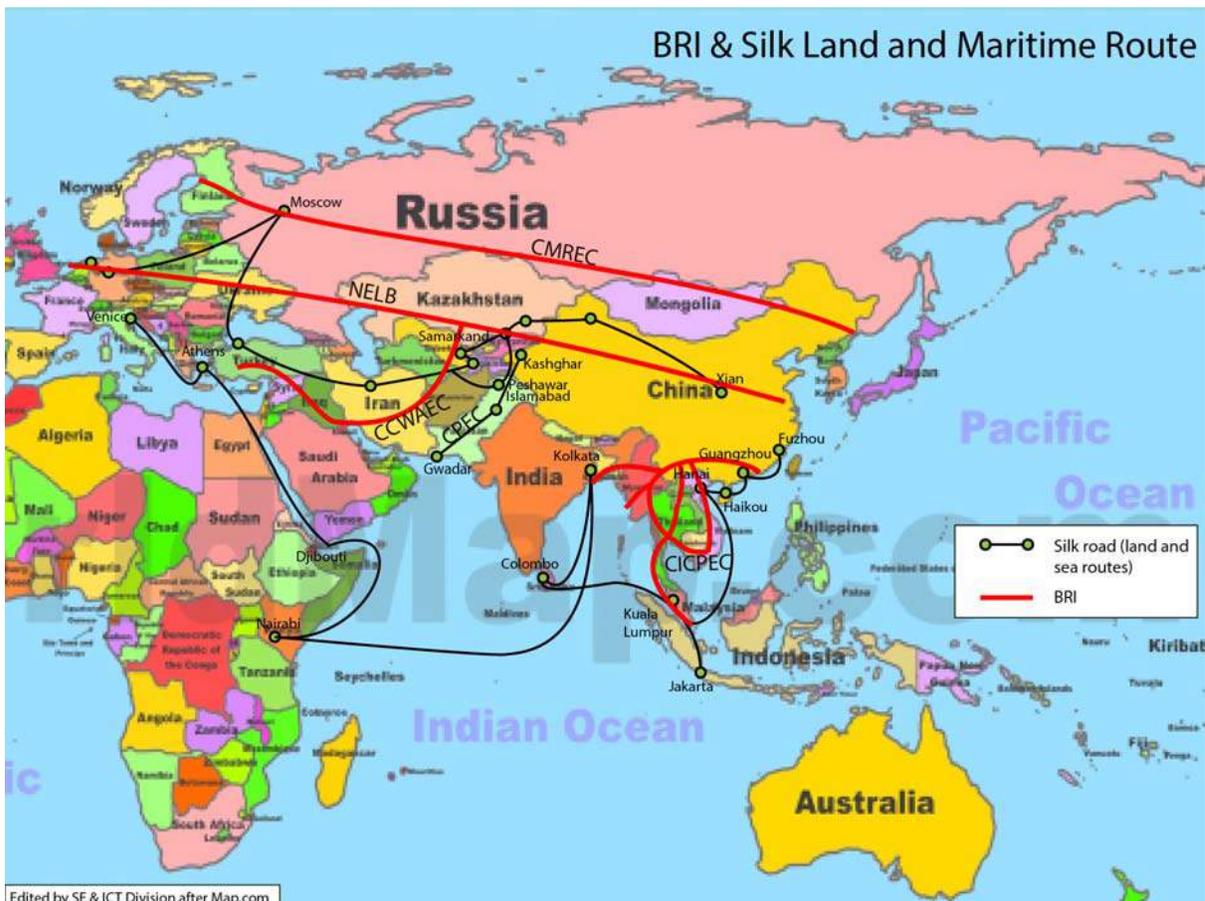
China's Belt and Road Initiative (BRI) or One Belt One Road (OBOR) is the revival of ancient Chinese Silk Route aims to expand the trade across the globe to attain the economic development. The Silk Road is one of the oldest routes in the world for trade, which connects China with rest of the world. BRI will help to spurn the theories of power play and offer an alternate vision for regional and global development. The concept of shared destiny, cooperation and establishment of win-win partnerships are the core principles of Belt and Road Initiatives.

BRI consists of number of projects which are grouped into two main components;

a) 21st Century Maritime Silk Road (MSR) connecting different countries of Eurasia through different sea ports along the route. South China Sea will be the starting point passing through the Strait of Malacca, Andaman Sea, Bay of Bengal, Arabian Sea, toward Gulf of Oman and through Strait of Hormuz will enter into oil rich region of Persian Gulf. The other route through the Red Sea, Suez Canal, Mediterranean Sea into Atlantic Ocean and ultimately enter into the Baltic Sea to reach the Baltic states (Map1).

b) Route of Silk Road Economic Belt (SREB) comprising of networks of roads, railways and highways. Six corridors have been announced under this component of BRI:

1. China-Mongolia-Russia Economic Corridor (CMREC)
2. New Eurasian Land bridge (NELB)
3. The China-Central and West Asia Economic Corridor (CCWAEC)
4. China-Indo-china Peninsula economic corridor (CICPEC)
5. The Bangladesh-China-India-Myanmar Economic corridor (BCIMEC)



MAP 1. BRI SILK LAND AND SEA ROUTES

China Pakistan Economic Corridor (CPEC) is the flagship project of BRI. Asian Development Bank reported CPEC would play key role to connect economic agents in China Pakistan, West Asia including Middle East, and Africa in defined geography¹ and will link the demand and supply forces of the market². CPEC is the portfolio of projects including infrastructure, energy, fiber optics communication, industrial cooperation, Gwadar port/city and Special Economic Zones (SEZs). Sounded loud as a “Game Changer” and “Fate Changer” for the people of Pakistan, the mega initiative is being related with a potential annual increase in GDP, employment, investment and reduction in poverty. Projects under CPEC have different time frame and are categorized as “Early Harvest and short term Projects”, Medium Term Projects expected to end by 2025 and Long-Term Projects which are expected to complete by 2030 (table 1). Of total investment, 73% is marked for energy sector while 27% is for the development of infrastructure including roads and railway networks, fiber optics and Special Economic Zones (SEZs). These projects are expected to expedite industrialization, encourage investors, creating job opportunities and ultimately influence and impact the socio-economic conditions of the people of Pakistan. The most echoed question in the mind of people is what CPEC will bring for Pakistan and to general masses. Economists, social scientists and other researchers have been relating this investment with the improvement of lives of the people of Pakistan as well as of China³. Investment in energy sectors is being acknowledging with the revival of sick industries as well as attracting the new ones⁴. Provision of infrastructure is directly related with the improved connectivity and trade⁵. Development of SEZs is viewed as an economic growth engine for industrialization and to enhance the trade globally⁶. This in turn would help in achieving the SDGs and improve the socio-economic conditions of selected areas during the project and the whole of the country beyond the project life.

TABLE I: CPEC PROJECT TIME FRAME AND EXPECTED IMPACT OUTCOMES

Timeframe; Projects/Activities	Geographical Socio-Economic Conditions and CPEC Interaction	Direct local impact Outcomes	SDGs Attainment
1. Early Harvest Roads, Railways, Fiber optics Energy/Power plants, Gwadar Port etc.		Improved Access Transportation, Communication, Trade/Businesses, Jobs/Income, Environmental degradation Climate change Development partnerships	Goals 1,2,7,8,9,10 11,13,14,15 17
2. Medium Term Cwadar Port City, Gas Pipelines, Infrastructure, SEZs Development and Industrial cooperation and Relocation, Energy etc.		Transportation, Communication, Trade, Industries, jobs/income, Education, Health & Well being Environmental degradation Climate change Development partnerships	Goals 1,2,3,4,5,6, 7,8,9,10,11, 13,14,15,17
3. Long Term Institutional strengthening Broader socio-economic development Strengthen cooperation		Employment, Education, Health and Living standards, Income and gender equality, Reduced Poverty Strengthened institutions Improved environment	Goals 1,2,3,4,5,6, 7,8,9,10,11, 12,13,14,15 16,17

¹ Ayub Mehar, 2017. Infrastructure development, CPEC and FDI in Pakistan: is there any connection?

² Brunner, Hans-Peter. 2013. ‘What is Economic Corridor Development and What can it Achieve in Asia’s Subregions?’ **ADB Paper Series on Regional Economic Integration**, No. 117, Manila.

³ <http://cpec.gov.pk/vision-mission/3>

⁴ <http://www.sbconsulting.com.pk/wp-content/uploads/2016/10/Presentation-on-CPEC-by-Safdar-Sohail-PC.pdf>

⁵ <https://tribune.com.pk/story/1246161/diverse-need-capitalise-cpec-related-infrastructure-investments/>

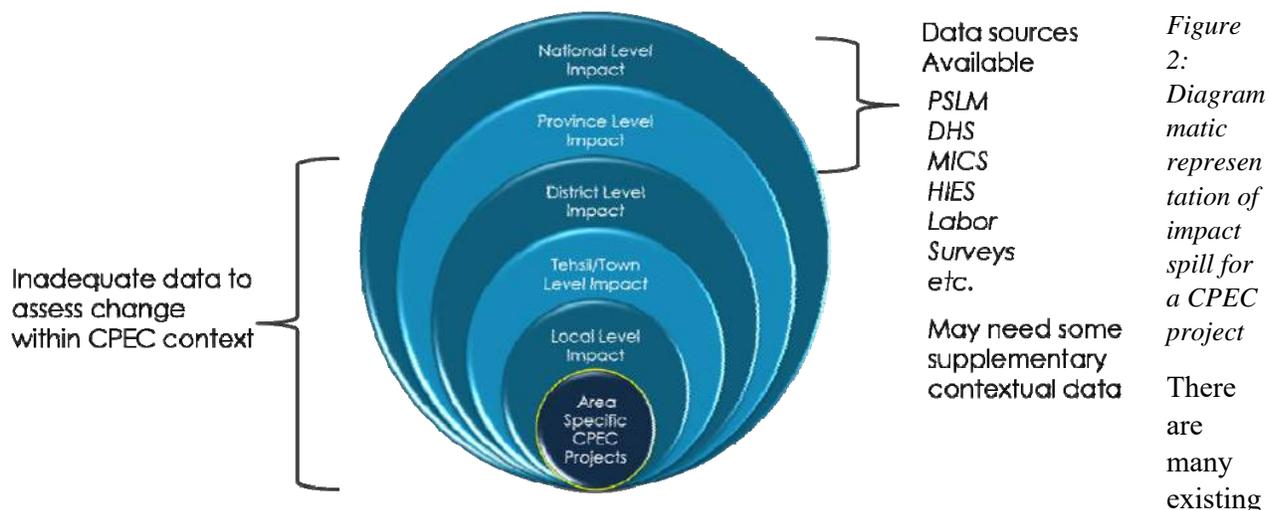
⁶ <http://www.cpecinfo.com/cpec-news-detail?id=MzkyNQ==>

CPEC within the context of Sustainable Development Goals

Table 1 presents a brief description of CPEC projects with reference to time and their immediate socio-economic impact. The distribution of CPEC projects in all provinces of Pakistan vary in numbers, timeframe and percentage of investment. The last column in the table is an observation on potential contribution the specific time group of CPEC projects, towards attaining relevant Sustainable Development Goals (SDGs)⁷. As indicated ultimately the CPEC portfolio by the end of 2030 is expected to contribute in achieving almost every SDG. Pakistan development vision 2025 also aligned country's socio-economic development with the SDGs⁸. The SDG Index and Dashboards Report 2017⁹ ranked Pakistan at 122 with 55.6 points which is lower than its regional peers like Bangladesh ranked 120 (56.2 points) and India ranked 116 (58.1 points). China with whom Pakistan is developing the partnership for CPEC is ranked 71 (67.1 points). In this context the mega project will play imperative and intervening role to improve country's SDG ranking.

Measuring socio-economic impact of CPEC

With the high expectations of socio-economic gains, there is already a demand on evidence for the socio-economic impact of CPEC. The socio-economic consequences of any project vary with respect to the different phases of development of project¹⁰. It is imperative to discuss and investigate the socio-economic impact at every stage of project development. Impact area in the literature is defined as the area covered within 10km radius of the industrial project but the range of the impact area vary with the type of project. Also, the project first impacts the immediate local area where it is situated and then has a spill-over effect to generate wider sub-national and national impacts (Figure 2).



⁷ <https://sustainabledevelopment.un.org/sdgs>

⁸ <http://pc.gov.pk/uploads/vision2025/Vision-2025-Executive-Summary.pdf>

⁹ <http://www.sdgindex.org/assets/files/2017/2017-SDG-Index-and-Dashboards-Report--full.pdf>

¹⁰ R Ramanathan & S Geetha (1998) Socio-economic impact assessment of industrial projects in India, *Impact Assessment and Project Appraisal*, 16:1, 27-32, DOI: 10.1080/14615517.1998.10590184

data source frameworks collecting and producing periodic information on socio-economic indicators at national and provincial level. These include surveys like Demographic and Health Survey (DHS)¹¹, Pakistan Social and Living Standards Measurements (PSLM)¹², Household Integrated Economic Survey (HIES)¹³, Multiple Indicators Cluster Survey (MICS)¹⁴, Census of Manufacturing Industries (CMI)¹⁵, and Labour Force Survey¹⁶. However, the scope and context of available data from these sources is limited in portraying the picture for the bottom layers administrative units due to their sampling design and context (figure 4). In a recent workshop held by Socio-Economic division of CoE-CPEC to discuss a draft framework for measuring socio-economic impact of CPEC, the participating stakeholders also noted inadequacy of data for bottom layers as an issue. Hence, to measure socio-economic impact of CPEC, there is a need to generate and collate micro level data at district and project locality level and with a built-in information link to CPEC. This would mean generating some supplementary primary data to provide due context to the conventional socio-economic measurement to serve as a proof of influence and impact from CPEC. The information also needs to be generated in harmony with different phases of its implementation. So, timing and periodicity are also key factors to be built into the info structure design.

The socio-economic division of the CoE-CPEC has the mandate to measure, document and report on the socio-economic impact of CPEC interventions within the context of economic and social development. To establish a clear policy vision and frame, a carefully designed info-structure for achieving the task, the division has initiated a consultative workshopping process. The first stage workshopping in September 2017 helped developed policy guidelines for developing the info-structure¹⁷. A second stage consultation in December 2017 helped frame the objectives and measurement framework for the same.

The framework is not a survey itself. Instead it is intended to provide a clear focus and directions to various research initiatives and data collection exercises planned and implemented through the division. The information generated from individual research activities would help:

- Benchmark the baseline socio-economic conditions
- Measure the impact of CPEC interventions periodically
- Identify development gaps, future needs & potentials to fine tune further implementation

¹¹ Pakistan Demographic and Health Survey, 2012-13; National Institute of Population Studies, Islamabad, Pakistan and United States Agency for International Development (USAID), MEASURE DHS, ICF International, Calverton, Meryland, USA, December, 2013

¹² Pakistan Social and Living Standard Measurement Survey (2014-15) National/Provincial/District; Government of Pakistan, Statistics Division, Pakistan Bureau of Statistics, Islamabad, March 2016

¹³ Household Integrated Economic Survey (HIES) (2015-16); Government of Pakistan, Statistics Division, Pakistan Bureau of Statistics, Islamabad, February 2017, http://www.pbs.gov.pk/sites/default/files//pslm/publications/hies15-16/write%20up%2015-16-HIES-final_0.pdf

¹⁴ Multiple Indicator Cluster Survey (MICS), Punjab, Final Report 2014; Bureau of Statistics, Planning and development Department, Government of Punjab and UNICEF; December 2015, <http://bos.gop.pk/mics>

¹⁵ Census of Manufacturing Industries-2005 District-Wise Report; Government of Pakistan, Statistics Division, Pakistan Bureau of Statistics, Islamabad, April 2013,

http://www.pbs.gov.pk/sites/default/files/industry_mining_and_energy/publications/CMI_2005-06_district-wise.pdf

¹⁶ Labour force survey 2014-15; Government of Pakistan, Statistics Division, Pakistan Bureau of Statistics, Islamabad, November 2015, <http://www.pbs.gov.pk/sites/default/files//Annual%20Report%20of%20LFS%202014-15.pdf>

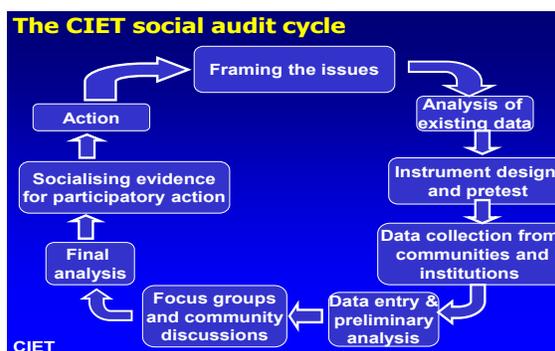
¹⁷ Policy concept note for information collection for finding out “socio-economic impact” of CPEC on Pakistan Prof (Meritorious) Amir Khan, Policy Head, Socio-economic Division, CoE-CPEC, PIDE, Islamabad.

- Develop strategies and tools to communicate evidence for feedback and action
- Strengthen institutional capacities to generate required evidence

III. METHODOLOGICAL APPROACH

The overall framework relies on the well-tested CIET methodology^{18,19,20} for generating local and regional evidence, promoting local ownership and promoting vertical and horizontal integration and partnership between stakeholders. The core tool in the methods is a household survey that links to institutional reviews and key informant opinions. This provides the quantitative population based descriptive trends and distribution of indicators. Community-based focus group discussions, reviews of the health facilities and interviews with key informants complement household interviews. Evidence-based discussions with stakeholders and a second-order aggregation of results lead to contextual interpretation of quantitative indicators as well as locally informed strategies for dealing with system inefficiencies (from the population perspective). The central concept behind this cross-design is to monitor the *interface* between population to be benefited and the project implementation and delivery of services, and to determine the most cost-efficient ways to provide communities and individuals with the proper benefits. CIET methods serve as a vehicle for communities to have a say in planning, and for planners to understand the household decision-making context and community dynamics.

Using this conceptual framework, we will keep update information on all existing initiative including CPEC related to socio-economic development including a list of all stakeholders and potential partners. In addition, the exercise will also provide a through information management and literature review of all existing data sources on current socio-economic trends at national and sub-national level. Figure 6 gives the graphical representation of a typical social audit cycle.



Sampling frame and size for collecting population based data

The sample frame would comprise of a direct high impact geographical zone around the project (for instance the union council(s) in which the project is located, a moderate impact geographical zone within a larger radius around the project say (tehsil) and a low impact zone (say district). For the population based primary data we will draw a stratified cluster sample with representation from all three impact zones. Depending upon its population size and distribution we will select 2-3 sample clusters from each zone. Within each cluster we will cover a target of 100 to 120 contiguous households starting from a central point and then spreading radially outwards till the target is completed. There would not be any sub-sampling within the community. If the size of the selected primary settlement is less than the target for the sample cluster, we will cover remaining households in the next nearest neighbouring settlement. This

¹⁸Andersson N, Martinez E, Cerrato F, Morales E and Ledogar R.J. The use of community-based data in health planning in Mexico and Central America. *Health Policy and Planning* 1989; 4:197-206.

¹⁹ Andersson N, Evidence-based planning: the philosophy and methods of sentinel community surveillance . CIET, EDI/ World Bank, 1995.

would give us an overall estimated sample of 700-1100 households for the district, 500-750 for tehsil and 240-360 households for the union council.

Data gathering and analysis

The household questionnaire would be designed using ODK (Open Data Kit) collect software and will be loaded on a GPS/GSM enabled handset for electronic data collection and sent to a central server loaded with the ODK aggregate. The data would be downloaded in Epi-info files (recfiles) or any other software, such as, CIET map or SPSS for organization into a database and subsequent statistical analysis.

Depending on the specific needs of the cycle, we will analyse the findings in a number of ways:

Scorecards: weighted frequencies of key indicators stratified by impact zone.

Fact sheets: including epidemiological and socio-economic time series analysis on project impact on a single key area e.g., a pertinent sustainable development goal (SDG) in the context of individual, household, community, tehsil or district factors. As the qualitative data coincide with the survey populations, this permits *linkage of quantitative and qualitative data* to view a given community dynamic or norm as a local environment for the opinions in the cluster.

Proof of impact: Intra zone comparisons would help evaluate specific project impact. Using standard based indicators would also help compare data from project implementation zones with the data generated on same indicators through national and provincial schemes such as PSLM, HIES, DHS and MICS.

Information scope and priorities

A. Population based primary data

This would be a time series analysis using a set of standard-based indicators generated with a defined periodicity determined by individual CPEC project implementation schedule. The information would help assess the socio-economic impact of CPEC intervention on general population. The process would use a *pre- and post-* measurement design. The geographical focus would be individual communities, tehsils and districts where the CPEC projects are located. Baseline benchmark would be an immediate priority to allow future comparison especially in areas where CPEC projects have already started or are about to start soon.

Indicators

The standard set of indicators would include demographic structure of the population, economic indicators on employment, income and poverty, social development including education, health, housing, public services and amenities, gender equality. Additional information on household knowledge and views on, and experience with CPEC would help build a project relevant context to the data (**see annex 1**) for detailing on each of these broad sets of indicators).

Questionnaires and tools

These would include

- A household questionnaire with sections on general household information, demographic, education and occupation profile of each individual member, child health and education, and gender equality including violence.

- A community profile to collect data on physical infrastructure and facilities in the community including water supply, sewerage, garbage disposal, roads, health and education facilities, means of transport, cellular networks available and any CPEC related activity/project
- A key informant interview with community leader or a knowledgeable person exploring prevailing socio-economic conditions, local needs, opportunities and resources in general and within CPEC context

B. Secondary data from institutions

Using tools that help collate existing data from departments, institutions and organisation involved in implementation of individual CPEC projects. This would generate data on project specific inputs, progress on implementation, outputs and short-term gains (see **annex 2**). The information would be segregated at project catchment area/zone, tehsil and district levels to produce comprehensive profiles each geographic level

C. Qualitative data from individuals/groups

Using participatory research tools such as In-depth interviews and focus groups discussions with key stakeholders. This would help document awareness level, views about CPEC, perceived benefits and harms, local endowments including available human resources, communication needs and potentials for stakeholders' engagement (see **annex 3**).

Indicative work plan

SE Division, CoE targets finalization of generic tools and data collection instruments including data base design by the end of February 2018. As a first step the SE division would review and synthesize the work being done by the existing research affiliates to list the information pieces already being collected. The second workshopping process also helped develop a templet to collate information on administrative monitoring and technical synthesis of research design and outcomes from these research projects (see annex 4).

During the same period the division would also explore and finalise a list of potential partners in addition to the existing research affiliates who can support the exercise. These include government organisations such as bureau of statistics, academic institutions such as Pakistan Institute of Development Economics (PIDE), Lahore University of Management Sciences (LUMS), The Aga Khan University (AKU), Institute of Business Management (IBM), non-governmental research organization such as Social Policy and Development Center (SPDC) and even international groups such as Community Information for Empowerment and Transparency (CIET) who have a base and work experience in Pakistan.

The field implementation for data collection would start from March 2018 and follow implementation schedule for CPEC. Priority would be to districts where a CPEC project is either being implemented or is about to start.

Follow-up workshopping

A third stage workshopping process to be organised in January 2018 would evolve specific tools for various components of the info-structure. A final fourth stage workshopping towards end of January or beginning of February would help design the data base and analysis plan. These stages would include a rigorous piloting of the designed tools and data bases. Depending upon the final workplan for field

implementation two more workshopping components would be organised after completion of first phase of field work. These would focus on analysis of data and designing strategy and tools for communication on results.

Annexes

Annex 1: Key indicators for population based primary data collection

Demographic

Household size, Age and sex distribution, Dependent population and Work force

Economy

➤ Occupations/ Employment and income

- Employment status by age and gender, Type of occupation, Perceived income (against community average), Assets and liabilities, Total monthly household income from all sources and Expenditures on – food, health, transport, education, energy, communication, house rent or maintenance/repairs,
- Per capita income, Poverty incidence, GINI coefficient

➤ Housing

Ownership of dwelling, plot size, number of rooms, Period of stay, Reason for migration if migrated (relate with CPEC), construction material and type of roof, availability of kitchen.

Social development

➤ Amenities/public facilities

- Electricity – availability duration, Gas – availability duration, Type of fuel used for cooking and heating, Source of drinking water, Toilet facility, Internet connectivity and Transport ownership.

➤ Education

- Education of head, Educational status of household members, Literacy rate, Primary enrolment (children 5-9 years) and Skill development training

➤ Health

- Birth registration, Immunisation coverage (children 1-24 months), Food security; household/women, Nutritional status – stunting among children upto 5 years of age, Health facility used for illness – type, distance, Detailing on last illness – nature, facility/provider used, costs.

➤ Gender equality

- Women employment and income, Spousal communication, Women decision making - how to spend income, child health and education, Gender violence – physical and mental

Awareness about CPEC

- Knowledge about CPEC, Know about CPEC in general, Knowledge of any CPEC project in or around the community, Views about project usefulness, Perceived benefits from CPEC project, Perceived harmful effects of CPEC project

Community profile

- Type – Urban/Rural
- Available health facilities – Government/private, level (clinic/dispensary/Hospital), other health care providers (homeopaths/hakeems/traditional healers)
- Availability of educational institutions - Government/private, level (primary/secondary/higher secondary/college/university/skill training institution)
- Sewage system
- Garbage disposal
- Roads within the community – access road to the community, distance to nearest main highway
- Means of transport – public/private,
- Cellular networks available
- Any development activity related to implementation for CPEC project; education or health facility established/renovated recently, vocational training, water supply or sewerage system, roads/railway, communication (telephone/mobile/internet), irrigation system, industry/business, electricity/gas supply, plantation, employment opportunities

KI with community leader/key stakeholder

➤ Social capital

- Any community based organisations, voluntary/youth/women groups in the community
- Any charity/welfare mechanism to support those who are socio-economically vulnerable or are in need

➤ Current economic activities

- Major occupations,
- Industrial setups in and around the community; home/commercial, public/private
- Agriculture, farming/animal husbandry
- *Potential for future economic development*
- Natural resources and endowments
- Available trained human resources
- Opportunities and potentials
- *Awareness and perception about CPEC*
- Whether know about CPEC
- Knowledge of any CPEC project completed/being implemented/in pipeline in or around the community
(*If not aware make specific reference to the CPEC project and ask following*)
- Perception about CPEC project
- Benefits to the community
- Harmful effects to the community

Focus group discussions with community stakeholders

Discussion contents

General

- Main economic and social service needs in the area
- Contribution of the group to the socio-economic development of the area
- Problems faced by the group and recommendations for action to support

CPEC

Knowledge about CPEC

Knowledge of any CPEC project completed/being implemented/in pipeline in or around the community

If not aware make specific reference to the project and ask following:

Perception about CPEC project

Benefits to the community

Harmful effects to the community

Annex 2: Secondary data from institutions

District/tehsil/City/Zone/Project profile

- Urban rural distribution of population
- Literacy rates, primary enrolment (girls/boys)
- Routine immunisation coverage
- Available health facilities – Government/private, level (clinic/dispensary/Hospital)
- Availability of educational institutions - Government/private, level (primary/secondary/higher secondary/college/university/skill training institution)
- Population covered for water supply, sewerage, toilet facilities
- Road networks
- Electrification
- Gas supply coverage
- Mobile networks and coverage
- Any development activity related to implementation for CPEC project; education or health facility established/renovated recently, vocational training, water supply or sewerage system, roads/railway, communication (telephone/mobile/internet), irrigation system, industry/business, electricity/gas supply, plantation, employment opportunities

Institutional review data from the Revenue department/Patwari specially to collect contextual information on economic activities, land use and agriculture to go into district profile

➤ Land holdings

- Distribution of farms by size, Average farm size
- Tenancy systems
- Farm labour with women participation
- Potential for further development and needs

- Water resources and Irrigation system
 - Water sources
 - Types of irrigation systems (Dams, canals, lift pumps, rain fall dependent, ground water/tube wells, dug wells)
 - Distribution of irrigated area by source of irrigation and by crop
 - Costs on irrigation (formal taxes, abiana, running/maintenance costs)
 - Flood protection
 - Potential for further development and needs

- Crops/animal husbandry and forestry
 - Crops and area under major crops, crop rotation, seasons, production and yield
 - Cultivation practices, methods resources
 - Potential for improving existing cops, possible new additions, needs
 - Types of livestock and number distribution
 - Area under forestation

- Agriculture inputs and services
 - Seed
 - Fertilizers and agro-chemicals
 - Machinery
 - Veterinary facilities
 - Plantation schemes/nurseries
 - Government infrastructure and support
 - Private sector contributions
 - Potential for development and needs

Marketing

- Storage arrangements and capacities
- Pricing and sale arrangements
- Farm to market communication (roads/transport)

Annex 3: Tools for qualitative data collection (especially in areas where CPEC projects have already been implemented/completed)

- *Key informant interviews with key stakeholders*
- *Focus group discussions*

Potential target key stakeholders

Local government representatives and administrators, Transporters, manufacturers/business/trade holders, farmers

Discussion contents

➤ General

- Main economic and social service needs in the area
- Contribution of the group to the socio-economic development of the area
- Problems faced by the group and recommendations for action to support

➤ CPEC

- Knowledge about CPEC
- Knowledge of any CPEC project completed/being implemented/in pipeline in or around the community

(If not aware make specific reference to the project and ask following)

- Perception about CPEC project
- Benefits to the community
- Harmful effects to the community

Annex 4: Key elements from research affiliates’ projects as a secondary source of data for CPEC impact assessment

#	Title	Geographical area	Relevant indicators from literature review	Research findings relevant to impact assessment
1				
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