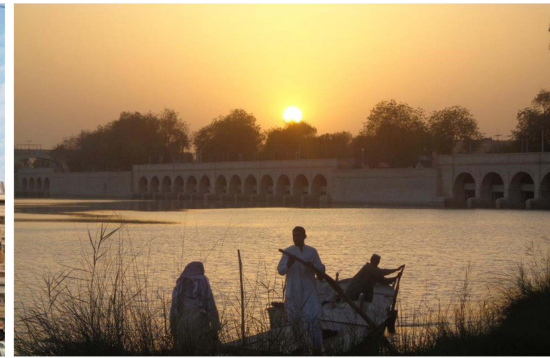


**DIRECTORATE OF URBAN POLICY & STRATEGIC PLANNING  
GOVERNMENT OF SINDH**

# **REVISED FINAL STRATEGIC DEVELOPMENT PLAN REPORT**

**PREPARATION OF URBAN DEVELOPMENT STRATEGY FOR  
SUKKUR, SINDH (2014 - 2035)**

**WITH ADDENDUM-2018  
(ADB Loan # 2499-PAK)**



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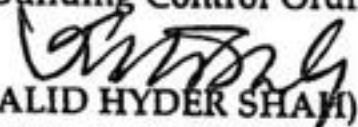


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GOVERNMENT OF SINDH  
LOCAL GOVT. & HOUSING  
TOWN PLANNING, DEPARTMENT  
Karachi, dated the 23th November, 2018.

### NOTIFICATION

NO.SO(G)HTP/SBCA/7-63/18: With the approval of Competent Authority i.e. Chief Minister, Sindh in compliance of the order dated 31-10-2018 passed by the Honourable High Court of Sindh Bench at Sukkur in Constitutional Petition D-1497 of 2017 the Urban Development Strategy / Master Plan for Sukkur (with addendum 2018) prepared by Directorate of Urban Policy & Strategic Planning, Planning & Development Board is hereby notified under Section 7-B of Sindh Building Control Ordinance 1979 and (Amendment, Act-2014).

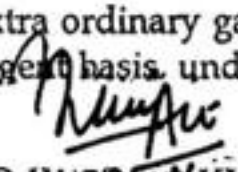
  
(KHALID HYDER SHAH)  
SECRETARY TO GOVT. OF SINDH  
Karachi, dated the 23th November, 2018

No.SO (G)/HTP/SBCA/ 7-63/2018,

A copy is forwarded for information and necessary action to the:-

1. Deputy Chairman, Planning Commission of Pakistan, Islamabad.
2. Principal Secretary to President of Pakistan, Islamabad.
3. Principal Secretary to Prime Minister of Pakistan, Islamabad.
4. Secretary, Defence Government of Pakistan, Islamabad.
5. Secretary, Ports & Shipping, Government of Pakistan, Islamabad.
6. Secretary, Communications, Government of Pakistan, Islamabad.
7. Secretary, Production, Government of Pakistan, Islamabad.
8. Secretary, Water & Power, Government of Pakistan, Islamabad.
9. Secretary, Railways Government of Pakistan, Islamabad.
10. Director General, Military Lands & Cantonment, Rawalpindi.
11. Director General, Civil Aviation Authority, Karachi.
12. Chairman, P&D Board, GoS, Karachi.
13. Chairman, Karachi Port Trust, Karachi.
14. Chairman, Port Qasim, Karachi.
15. Chairman, Pakistan Steel Mills, Karachi.
16. Senior Member (including all Members), Board of Revenue, GoS, Karachi.
17. Principal Secretary to Governor Sindh, Karachi.
18. Principal Secretary to Chief Minister Sindh, Karachi.
19. Secretaries to Government of Sindh (all) Sindh.
20. I.G Sindh, Karachi.
21. Commissioner, Karachi Division, Karachi.
22. Director General, KDA, MDA and LDA Karachi.
23. Mayor, Karachi Metropolitan, Karachi.
24. Administrator, DHA, Karachi.
25. Managing Director, Karachi Water & Sewerage Board, Karachi.
26. Advocate General Sindh, Karachi.
27. Director General, Sindh Building Control Authority, Karachi.
28. Assistant Registrar, (Writ) Honorable High of Sindh Bench at Sukkur.
29. Senior Director, Master Plan Department, SBCA Karachi.
30. Metropolitan Commissioner, District Municipal Corporation, Karachi.
31. Chairman/Municipal Commissioner, District Municipal Corporation (all) Karachi.
32. Headquarters 5 Corps, Karachi.
33. Headquarters COMKAR.
34. Headquarter Southern Air Command, Karachi.
35. Chief Executive Officer, Cantonment Boards Karachi (all).
36. Chief Executive Officer, Karachi Electric Karachi.
37. Managing Director, (S.I.T.E) Karachi.
38. Managing Director, Sui Southern Gas Company Ltd.
39. Director General, Sindh Katchi Abadies Authority, Karachi.
40. Deputy Secretary (Staff) to Chief Secretary Sindh, Karachi.
41. Deputy Commissioners (all) in Karachi.
42. Divisional Superintendent, Pakistan Railways, Karachi.
43. Chairman, Pakistan Engineering Council, Karachi.
44. Chairman, Pakistan Council of Architects and Planners, Karachi.
45. Chairman, Association of Builders and Developers, Karachi.
46. Superintendent Sindh Government Press Karachi with request to publish this in extra ordinary gazette alongwith Urban Development Strategy Master Plan for Sukkur (With Addendum 2018 on urgent basis, under section 7-B of Sindh Building Control Ordinance 1979 and (Amendment, Act-2014).



  
(ZAHID HUSSAIN (KIRKENTIO))  
DEPUTY SECRETARY HOUSING (HTP)

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## LIST OF ACRONYMS & ABBREVIATIONS

<b>ADB</b>	Asian Development Bank	<b>NFE</b>	Non Formal Education
<b>ADP</b>	Annual Development Programme	<b>NGO</b>	Non-Governmental Organization
<b>AGR</b>	Average Annual Growth Rate	<b>NHA</b>	National Highway Authority
<b>ARI</b>	Acute Respiratory Infection	<b>NGGO</b>	National Non-Governmental Organization
<b>BHU</b>	Basic Health Unit	<b>NSDWQ</b>	National Standards for Drinking Water Quality
<b>CAA</b>	Civil Aviation Authority	<b>NSUSC</b>	North Sindh Urban Services Corporation
<b>CBO</b>	Community Based Organization	<b>P&amp;DD</b>	Planning and Development Department
<b>CCB</b>	Citizen Community Board	<b>PE</b>	Population Equivalent
<b>CDC</b>	Communicable Disease Control	<b>PEPA</b>	Pakistan Environmental Protection Agency
<b>CITES</b>	Convention on the International Trade in Endangered Species	<b>PHED</b>	Public Health Engineering Department
<b>CMS</b>	Convention of Migratory Species	<b>PDWP</b>	Provincial Departmental Working Party
<b>CT</b>	Certificate of Teaching	<b>PM</b>	Project Manager
<b>DC</b>	Deputy Commissioner	<b>PMD</b>	Pakistan Meteorological Department
<b>DCO</b>	District Coordination Officer	<b>PPHI</b>	People's Primary Health Care Initiative
<b>DCR</b>	District Census Report	<b>PPP</b>	Public Private Participation
<b>DDMA</b>	District Disaster Management Authority	<b>PSDP</b>	Provincial Strategic Development Plan
<b>DDRMP</b>	District Disaster Risk Management Plan	<b>PSLM</b>	Pakistan Social and Living Standards Measurement
<b>DEOC</b>	District Emergency Operation Centre	<b>PSP</b>	Private Sector Participation
<b>DHQ</b>	District Head Quarter	<b>PSU</b>	Program Support Unit
<b>DNCA</b>	Damage, Needs & Capacity Assessment	<b>PTC</b>	Primary Teacher Certificate
<b>DNI</b>	Distribution Network Improvement	<b>RHC</b>	Rural Health Centers
<b>DO</b>	District Officer	<b>RHSC</b>	Reproductive Health Services Centre
<b>DOTS</b>	Directly Observed Therapy Short course	<b>RNE</b>	Royal Netherlands Embassy
<b>DRM</b>	Disaster Risk Management	<b>SAMA</b>	Services and Asset Management Agreement
<b>DRR</b>	Disaster Risk Reduction	<b>SBTPR</b>	Sindh Building & Town Planning Regulations
<b>DS</b>	Disposal Station	<b>SCIP</b>	Sindh Cities Improvement Investment Programme
<b>DSOV</b>	District Superintendent of Vaccination	<b>SEPA</b>	Sindh Environmental Protection Agency
<b>DWF</b>	Dry Weather Flow	<b>SEPCO</b>	Sukkur Electric Power Company
<b>EIA</b>	Environmental Impact Assessment	<b>SIE</b>	Small Industrial Estate
<b>EOC</b>	Emergency Operation Centre	<b>SLGO 2013</b>	Sindh Local Government Ordinance 2013
<b>EPI</b>	Expanded Program on Immunization	<b>SMC</b>	Sukkur Municipal Corporation
<b>EWS</b>	Early Warning System	<b>SKAA 1987</b>	Sindh Katchi Abadi's Act 1987
<b>FDG</b>	Focus Group Discussion	<b>STP</b>	Sewerage Treatment Plant
<b>GDP</b>	Gross Development Progress	<b>SWD</b>	Sindh Wildlife Department
<b>GEF</b>	Global Environmental Facility	<b>SWM</b>	Solid Waste Management
<b>GIS</b>	Geographical Information Systems	<b>SWOT</b>	Strengths, Weaknesses, Opportunities, and Threats
<b>GoS</b>	Government of Sindh	<b>TA</b>	Technical Assistance
<b>GPS</b>	Global Positioning System	<b>TBA</b>	Traditional Birth Attendant
<b>HBFC</b>	House Building Finance Corporation	<b>THQ</b>	Taluka Headquarter
<b>HVCA</b>	Hazards Vulnerability Capacity Assessment	<b>TOR</b>	Terms of Reference
<b>HDPE</b>	High Density Poly Ethylene	<b>TP</b>	Treatment Plant
<b>INGO</b>	International Non-Governmental Organization	<b>UC</b>	Union Council
<b>IT</b>	Information Technology	<b>UDS-Sukkur</b>	Urban Development Strategy for Sukkur
<b>ICT</b>	Information and Communication Technology	<b>UNESCO</b>	United Nations Educational Scientific and Cultural Organization
<b>IPS</b>	Intake Pumping Station	<b>UNDP</b>	United Nations Development Program
<b>IUCN</b>	International Union for Conservation of Nature	<b>UP&amp;SP</b>	Urban Policy & Strategic Planning
<b>JICA</b>	Japan Internal Co-operative Agency	<b>USC</b>	Urban Services Corporation
<b>LEDs</b>	Local Economic Development Strategies	<b>WASA</b>	Water and Sewerage Authority
<b>LHWs</b>	Lady Health Workers	<b>WHO</b>	World Health Organization
<b>LULC</b>	Land Use/Land Cover	<b>WSP</b>	Water and Sanitation Program
<b>MC</b>	Municipal Corporation	<b>WSS</b>	Water Supply and Sanitation
<b>MCH</b>	Maternal & Child Health Centers	<b>WTP</b>	Water Treatment Plant
<b>MGD</b>	Million Gallons per Day	<b>WWF</b>	World Wildlife Federation
<b>MS</b>	Mild Steel		
<b>MIS</b>	Management Information System		
<b>MSE</b>	Municipal Services Engineer		
<b>MTDF</b>	Mid-Term Development Framework		
<b>NCHD</b>	National Commission for Human Development		
<b>NDMA</b>	National Disaster Management Authority		
<b>NEQS</b>	National Environmental Quality Standards		

## EXECUTIVE SUMMARY

### Urban Development Strategy (UDS)

The premise of urban development strategies is, 'well-positioned and well-timed public, private, and civil society strategic interventions can significantly alter a city's development path.' Whenever the national and provincial urbanization policy frameworks complement local strategies, change is likely to be deeper and quicker. Global evidences indicate that the performance of cities can change enormously within a short time that is 10-20 years. Dormant cities such as, Shanghai and Glasgow, have returned to health in a short time because of focused strategies incorporating policies, political will and catalytic investment.

### Why Sukkur needs UDS?

Sukkur, being a secondary city of a developing country, is facing considerable uncertainties in its development and service delivery. It is confronted with the tasks of managing its resources and is already unable to cope with existing backlogs. As the number of urban poor are growing, inequalities in opportunities and income is deepening. Nearly half of Sukkur urban residents are living in slums. Given a competitive and uncertain economic environment, Sukkur needs discipline to use its economic potential and human resources effectively to achieve targets. An effective Urban Development Strategy (UDS) can attract capital and discipline its use. UDS assesses a city frankly and objectively, enabling to see its future more clearly and to identify the best routes forward.

Local administration of Sukkur alone cannot uplift the city. It only a minuscule portion of the capital available for city building. Local administration should work in partnership with private interests and civil society to change the developmental direction.

### UDS Initiative by the Government of Sindh

By taking a leading role, the Government of Sindh has initiated the Sindh Cities Improvement Investment Program (SCIP), which is funded by the Asian Development Bank. This is to formulate province-wide guidelines (for spatial and zonal planning) in GIS/MIS framework towards Local Economic Development. SCIP is a city-based program to build the capacity of secondary cities for better urban planning and management in Sindh. The Government of Sindh has also established the Directorate of Urban Policy and Strategic Planning (UP&SP) in Planning and Development Department to prepare urban growth strategies and development plans for urban centres of the Province according to the guidelines prepared under SCIP. Directorate of UP&SP assigned Osmani & Company (Pvt) Ltd, to prepare Urban Development Strategy for Sukkur (UDS-Sukkur). UDS-Sukkur is to formulate a perspective and vision for the future development for making it a futuristic city within next two decades. Osmani involved the Government officials, civil society, academia, trade and commerce groups, media and the residents of the Sukkur city to assess the strengths, weaknesses, opportunities and threats to the urban development and service delivery. Stakeholders, in consultations with Osmani, have devised a future development vision for Sukkur - ***"A Sustainable, Safe Sound Trading Hub with Healthy Environment, Comfortable Living and Economic Opportunities for its Residents, Visitors and Tourists"***. It aims to make Sukkur a clean and healthy city with quality infrastructure and services. It is also to bring recognition for Sukkur as a premier city of Sindh, offering an environment, which attracts people and businesses. The local administrative machinery should be efficient, effective, accountable and transparent by adopting a customer-oriented approach to improve confidence of entrepreneurs and encourage them to come forward for efficient development of new urban improvement and economic development schemes.

Sukkur UDS involves studying the current state of affairs of the city's development, setting out the direction for change, identifying the thrust areas, suggesting the alternatives and strategic interventions for achieving desired targets. The UDS has identified the infrastructure and socioeconomic development projects to be implemented during the plan period, across various urban sectors along with proposed implementation mechanism such as the Private Sector Participation (PSP) strategy.

### **UDS – SUKKUR (2014 to 2035)**

Sukkur is a medium size progressing city of the region, currently sprawling over an area of 57 Km<sup>2</sup>. It is the third largest city of Sindh Province located at the right bank of the River Indus and is a hub of commercial and transit business activities. It is one of the twin cities of Pakistan sharing its services with neighbouring Rohri Town at left bank of the River Indus. The combined population of both cities is approximately one million (0.6 million in Sukkur and 0.4 million in Rohri).

Sukkur is a congested city as the population density in the core area (CBD) is three times higher than the outskirts. It is estimated that about 70 percent population is residing within 15 percent area of current built-up land. The overcrowding in CBD needs urgent intervention of revitalization and regeneration for improving the quality of life. The UDS-Sukkur provides the strategy for decongesting the densely populated core area of Sukkur. The strategy is to further beautify the city, develop waterfront lines and green belts. The huge chunk of land is lying vacant in the peripheral areas, new housing projects should be built.

The stakeholder unanimously expressed that Sukkur city is unable to provide the quality municipal services. There exist a need to prioritize the provision of potable water, disposal of sewage and management of solid waste. Municipal services lack rationalized planning and services management. Most areas are facing water shortage and at places quality is unacceptable due to mixing of sewage. The present arrangements do not segregate industrial effluents from domestic sewage for sewage treatment plant. The discharged effluents flow in River Indus without any treatment and re-enter into the water supply system. Sewage has been mixing with storm water drains sewers in CBD are unable to carry current loads. Apart from solid waste generated by households, commercial establishments and institutions, Sukkur has many industries that generate different types of unmanaged waste such as biomedical waste, sludge and buffing etc. Primary collection is missing which further worsens due to outdated equipment causing unreliable service. Inadequate bins, non-segregation of waste and improper composting nearby the residential areas are other mismanaged issues.

After careful review, the UDS-Sukkur has adopted the approach and solution elaborated by Master Plans of Sukkur Water Supply, Wastewater and Solid Waste Management prepared by NSUSC. These advocated for immediate improvement of water supply distribution by replacing old and leaky pipes renovation of the zonal pumping stations by improving their capacities, providing interconnection of water treatment plants to balance the shortfall in capacities and constructing additional WTPs and feeder mains to connect to new colonies, in a sequential manner to cater for incremental demand. The UDS has proposed for renovation of inner core area sewers using trench less technologies, segregation of storm water drains and sewers to avoid choking and overflows. The UDS-Sukkur has recommended for introducing house-to-house collection, improving reliability by replacing old equipment, improving efficiency by transfer stations and providing required equipment, outsourcing an integrated SWM and conservancy service on a PPP basis. The UDS-Sukkur emphasizes on the recovery of the full O&M cost of utility services in a gradual manner. To enable efficient service delivery, it is necessary to immediately improve the capacity, focusing on the IT infrastructure, GIS mapping and MIS database in Sukkur municipal limits.

Substantial requirement for additional housing is felt besides meeting existing shortage. According to an estimate, nearly 28,000 additional houses are required by 2020. This will increase up to 75,000 till the end of plan period (2035). Housing industry itself can stimulate the economy of Sukkur. The strategy for planned development is the speedy development of planned housing targeting high, low, middle income groups, stimulating housing development through PPP, improvement in the quality of housing, reservation of minimum 50 percent of low-income housing to avoid formation of new slums and differential pricing in mixed land use areas based on commercial and transportation facilities.

UDS-Sukkur suggests that the regeneration of slum-dwellers (Katchi Abadis) should be carried out by adopting a consultative process and involvement of low-income groups in planning, implementation and monitoring of infrastructure projects to improve ownership. Some basic interventions are required to be undertaken such as construction of community toilets, solid waste management and sanitation and construction of low-income housing. Motivational campaigns for slum dwellers are essential to promote services like piped water, toilets and electricity.

The strategy suggests development of subsidized low-income housing through existing peripheral vacant lands to combat congestion in Sukkur City. It is proposed to develop 1000 acres to accommodate 0.6 million additional populations by 2035 using the existing areas (under slums and sprawl). Additional development is planned on both sides of the railway corridor running across Sukkur.

The city is predominantly dependent upon private buses for local and intercity passenger travel and movement of goods. The overall traffic situation in Sukkur is chaotic and roads are overloaded. Railway lines divide the city causing frequent traffic jam near Shikarpur crossing and along the Highway. Mixed mode of traffic, especially animal driven results in low operating speed. Proper alighting and boarding facilities are lacking.

To improve communication, UDS-Sukkur suggests the widening of the existing roads with links and bridges and terminals for intercity goods transport for vegetable / grain markets. It suggests the segregation of traffic to improve speed, enforcement of discipline for boarding and alighting at bus stops, strict compliance for emission to reduce pollution, consensus for removal of encroachments and undertaking a campaign on inculcating a traffic sense. The works proposed for integrated development of transportation includes parking lots in market centres, rehabilitation and construction of 53 Km of existing roads and 4 kilometres of new roads including a new bridge over River Indus to connect Rohri.

Presently Sukkur is an important center of trade and commerce, fulfilling the demand of the upper Sindh region as well as the adjoining province of Baluchistan and Punjab. It absorbs trade to a degree unparalleled by any other town in Sindh except Karachi. It still has a huge market for the wholesale trade of grain, fruits, vegetables and products of textiles, biscuits, confectionery, kitchen utensils, medicines, cigarettes, tiles, and hosiery, as well as the more traditional items such as oil, locks, iron safes, trunks, leather bags, soap-powder, ink, boot polish, durries, and carpets. Moreover Sukkur also categorized as the biggest dates and dry dates market of Asia. Dates and dry dates and timber also exported out to various countries including India, Australia and United States. The considerable export potential exists if the value added date processing units are also established in Sukkur. Beside exports, a sizeable inflow of imports finds it to be used either as a final consumer goods and/or as a raw material and/or intermediate input. The main imported products are dye and chemicals, industrial raw materials and second hand clothing. Further, vegetables, iron-steel products and knitted-ware are important commodities produced and traded in Sukkur.

However, poor management, lack of skilled labour, uncontrolled law and order, and non-availability of the required political will are the root causes of underutilization of real economic growth potential. The city needs serious attention of the local administration and political leadership for accelerated economic growth. Infrastructure, means of communication and municipal services need to be improved, while the energy and power supply needs to be increased to achieve the best outcome and attract investments.

The proposed priority development projects have been categorized into various detailed planning & feasibility sectors as economic development, social development, utilities, roads and communication network, environment & disaster management. About 71 projects with approximate cost of 65 billion Rupees have been proposed spread on two decades till 2035. There are 52 projects with high priority to be initiated in the short-term plan period (2014-2020) with an approximate cost of 14 billion, where focus would be on the utility services, rehabilitation of existing infrastructure, conducting detailed studies and project proposals. They are related to water supply, sewerage, drainage and solid waste management and rehabilitation of the road network. Regeneration and revitalization of the CBD / central area of Sukkur is an important project.

Immediate need has been felt to launch a detailed studies of CBD to re-assess multi-storey buildings, residential cum commercial units, shops and establishments which have come up in place of old residential houses. Accordingly, the tax and conservancy charges need to be managed and imposed on the owners of flats, shops, offices, restaurants/hotels and clinics to increase the revenue of the SMC. Parks and Amusement Parks are to be developed and they may on lease to private entrepreneurs for better management and revenue generation.

The Sukkur Municipal Corporation has not been to work efficiently due to lack of coordination and acceptability with public agencies. For implementation of UDS-Sukkur, the administration has to be empowered for effective urban governance of sister cities (Sukkur and Rohri), it is suggested that an institutional framework should be adopted under the umbrella of Sukkur-Rohri Urban Development Strategy Implementation Unit (SRDSIU) or Sukkur-Rohri Development Authority (SRDA). It may provide the opportunity for an integrated development across municipal boundaries of the twin cities and create harmony amongst all service providers.

In summary, the UDS-Sukkur aims to provide an incentive to undertake institutional, structural and fiscal changes necessary for developing improved service delivery systems that are sustainable, address poverty and enhance local economic performance. All residents of Sukkur should have access to urban facilities. Local services and governance should be conducted in a manner that should be transparent and accountable to citizens. Integrated development of infrastructure services should be ensured along with improved delivery of civic amenities and provision of utilities.

## ACKNOWLEDGEMENTS

In the course of the 'Preparation of Urban Development Strategy for Sukkur (2014 – 2035), we received ample help and assistance from several individuals and organizations.

The Consultants would like to express their gratitude to Director General, Mr. Mudassar Iqbal and former Director General, Mr. Khalid Mahmood Siddiqui (Directorate of Urban Policy and Strategic Planning UP&SP) for their keen interest, guidance and encouragement that enabled us to complete this assignment in spite of impediments. We offer our thanks to Mr. Mumtaz Ali Halepoto, (Director, Urban Policy and Planning), Mr. Muhammad Faraz Khan, (Deputy Director, Planning and Development Control), Mr. Nabesh Akhtar Memon, (Deputy Director, Municipal Services), Mr. Irfan Ansari (Deputy Director, Transportation), Mr. Zulfikar Ali Khumbar (Deputy Director, Housing) for their understanding of time constraints, and continued help and support. We are grateful to Dr. Niaz Ahmed Abbasi, Ex-Commissioner and Mr. Muhammad Abbas Baksh, Commissioner Sukkur Division, Mr. Shehzad Ahmed Thaheem, Deputy Commissioner Sukkur, Mr. Qurban Ali Kalwar, Director P&D, and Dr. Asghar Waheed, ADC-II, Municipal Commissioner, Managing Director-NSUSC, and other officers in departments for extending support by providing useful information and relevant suggestions for updating data and formulating development schemes.

Special thanks are extended towards non-government, private organizations contacted by us during the consultation process, for their valuable feedback. In addition, the people of Sukkur deserve appreciation for their time and patience for completing the socioeconomic opinion survey to evaluate the proposed strategy and development projects.

# 1 INTRODUCTION

## 1.1 THE PROJECT OVERVIEW

### 1.1.1 BACKGROUND OF THE PROJECT

The existing situation of urban Sindh is far from satisfactory as it lags behind the national averages in almost all the crucial human, social, and economic development indicators and thus suffers from an “Urban Deficit.” To overcome this deficit, the mandate, and scope of the Directorate of UP&SP is to establish a process for province-wide urban development by formulating the short and long-term framework. The Directorate UP&SP has a twofold challenge, firstly the establishment of a development planning process by means of preparation of policies and plans; and secondly the implementation of development projects in view of the enacted policies and plans as well as overall developmental needs of the urban population of Sindh Province.

In order to initiate the process, the client hired the services of M/s Osmani & Company (Pvt.) Ltd. to prepare Urban Development Strategy for Sukkur city. These studies/strategies are being financed by Asian Development Bank through the Sindh Cities Improvement Programme (ADB Loan No. 2499 — Pak).

### 1.1.2 PREPARATION OF URBAN DEVELOPMENT STRATEGY FOR SUKKUR

The objective of the Project, as mentioned in the terms of reference (TOR) is to prepare “Urban Development Strategy for Sukkur (UDS-Sukkur) from 2014 to 2035”. It is to be based upon the work done under various packages of Sindh Cities Improvement Investment Program (SCIP) and particularly the Task 4 of SCIP 03 – the development of spatial planning and zoning system as well as local economic development strategies as guidelines. The SCIP has also covered the development of Urban Information and GIS Database for Secondary Cities. The Consultant is tasked to prepare UDS-Sukkur, which will guide for the future 20+ years’ urban growth and infrastructure development, in line with the local needs and feasible options. The development strategy will also provide a framework to guide the sustainable socioeconomic and infrastructure development of the City and its environs by proposing a long-term development plan, sectoral development plans, and short-term action plans.

### 1.1.3 THE PLANNING PROCESS

As outlined in the TOR, the Consultant has to undertake a series of sequential activities (after the submission of Inception Report including work plan) as under:

- Field Surveys and Data Collection
- Preparation and Submission of Situation Analysis Report
- Preparation of Digital Base Map
- SWOT Analysis and Future Vision
- Strategic and Economic Development Plan
- Preparation of Priority Projects
- Disaster Risk Management Plan
- Final Strategic Development Plan (including Implementation Framework)

To undertake the work plan, Consultant has collected the data from various primary and secondary sources in order to ensure in depth analysis of Sukkur City’s problem, bottlenecks in its growth and the potential to develop practicable Development Plans, which include but are not limited to the following:

- Previous planning reports and plans available with P&D Department, Directorate of UP&SP, Public Health Engineering, Housing and Town Planning Department, District Authorities, etc.
- Past, present and planned development schemes of urban infrastructure.
- GIS based maps of existing infrastructure such as roads, land use and demographic attributes and the socioeconomic information collected or prepared by any other organization.
- Existing sub-soil conditions; water table and quality, geo-tech investigations from secondary data sources.
- Field verification of current land uses and urban infrastructure record, from various departments.
- Information about the land market and availability of state land for public sector infrastructure development projects/schemes.

Detailed land use along with the socioeconomic profile is necessary for preparing Development Plans. Such information was generated from field trips and through rapid appraisal methods. However, the consultant made the best use of geo-spatial technologies to produce land use/ land cover (LULC).

For LULC classification, the Consultant followed the scheme provided in Zoning Guides and Tools (SCIP-03, June 2012); and the Land Use Classification Standards of the Karachi Building and Town Planning Regulations 2002. Accordingly, a land use classification to be used in UDS-Sukkur with some modifications is presented in the Table 1-1 ,

Table 1-1: Land use Zone Classes for Sukkur

Major Classification	Sub-Classification
<b>Residential</b>	Low Density Residential
	Medium Density Residential
	High Density Residential
<b>Commercial</b>	Low Density Commercial
	Medium Density Commercial
	Central Business District
<b>Parks and Playgrounds</b>	
<b>Institutional</b>	Government
	Health And Welfare
	Education
	Religious
<b>Manufacturing</b>	Large-scale Manufacturing/ Heavy Industry
	Small-scale Manufacturing/ Light Industry
<b>Utilities And Municipal Service Facilities</b>	Water Supply
	Sewerage
	Solid Waste Disposal
	Electricity
	Gas
	Communication
	Others
<b>Burial Grounds</b>	
<b>Transportation Right-of-Way</b>	

Major Classification	Sub-Classification
<b>Protection Zones</b>	Buffer Around Industrial Facilities
	Residual Vacant Land
<b>Agriculture And Forestry</b>	Agricultural
	Fishing
	Irrigation
<b>Forestry</b>	
<b>Mines and Quarries</b>	
<b>Salt Pans</b>	
<b>Water Bodies</b>	Ponds, Rivers
<b>Notified Areas</b>	Historic Sites
	Restricted Land

Field surveys were conducted to assess existing socioeconomic conditions and related problems pertaining to the provision of services/facilities. The relevant information was collected through questionnaires. It covered demographic features, employment patterns, income levels, housing, status of basic urban services and related information. This activity was undertaken not only to meet the TOR requirements, but also for preparation of the realistic Urban Development Strategy (UDS).

The survey and subsequent analysis of the collected information established a credible baseline profile of Sukkur City. To meet the key requirements of timelines and extent, and to ensure a representative sample, a well-tested methodology with a standardized approach was adopted for the survey.

For executing the detailed socioeconomic and community survey questionnaires, the field work commenced in early September, 2013 and lasted for about one and a half month. Three survey teams were constituted, each comprising of five enumerators and a supervisor. A survey coordinator monitored all aspects of fieldwork with the help of the three supervisors. The survey universe consisted of the area under the jurisdiction of the Municipal Corporation. The population of the MC area estimated for the year 2013 and the sample size was calculated as follows:

Total Population of Sukkur MC Area (estimate for 2013) = 552,467

Density Rate = 7.6 persons per house

Total No. of Houses = N = 72,693

Sample Distribution = 1%

Sample Size =  $n = N * 0.01$

=  $72,693 * 0.01 = 727$

Thus seven hundred and twenty-seven (727) households were to be interviewed.

To facilitate enumeration work and to ensure that no sampled units are left un-enumerated, or enumerated twice, the surveys were conducted on the union council basis. Based on population size of the union councils, the sample of 767 households was proportionally allocated to all the union councils falling in the Sukkur MC area (instead of 727); the stratified random sampling technique was adopted for the surveys.

The Consultant carried out population profiling of Sukkur including information about socioeconomic indicators like education, employment and income etc. It is based on available secondary data; information already gathered by SCIP-03 consultants available with the Directorate of UP&SP. Additionally, the socioeconomic survey of Sukkur was carried out at 1% sample size of total households with the help of a questionnaire. This resulted in determining the population profile, size, structure, and spatial distribution at the scale of union councils.

The Consultant carried out the study regarding salient features of the housing market and policies initiated and compiled the information regarding the housing situation in general in terms of supply-demand, future needs and policy implications. Within the general framework of study, low-income housing in detail was studied emphasizing on location, housing finance arrangements and proliferation of Katchi Abadis, including a strategy for up-gradation / rehabilitation of the Katchi Abadis.

The Consultant collected the information and carried out a detailed analysis of social amenities including education, health and recreational facilities in Sukkur. For maximum data collection regarding urban utilities and services in minimum time, the Planning Team worked very closely with the Directorate of UP&SP team and stakeholders. The existing utility services map, available with NSUSC and Directorate of UP&SP were used.

Strengths, weaknesses, opportunities & threats (SWOT) were compiled by using guidelines developed by SCIP-03 consultants, based on the input of various stakeholders, situation analysis, and review of relevant secondary source documents. The sectoral SWOT analysis covered seven themes, as shown below:

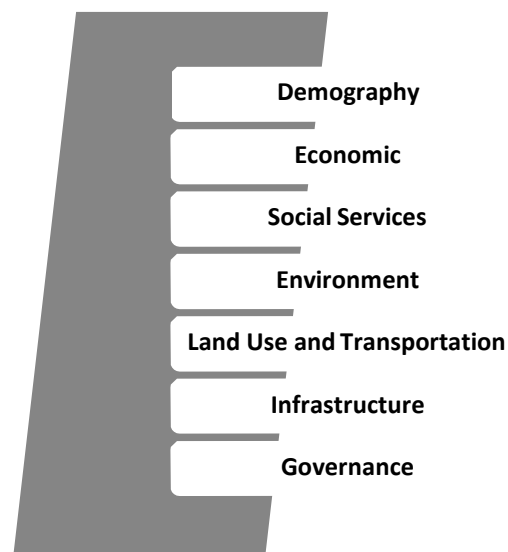


Figure 1-1: Major Sectors for SWOT Assessment

A SWOT analysis is used to support different stages of the strategic planning process, during visioning for example. It provided a rapid, up-to-date picture of a local situation.

Figure 1-2 shows the methodological framework, which has been undertaken systematically to achieve the objective of the work. This methodology is adhered to the LEDs, spatial and zoning, GIS, and MIS framework guidelines, prepared under SCIP 03 package.

The Consultant attempted to keep on board all relevant stakeholders during various stages of the study. In this regard, socioeconomic survey from public, community survey of the representatives of

communities, SWOT Survey and development vision formulation from the representatives of all occupations, interviews and meetings with the departments and administrators were the part of stakeholder consultation process. Two distinctly organized stakeholder workshops were also a major contributing activity to formulate the realistic urban development strategy and priority projects (Annexure - A).

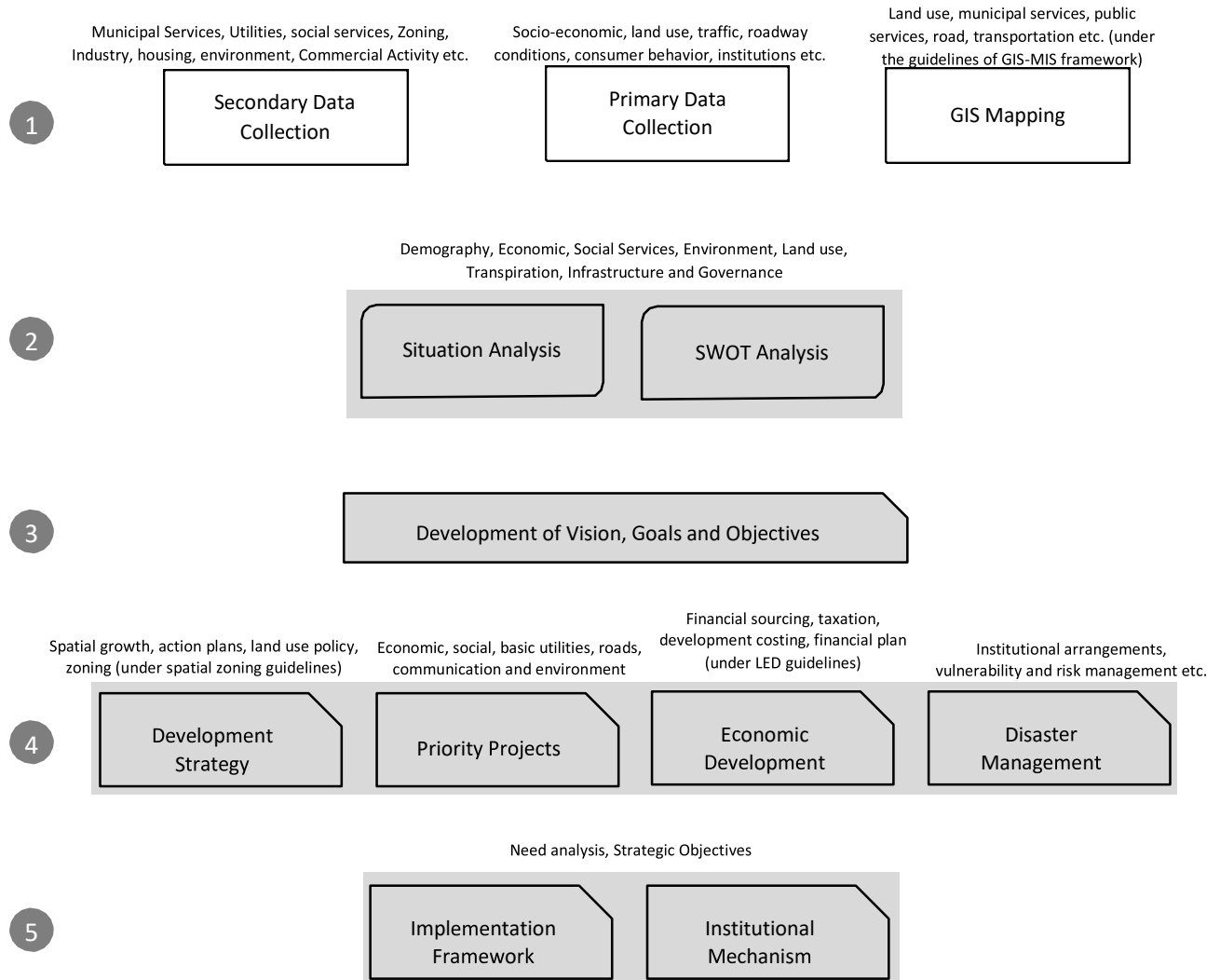


Figure 1-2: Methodological Framework

## 1.2 AN OVERVIEW OF SUKKUR AND ITS ENVIRONS

### 1.2.1 SUKKUR DISTRICT

District Sukkur lies at 27° 04' to 28° 02' North latitudes and 68° 35' to 69° 48' East longitudes. District Ghotki and India are on the east, District Kashmore on the north, District Shikarpur on the north-west, and District Khairpur on the west and south bound District Sukkur. Indus River flows on the northern side of the Sukkur District. The narrowest part of the Indus River course lies between Sukkur and Rohri cities (see Figure 1-3).

The estimated population of Sukkur District (comprising five Talukas) in 2013 is 1.4 million as compared to its population of 0.908 million in 1998, about 0.560 million in 1981, around 0.451 million in 1972, nearly 0.272 million in 1961 and over 0.218 million in 1951 (Sukkur DCR, 1998).

Table 1-2: Estimated Population Characteristics of Talukas in 2013

Taluka	Population	Male	Female	Population Density	Average Household Size	Estimated Household
New Sukkur	287,564	152,983	134,581	1,213	7.5	38,342
Sukkur	236,140	125,626	110,515	2,230	7.5	31,485
Pano Akil	403,361	214,586	188,775	408	6.0	67,227
Rohri	330,805	175,987	154,818	287	6.2	53,356
Salehpat	109,802	58,415	51,388	34	4.2	26,143
Total	1,367,674	727,597	640,077	239	6.5	207,223

Source: Consultant's estimates based on Sukkur DCR, 1998

The average annual growth rate (AGR) of population during 1981-98 is 2.88 percent (Sukkur DCR, 1998), which is used as base AGR for projecting the population of 2013. The average annual population growth rate slightly decreased to 2.60 percent during inter-census period 1972-81. It was 4.43 percent in 1961-72 and 2.25 percent in 1951-61. Sukkur District is predominantly an urban district, as the total urban population of the District is about 51%. Nevertheless, this proportion is different in Sukkur Taluka where total population was 374,178 in 1998 out of which 90% were living in SMC area.

In Pakistan, the male population is more than the female population and it is among those four countries where life expectancy for female, at birth, is less than that of males. According to the 1998 census, the sex ratio in District Sukkur is 113.7 males per 100 females, which is more than the ratio at the national level that is 106. Though there could be other possible reasons for such a difference in male to female ratio, one probable reason of this ratio could be under-reporting of females due to cultural reasons, during national census surveys. Besides, a very high maternal mortality rate and poor health care at the district and provincial levels are likely to be instrumental for this difference. District Sukkur, unlike the majority of the other districts in Sindh, have mixed characteristics as 49% of the population resides in rural area as compared to the 51% that resides in the urban areas.

In 1998, the total population of the District was 901,473. Population of District Sukkur has AGR 2.8%, which means that the populations will double itself in 25 years from 1998. Forty four percent of the population is below 15 years of age and 2.6% is 65 years or above. The estimated population for 2013 is 1,390,000, showing a 53% increase in 15 years from 1998. Out of the total population, 52 percent are males and 48 percent are females. Largest cohort of the population is 5-9 years, which decreases with 5 years interval. The total population in this cohort is 221, 688. In all the age groups, male population outnumbers female population in the District. The economically dependent population is less than 15 years and more than 65 years of age. In addition to them, the widowed and / or divorced

women are also considered as dependent population. Dependent population is 45.2 percent of the total population and the working population is 54.8 percent, which shows that dependency ratio is 87 percent.

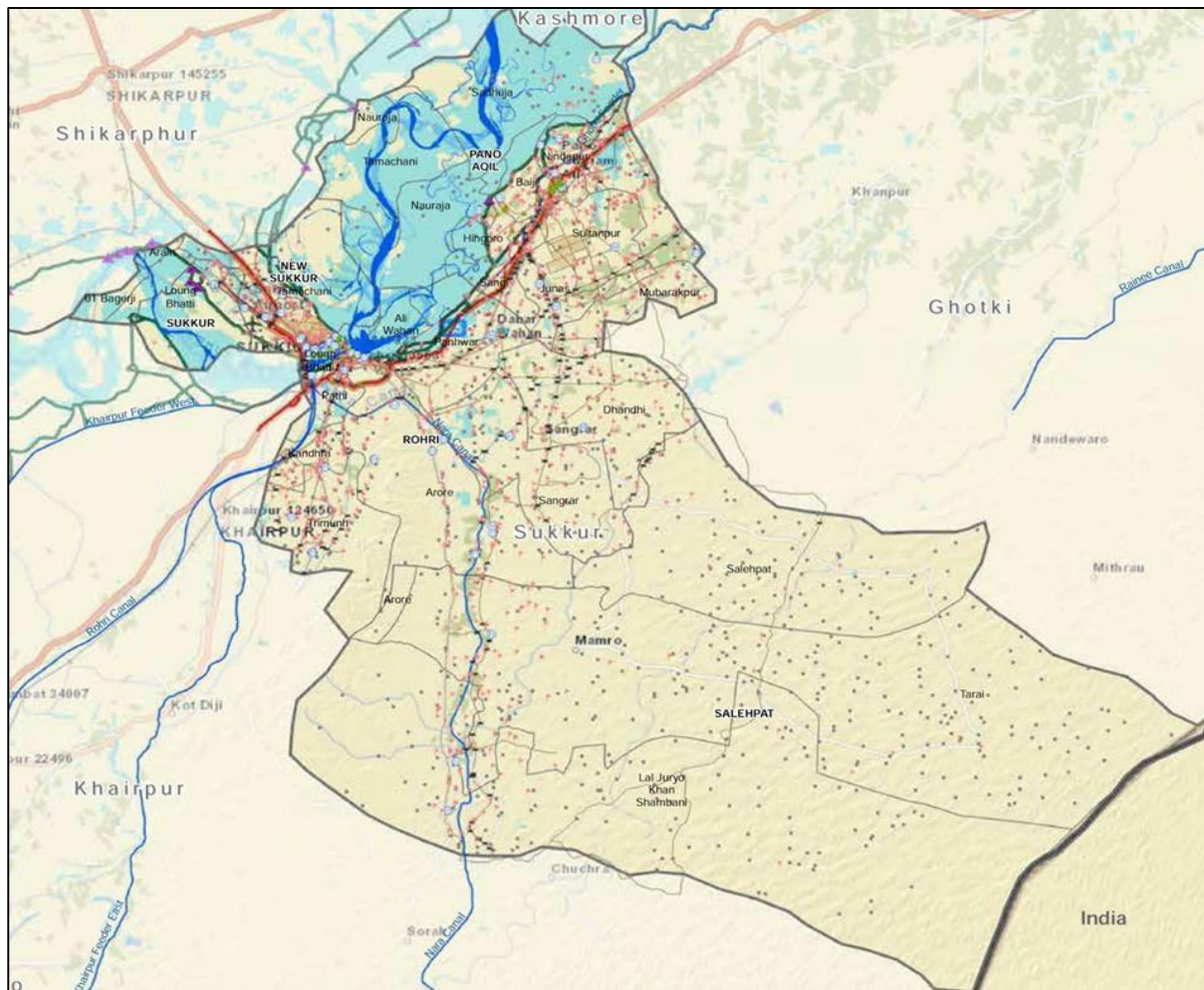


Figure 1-3: District Sukkur and Its Environs

Source: Flood Atlas – 2013, SIDA, 2013

People of Sukkur District are pre-dominantly Sindhi speaking but other languages like Urdu, Punjabi, Pashto, and Balochi are also spoken. A significant migrant community is also residing in this District, particularly in the City of Sukkur. This community is mainly associated with business and trade. Islam is the major religion of the District as 96.13 percent of the population is Muslim, followed by Hindus (2.38 percent) and Christians (0.51 percent). Sukkur District is home to many political parties however, Pakistan People's Party Parliamentary (PPPP) and the Muttahida Quami Movement (MQM) are two leading parties. Since 1985, these two parties have had a share of the four Provincial Assembly seats of Sukkur District.

The climate of the District, including the city area is hot and arid. Sukkur experiences extreme temperatures in summer. According to the Pakistan Meteorological Department (PMD), the annual average maximum temperature is approximately 34 °C with mean daily maximum temperatures remaining above 40 °C in May, June and July. June is the hottest month with highest recorded temperatures reaching up to 50 °C. Figure 1-4 and Figure 1-5 show mean monthly maximum and minimum temperatures of Sukkur respectively. Daytime minimum temperatures even in winter

remain above 22 °C. Winters are mild and short with mean minimum temperatures not falling below 8 °C.

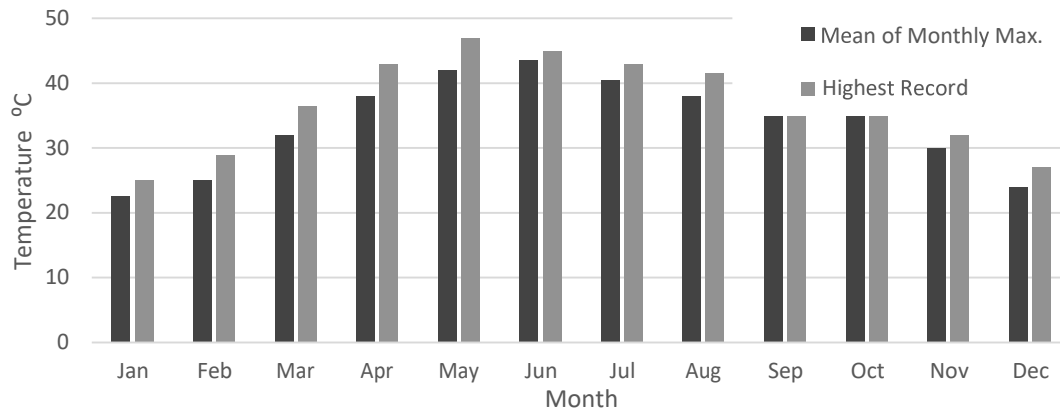


Figure 1-4: Mean of Monthly Maximum Temperature for Sukkur Station

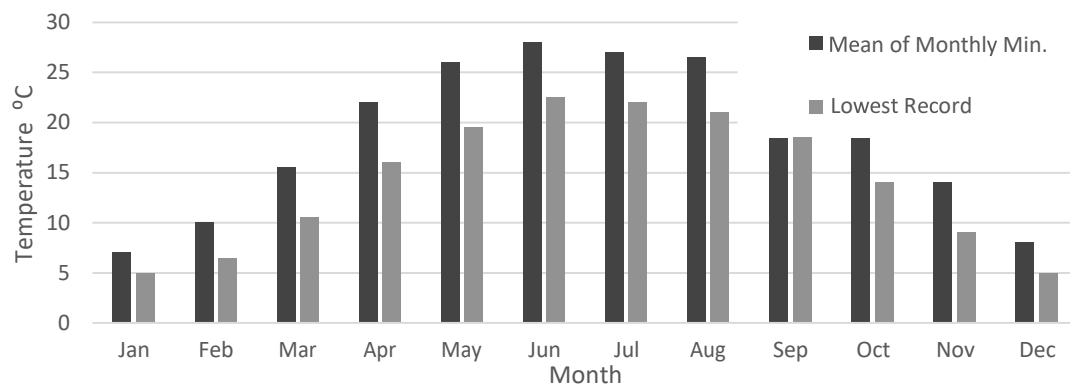


Figure 1-5: Mean Monthly Minimum Temperature for Sukkur

The area is exceedingly dry with mean annual rainfall averaged over a 34-year period less than 88 mm. The available data indicate that there are two wet seasons: the first with low rainfall in February and March (with mean monthly rainfall of 5.9 mm and 4.9 mm, respectively) and second with higher rainfall in the monsoon period of July, August, and September (with mean monthly rainfall of 44.6 mm, 21.3 mm and 10.5 mm respectively). Approximately 78 percent of the mean annual rainfall occurs in the two wet seasons with 72 percent in monsoon. The heaviest recorded rainfall in a given day is 184.5 mm in the month of July. The mean monthly rainfall data is graphically represented in Figure 1-6. The wind direction is generally NE (November to April) in winter and SW in summer (May to September). Dust storms are not frequent in the area. However, hot winds blow during the months of June and July.

Although a comparison of meteorological data between periods 1951-1970 and 1971-2004 shows no significant meteorological changes, the pattern of rainfall and the maximum daily temperatures in the area are observed to have changed with lower occurrence of monsoon rains (the drought cycle in Pakistan is reported by PMD to have increased from three per year to four per year).

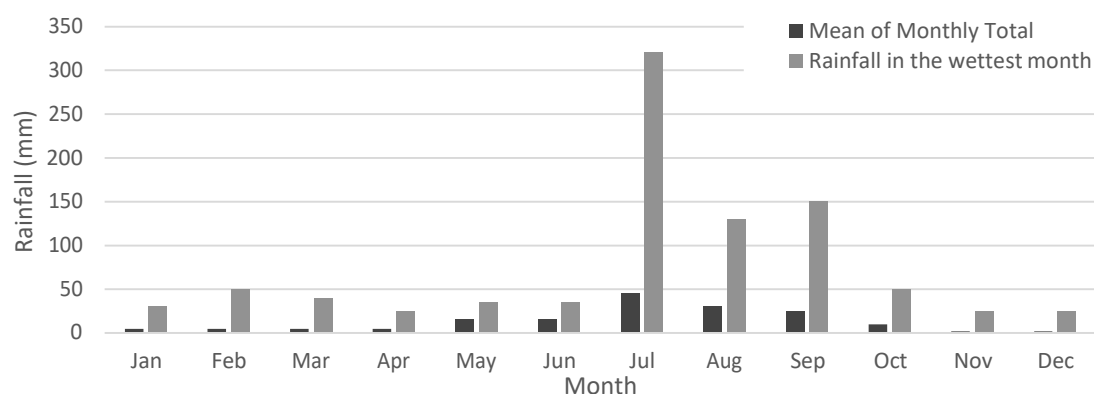


Figure 1-6: Rainfall Data for Sukkur Station

District Sukkur has its District Headquarters in Sukkur City. This District has five Talukas, named: Sukkur, New Sukkur, Rohri, Pano Akil, and Salehpat. It has 46 Union Councils and 271 Mouzas (revenue village). Out of these Mouzas, 245 are rural, 10 are urban, seven are partially urban, eight are forests and one is an un-populated Mouza (see Table 1-3).

Table 1-3: Administrative Division of District Sukkur

Sukkur	Supervisory Tapa's	Tapa's	Number of Mouzas					
			Total	Rural	Urban	Partly Urban	Forest	Un-populated
<b>Sukkur District</b>	9	44	271	245	10	7	8	1
<b>Sukkur Taluka</b>	1	3	3	2	1	-	-	-
<b>Rohri Taluka</b>	2	12	12	58	5	3	1	-
<b>Pano Akil Taluka</b>	2	16	16	88	2	2	5	-
<b>Salehpat Taluka</b>	2	9	9	86	-	-	-	1
<b>New Sukkur Taluka</b>	2	4	4	11	2	2	2	-

Source: A Profile of District Sukkur, by IMMAP & USAID, 2013

The District is under the charge of a Deputy Commissioner who combines the functions of the District Magistrate as well as Collector. He is also responsible for the coordination of the functions of all nation-building departments in the District.

The Police Department is vested in the Superintendent of Police. The District is divided into 19 police stations, including seven Katcha police stations. The list is given in the following Table 1-4.

Table 1-4: List of Police Stations in Sukkur District

City Sukkur	"A" Section
	"B" Section
	"C" Section
Site Area	Abad (Old Katcha)
	Site Area
	Bagarji
Rohri	Rohri
	Kandhra
	Duber

	Salehpat
<b>Pano Akil</b>	Pano Akil
	Cantonment at Pano Akil
	Baiji Sharif
<b>Sadhuja (Katcha)</b>	Sadhuja (Old Katcha)
	Raza Goth (Old Katcha)
	Gudpur (Katcha)
<b>Mando Dero</b>	Jhangro (Katcha)
	Khaderi (Katcha)
	Qadirpur (Katcha)

Source: Sindh Police Department website, 2013

Presently, there are 16 (sixteen) Courts working in District Sukkur with the following break-up (see Table 1-5). A bench of the Honorable High Court of Sindh was established in Sukkur in the year 1979, which is housed in separate premises.

Table 1-5: Judiciary Setup in District Sukkur

<b>1</b>	District & Sessions Court	01
<b>2</b>	Additional District & Sessions Courts	05
<b>3</b>	Senior Civil Judges	02
<b>4</b>	Civil Judges/J. Ms	03 in Sukkur
<b>5</b>	Family/Civil Court	01 in Sukkur
<b>6</b>	Civil Judge/J. Ms Courts	02 at Rohri
<b>7</b>	Civil Judge/J. Ms Courts	02 at Pano Akil

Source: Judiciary website, 2013

#### 1.2.1.1 CULTURE AND ETHNICITY

Sukkur has a rich traditional Sindhi culture. Women usually wear Shalwar Qameez but quite often dress in the traditional attire, Ghaghra or Parro as well. Traditionally, women wear bangles. Men usually wear a Shalwar Qameez distinguished by broader bottoms, and a traditional Sindhi style cap.

Majority of the population living in the District is Muslim. Among them, there are the Balochis and non-Balochis. The main Baloch tribes residing in the District are Rindh, Chandio, Khoso and Lagharis etc.

Among the non-Balochis population, mostly are the “Samats”. They are originally of Rajput origin and supported to have embraced Islam during the conquest of Sindh by Arabs. The main casts of Samats are Samas, Sumras, Dahars, Mehars, Bhuttos, and Bhayas etc. Besides them, the Syed, Qureshis and Memons are also living in Sukkur.

The Hindu population living in the District can be classified into three main classes: the advance trading and commercial classes, of whom the Lohana and their kindred tribe Brahmans constitute the most important element; the intermediate Hindus where the Rajputs and Kolis forms an important and main element, and the primitives comprising Bhils and Mahadev Kolis.

Fairs (*Mela*) are the most popular entertainment, particularly in the case of the rural part of the District. Fairs are generally held around the graves of local saints and *pirs*, and are well attended. Main fairs in the District are held at the following places:

- Shah Khairuddin Jilani's Mela at Old Sukkur
- Shaikh Sain Badshah's Mela at Sukkur
- Mela of Shah Shaker Gunj and Shah Maqsud in Rohri
- A yearly Mela of Hindus is held in Sadho Belo, in Sukkur
- Mela of Hazrat Habaat Sharif, Taluka Sukkur
- Mela of Tomb of Adam Shah
- Mela of Maki Shah Badshah in Rohri
- Mela of Badruddin Shah in Rohri
- Mela of Hajna Shah in Rohri

#### 1.2.1.2 LAW AND ORDER AND PUBLIC SAFETY

It is more painful to note that Sind has been suffering by an incidence of violent crime that on average, far surpasses the other three provinces of Pakistan. Sukkur is not exceptional having the same level of crimes and critical law and order situation. The most critical issue is the problem of dacoity (armed robbery) and its affiliated problem of kidnappings for ransom. The prevalence of such shocking crimes has deprived the citizens of Sind from any sense of security and peace of mind. The poor law and order has also negatively affected the economic growth.

### 1.2.2 SUKKUR CITY

#### 1.2.2.1 GEOGRAPHICAL LOCATION AND HISTORY

Sukkur, the headquarters town of the District is situated at 27° 42' North latitude and 60° 51' East longitude. Sukkur has a terrain of low hill cluster, which are a continuation of the chain that runs from Rohri, on the opposite bank of the Indus, southward for nearly 80 kilometers (see Figure 1-7). The island fortress of Bukkur in midstream between Sukkur and Rohri is a link in that chain. It appears that some time about the middle of the eighth century the Indus forsaking its old bed and leaving the ancient Hindu capital of Aror to desolation, cut a passage for itself through the range at this point, but the solid flinty mass of Bukkur resisted erosion and standing out of the rushing water and became a strategic point of the utmost importance to the rulers of the surrounding country.

The National Highway (N 55) connects Sukkur with other major cities of the Province. The District headquarter of Sukkur is linked to its Taluka Headquarters of Rohri, Pano Akil and Salehpat through metaled roads (see Figure 1-7).

Other important road links in Sukkur District are:

- Road from Sukkur to Southern Punjab (Rahimyar Khan, Multan) via Pano Akil and Ghotki (N 5)
- Road from Sukkur to Baluchistan via Shikarpur and Jacobabad
- Road from Sukkur to Khairpur via National Highway (N 5), Therhi
- Road from Sukkur to Larkana via Madeji, Naudero
- Road from Sukkur to Hyderabad, Karachi via N 5

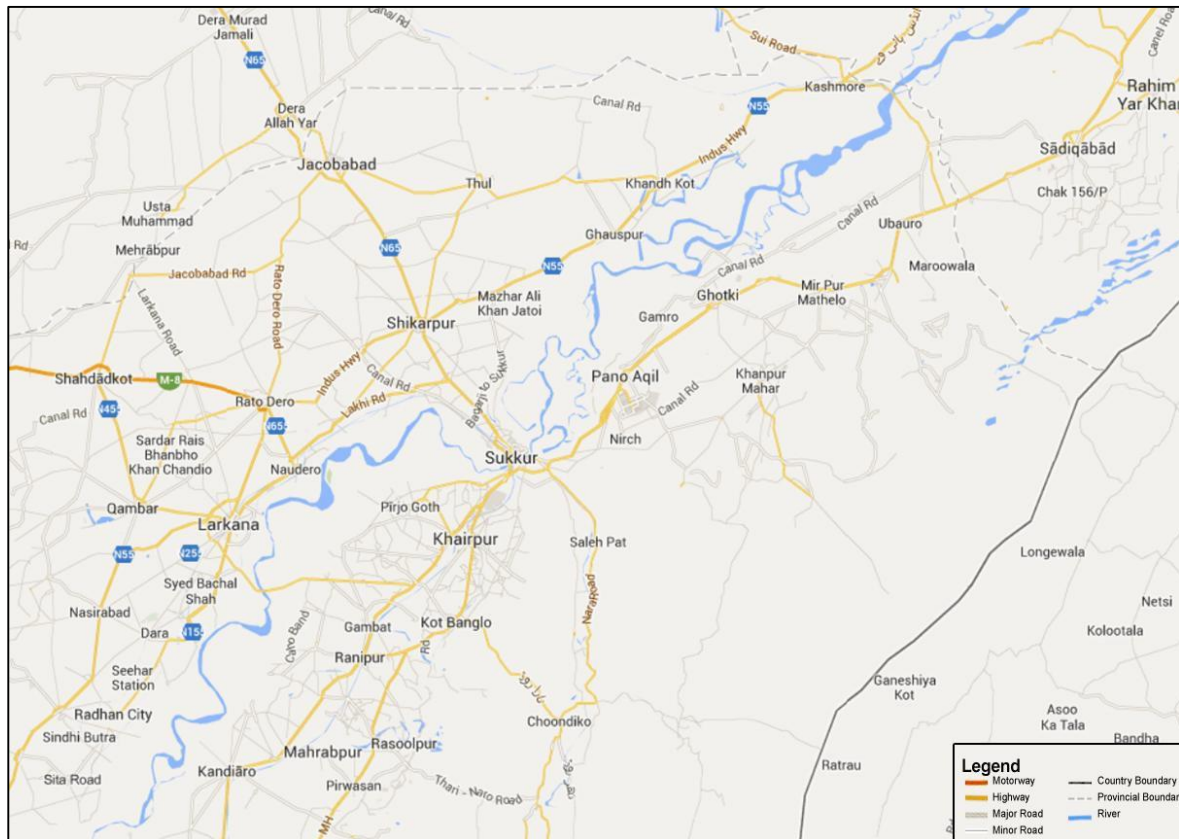


Figure 1-7: External Connectivity of Sukkur

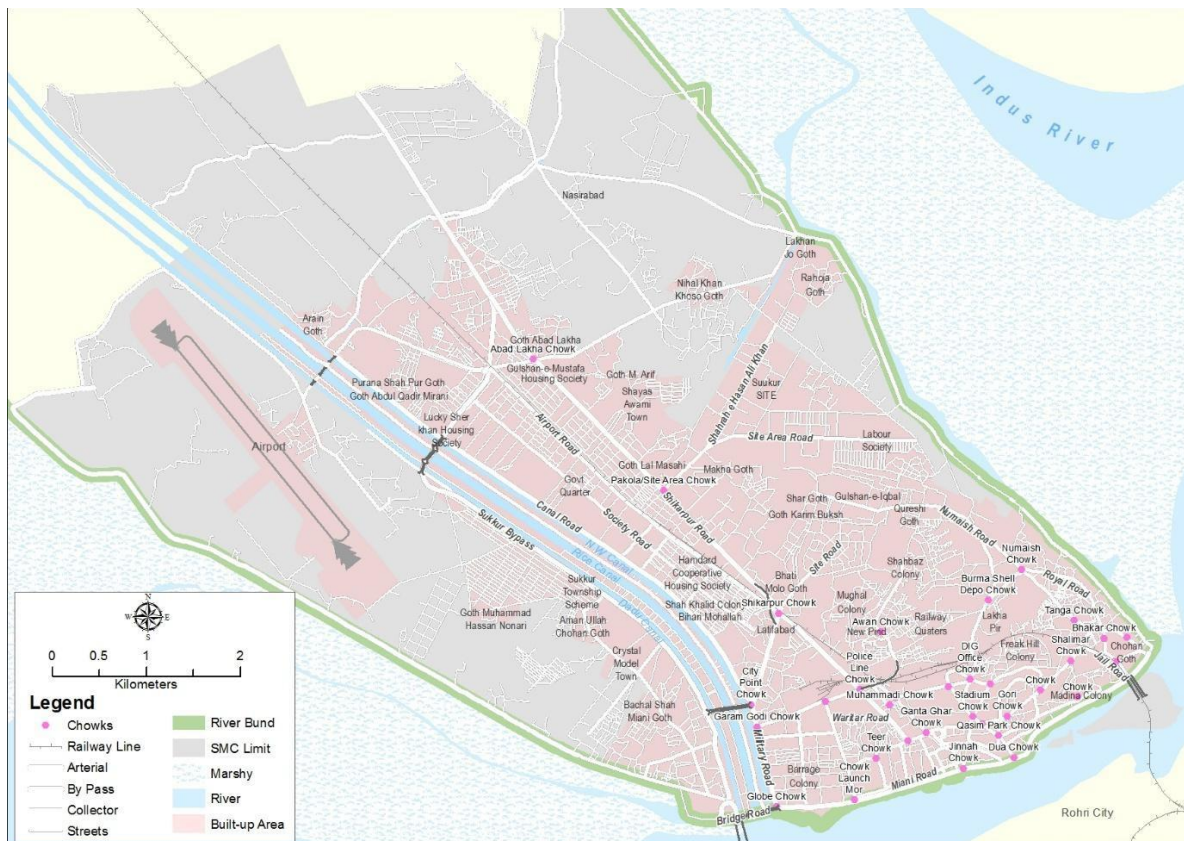


Figure 1-8: Urban Area of Sukkur City

Sukkur City has been an important strategic center and trading route from time immemorial. An archaeological site of Lakhueen-Jo-Daro is located within an industrial area of Sukkur city, which was excavated in 1994. The presence of the site in Sukkur has uncovered the history of the region, particularly making it perhaps one of the oldest living city in the world and pushing back its origin to 2400 BC and may be even further back in time. This site is contemporary to Mohenjo-Daro.

Aror (present Aror, Sukkur) held the status of capital under the reign of Musikanos, when Alexander invaded India in 326 BC. The ruins of this ancient town still exist, 8 kilometers east of Rohri, in Sukkur District. In 711 AD, the Arabs invaded Sindh, led by 17 years old Muhammad Bin Qasim, and Sukkur (including whole Sindh and lower Punjab) became part of the Umayyad Caliphate. In recent history, the British at Miani defeated the Mirs of Khairpur and Hyderabad in 1843. After the annexation of Sindh, Sir Charles Napier was appointed Governor of the Province who made his headquarters at Karachi. In 1843, the British (General Charles James Napier) defeated the Talpurs at the battle of Miani and Dubbo near Hyderabad and ruled Sukkur (including Sindh) until the creation of Pakistan.

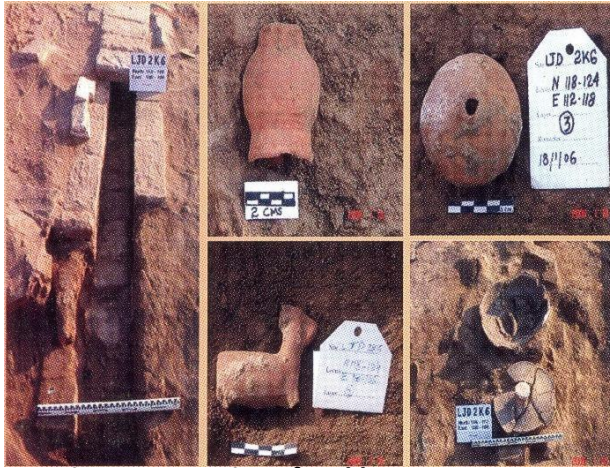


Figure 1-9: Ruins of Lakhueen-Jo-Daro



Figure 1-10: Muhammad Bin Qasim Mosque at Aror

Old Sukkur was a heap of ruins, though it began to show signs of reviving with the advent of the British rule. The British troops appeared to have been quartered principally in Bukkur, which was full of the tools and machinery of the ordinance. All this activity led to a great influx of traders of every kind who opened shops along the bank of the river and when the annexation of Sindh gave promise of being permanent, built themselves houses below the hills. Thus, New Sukkur grew up. Barracks were built for the soldiers between old and New Sukkur, but in 1845 a terrible form of "Jungle" fever broke out among the 78th Highlanders that just returned from the expedition to the Katchi Hills and five hundred men, women and children were carried off in about six weeks. A few historical glimpses may be seen in Figure 1-11, Figure 1-12 and Figure 1-13.



Figure 1-11: A view of Sukkur from Indus River in early 20th century



Figure 1-12: Hindu Devotees at Sukkur in 1910



Figure 1-13: Masoom Shah Minaret in Early 20<sup>th</sup> Century

Sir Charles Napier thereupon abandoned Sukkur as a military station. As a market, it continued to prosper and was soon reported to have attracted all the trade of Shikarpur. It received a great impulse from the opening of the railway lines from Karachi to Kotri and from Multan to Lahore, because Sukkur then became the chief 'port of call' between Kotri and Multan for the steamers of the Indus Flotilla. Before 1860, the stone "ghats" had been built all along the shore to facilitate the loading and unloading of goods. The opening of railway lines from Kotri to Sukkur and from Rohri to Khanpur completed in 1878, and the abolition of the Flotilla, however, reduced the importance of Sukkur to some extent. With the opening of the Lansdowne Bridge in 1889 and the establishment of direct railway communication between Sindh and the Punjab, its importance further diminished. In 1883, Sukkur, instead of Shikarpur, became the headquarters of the District and since that time, public offices have been gradually transferred to it. Old Sukkur is far away the railway line, a mile to the northeast and contains many substantial houses. There are three antiquities of Sukkur deserving mention, the tomb of *Adam Shah*, the tomb of *Shah Khairuddin* and the tower or *Minaret of Mir Masoom*. The blue dome in Old Sukkur is the tomb of *Shah Khairuddin* of whose life and doings is a manuscript account in the possession of the Kazi of Sukkur. There are many prominent and known historical sites and monuments within the vicinity of the project area that include:

- Bukkur Fort entire area, including walls and Tomb of Hazrat Sadr Uddin.
- Near Lansdowne Bridge, "Sattian Jo Astano" is located. A small graveyard from 15th to 17th century has beautifully decorated tombs with blue glazed tiles.
- "Sadhu Belo" a Hindu Pilgrimage area on the main island in river Indus along Sukkur City, this was the Asthan (Places) of a Sadhu known as Bankhandi (Forest wanderer) in 1823.

#### 1.2.2.2 TOPOGRAPHY, GEOLOGY AND SOILS

The area within and surrounding of Sukkur is predominantly a flat and level plain except the Rohri hills in the southern portion of Sukkur. The western half of Sukkur District forms an alluvial plain, broken only at Sukkur and Rohri by low limestone hills, which tend to preserve a permanent bank of the Indus at those places. The Indus once flowed past these hills near the ancient town of Aror and was diverted into its present channel through the Bukkur hills by some natural convulsion.

Large patches of saline land (*Kalar*) occur frequently, especially in the upper part of the district. Morphologically, the Indus takes the form of an anastomosing river over most of its course in Sindh. An anastomosing river is a multi-threaded river like braided channels of a river. Analysis of floodplain

forms and features indicates clearly that the Indus River has historically shifted across the entire flood plain.

Soils of river plain are generally loamy, clayey and seasonally flooded soils. In some areas of Sukkur, salt affected soils are also present. The Rohri hills area is designated as rough mountainous land. These soils found along river i.e. loamy and some sandy stratified soils (Torrifluvents and Torripsamments) of recent river plains.

According to a recent citywide survey conducted by the NSUSC along the roads, and the data provided by Directorate of UP&SP to the Consultant, the lowest elevation is 60.58 m from mean sea level near Vegetable Market. However, the lowest elevation is observed far less than the measured value at the pond area near Old Sukkur. The highest elevation level is 134.9 meters from mean sea level near Shahbaz Colony. The range of elevation in the City from low to peak is 74.32 m with an average value of 90 meters.

## 2 EXISTING STATE OF AFFAIRS

### 2.1 SOCIAL CHARACTERISTICS OF THE CITY

#### 2.1.1 DEMOGRAPHIC CHARACTERISTICS<sup>a</sup>

Sukkur Municipal Corporation (SMC) is the largest settlement unit in Sukkur Taluka comprises of population 552,467 and growth rate as 3.38. The historical growth of population of SMC can be seen in Figure 2-1.

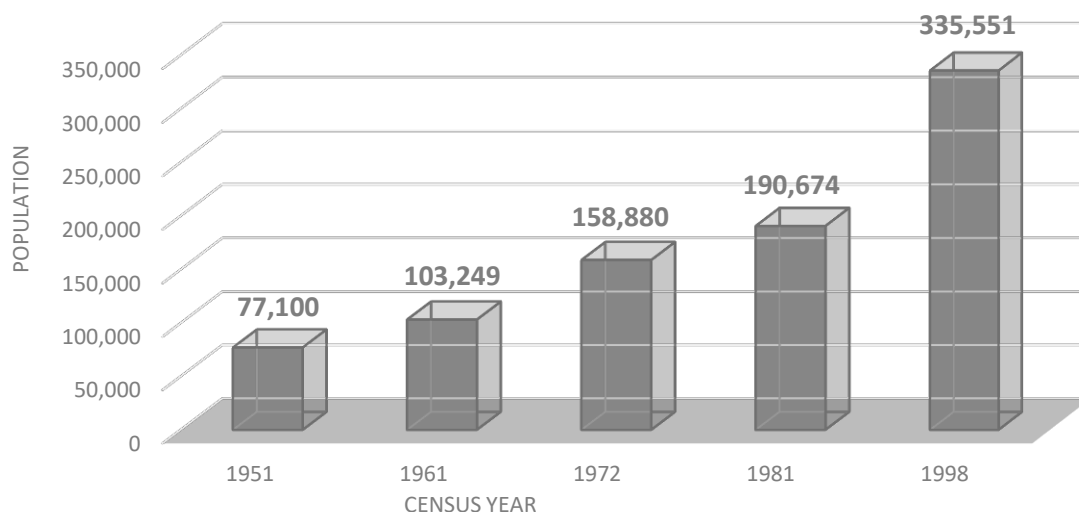


Figure 2-1: Sukkur MC Population Growth (1951-1998)

According to 1998 Census the SMC population was 335,551 with a growth rate of 3.38 percent per annum as a cumulative factor including natural growth, and net migration. The population for the year 2013 is estimated at 552,467, which is expected to grow up to 1,147,916 up to the year 2035, with AGR (Annual Growth Rate) remaining constant (see Table 2-1 & Figure 2-2).

Table 2-1: Population Forecasts for Sukkur MC

Population years	Population (Persons)	Incremental population
1998	335,551	
2013	552,467	216,916
2015	590,445	37,978
2020	697,208	106,763
2025	823,275	126,067
2030	972,137	148,862
2035	1,147,916	175,779

Source: DCR 1998, Sukkur

<sup>a</sup> Updated Demographic Characteristics of Sukkur District are given in the Addendum - page nos. 02-03

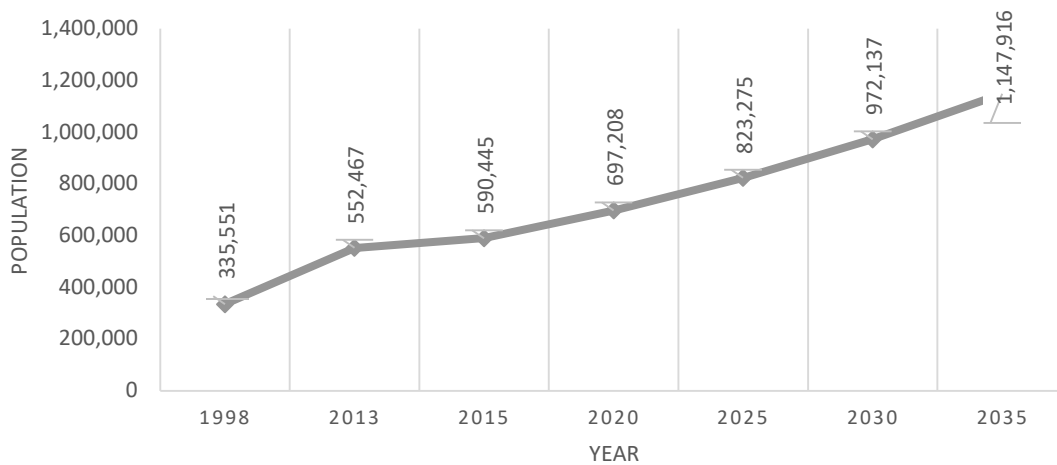


Figure 2-2: Population Growth Trend in Sukkur MC

The population census had not been conducted since 1998. Annual Growth Rate for SMC is therefore based on the inter-census population change between 1981 and 1998. Considering the natural growth as the controlling factor of AGR the rate is declining throughout the country especially in urban areas. It happened mainly due to the step taken by the Population Welfare Department on birth control and welfare awareness. As far as Sukkur city is concerned, the rate of migration is higher because of the following factors,

- Intercity marriages
- Shifting of businesses
- Employment opportunities

The above factors are also evident from the District Census Report, 1998. The annual growth rate used for SMC population projection is the only valid official data available until the detailed population estimation study or census is conducted.

### 2.1.1.1 HOUSEHOLD SIZE

According to the 1998 census, the average household size of Sukkur MC was 7.6 persons. However, with the emerging concept of nuclear dwellings and fast tracked development of the same pattern, the household size has been reduced to 6.23 person over a period of 15 years. Socioeconomic survey sampling of 767 households had been carried out in Sukkur, which is the 1% of the Sukkur city population. The reduced household size is also verified from the sampling result as 6.23 persons per household (3.21 male and 3.02 females) (see Table 2-2).

Table 2-2: Household Size and Its Composition

<b>No. of Sample Households</b>	<b>767</b>
Members Per Household	6.23
Male	3.21
Female	3.02
Average Number of Adults	3.9
Male	1.95
Female	1.95
Children	2.33
<b>Percentages of Households by Number of Members</b>	
Total	100
One Person	1.5
Two	4.57
Three	7.53
Four	15.09
Five	15.48
Six	16.99
Seven	12.26
Eight	8.93
Nine Persons	7.06
Ten & Over	10.58

Source: Consultant's Socioeconomic Survey of Sukkur, 2013

### 2.1.1.2 MARITAL STATUS

The socioeconomic survey revealed the marital status of targeted people. They consist of 42.5% married and 56% unmarried, 0.2% divorced and 1.3% widow / widower (see Table 2-3).

Table 2-3: Marital Status

<b>Status</b>	<b>Number</b>	<b>%</b>
Married	2030	42.5
Unmarried	2676	56
Divorced	10	0.2
Widow/Widower	62	1.3
Total	4778	100

Source: Consultant's Socioeconomic Survey of Sukkur, 2013

### 2.1.1.3 AGE-GENDER DISTRIBUTION

Age and gender are two significant characteristics of the population. The age-sex distribution of the project area is presented in Table 2-4. The age - sex ratio is defined as the number of females per 100 males. The overall age-sex ratio, all age-groups inclusive, is 84, i.e. there are 84 females for every 100 males, which is significantly lower than the national average of 95.

For different age groups, there is significant variation in these ratios. The gap is minimum for the age-group 10-16 years, for which the ratio is 91. It gradually declines with the advancing of age groups, and is only 53 for the population of 70 years and above.

It has been described in MTDF (Medium Term Development Framework 2005-2010) that all primary schools will be converted to co-educational schools and all primary schools will move towards the goal of 100 % female teachers according to the policy of the government which has been found most conducive in girls enrollment and retention in rural areas. Further reduction of gender gaps in enrollment and retention will be enabled through financial and nutritional incentives for female students especially in rural areas.

Table 2-4: Age and Gender Distribution

Age Groups	Gender				Total		Sex Ratio
	Male	%	Female	%	No.	%	
Below 1	60	2.3	44	2	104	2.15	75
1 - 5	254	9.8	227	10.4	481	10.1	89
5 - 10	301	11.6	251	11.5	552	11.55	84
10 - 16	353	13.6	323	14.8	676	14.2	91
16 - 25	610	23.5	478	21.9	1088	22.7	79
25 - 50	768	29.7	701	31.9	1469	30.8	91
50 - 60	145	5.6	103	4.7	248	5.15	71
60 - 70	73	2.8	41	1.9	114	2.35	59
Above 70	31	1.2	15	0.7	46	0.95	53
Total	2595	100	2183	100	4778	100	84

Source: Consultant's Socioeconomic Survey of Sukkur, 2013

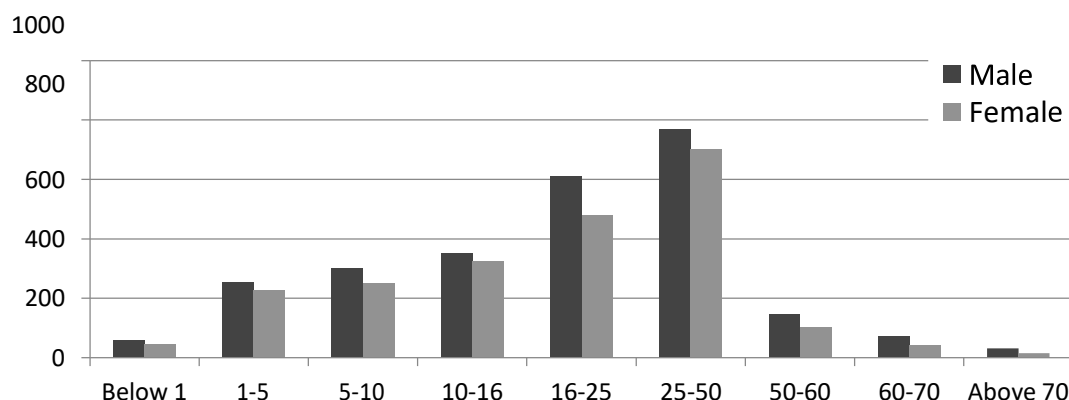


Figure 2-3: Age Sex Distribution

### 2.1.1.4 POPULATION DISTRIBUTION

In existing setup, Sukkur City is divided into 18 Union Councils based on demographics and area. The details about UC-wise area distribution can be seen in Figure 2-18, whereas UC-wise population distribution is given in Table 2-5.

Table 2-5: UC-wise Population Distribution in Sukkur

UC Name	1998	2013
Jia Shah	18,539	30,523
Mir Masoom Shah	16,221	26,707
Shaheed Ganj	17,363	28,587
Shaikh Saheenth Badshah	17,744	29,215
Barrage Colony	20,390	33,571
Shamsabad	18,149	29,881
Gharibad	20,119	33,125
Pir Illahi Bux	18,772	30,907
Old Sukkur / Nusrat Colony	20,874	34,368
Pak Colony	22,419	36,912
Kumbarware Para	16,583	27,303
New Pind	18,135	29,858
Azizabad	18,989	31,264
Small Industries	19,665	32,377
New Goth	18,466	30,403
Rahooja	16,826	27,703
Arain	15,293	25,179
Bachal Shah	21,004	34,582
<b>Total Population</b>	<b>335,551</b>	<b>552,467</b>

Source: Records of DC Office & Consultant's estimates, 2013

#### 2.1.1.5 POPULATION DENSITY

Population density, like any other urban center, is not uniform in Sukkur City. The old part has higher densities as compared to the surroundings. Density is very low in the outskirts. Daytime population is very high in the business corridors and markets. The morphology of the City is amazing as the overall residential area is around 50% of the total earmarked urban area, but 70% of the total population resides only in 15% of the urban land with high density (above 150 persons per acre). Further details can be seen in the Table 2-6.

Table 2-6: Distribution of Population Density

Population Density (Persons / Acre)	Proportion of Urban Area (%)	Population (%)	Ranking
Unpopulated	48.45	< 1	Scattered
Less than 40	16.16	4	Low
40 - 150	20.09	25	Medium
Above 150	15.31	70	High

Some comparative household densities are given in Figure 2-4 and Figure 2-5 from high-resolution satellite image on same scale (dimensions 250 meters length x 200 meters width).



Figure 2-4: Highly dense area of Nusrat Colony in Old Sukkur



Figure 2-5: Medium density area of Sindhi Muslim Society in New Sukkur

### 2.1.2 HOUSING

It is observed that the housing backlog in Sukkur City is not as severe as in other metropolitan cities of Pakistan as the current estimated housing backlog is nearly 5,000 units by projecting the statistics given in population census 1998 and random verification through socioeconomic survey 2013. If the backlog remains continue with the same proportion, it is estimated that 28,000 additional housing units will be required by 2020, which will increase up to 75,000 by the end of plan period i.e. 2035. However, this backlog is not the good sign for the city as it is observed that the most of the requirement is fulfilled by the growing slum areas. These slum areas are providing the shelter to the middle, lower, middle and working class of the City but it is creating a burden on the City as a whole. All services, utilities, public amenities even public properties are at stake and their conditions are worsening due to extraordinary load. Sukkur being the third largest city and the gateway to Sindh Province is the economic hub, has the potential and demand for more housing for its inhabitants and future expected migrants. There is a segment of urban poor who cannot afford the available housing opportunities.



Figure 2-6: An aerial view of Sukkur Housing Units

In addition, census exercise for the city has been undertaken in 1998.

- The Census data of Sukkur 1981 shows that in Sukkur Taluka, the density per sq. km was 2,516 (10.2 / acre) but it was reduced in 1998 to 1,366 persons per sq. km. It is due to the expansion of area in administrative boundary of Sukkur Taluka that has increased from 91 sq. km to 274 sq. km.
- It was being recommended that the public or private sector, both should minimize backlog, but no concrete actions have been witnessed.
- There were recommendations that low-income groups should be targeted to provide better housing facilities, but it also could not be implemented. Only the private sector has contributed its effort to cater for some housing backlog.
- There had been an over provision of plots for upper and middle-income groups. One of the basic problems had been the wrong targeting.

The current housing situation in Sukkur is not much different from the national scenario. However, it is observed that its severity is not as high as in other big cities. A significant percentage of the urban population and the majority of the rural migrants live in appalling living conditions and there is a shortage of adequate and affordable housing units. Furthermore the deficit still continues to increase as more shelterless population is forced to live in deplorable conditions.

The following are the generalized and specific issues of the housing sector as noted in case of Sukkur:

- The households below the poverty line have remained neglected.
- Inadequate supply of developing affordable land and its skyrocketing prices is making housing ownership beyond the affordability limits of the majority of the population. Related barriers include poor land administration with inadequate legal and regulatory systems, and high cost of property transactions.
- An overemphasis on Katchi Abadis regularization has encouraged further encroachments. Slum areas are mostly encroached public land, which have halted the functions of that

particular land, e.g. Land of railway is totally occupied by encroachers and may not be restored for resuming the service

- Limited supply of housing finance, with weak mortgage collateral, does not encourage institutional credit based housing development.
- Low public confidence in the housing development industry.
- Due to the transitional period, the Sukkur Municipal Corporation lacks required skills to effectively manage the urban growth, provide basic utility services, and maintain the infrastructure, especially in low-income areas.
- Lacks of comprehensive planning at local level without effective co-ordination between various Government departments, development agencies and other bodies has impeded housing development.
- Housing and other basic civic services are generally sub-standard in Sukkur. The problem multiplied with increased of population in urban areas. Despite the quantitative increase in the housing stock over successive decades, the housing situation in Sukkur continues to be unsatisfactory.
- The gap in demand and supply of housing stock has increased, causing overcrowding in existing housing colonies and the formation of slums. The situation is worst for low-income groups. Average annual population growth rate of Sukkur Urban is 3.38 percent. This rapid pace of urbanization has put enormous pressure on the urban land, housing markets, resulted in deterioration of environmental living conditions increased health hazards, rapid growth of slums, squatter settlements, and overcrowding. This is primarily because the supply of housing, infrastructure and services has not expanded in line with the increased demand.
- Inadequate building control
- High rise development without parking provisions

The current situation analysis indicates the following opportunities to be provided on priority basis,

- Low income housing is highly required that will control the growth of the slum areas and stop the further densification of existing slums
- Removal of encroachment is required to reform the urban land use inappropriate manner, which will create the space for scarce amenities such as land for recreation, education, health and other public services
- Specialized zoning and land use laws separately in the CBD and the rest of the city
- Creating more open spaces in the CBD
- Parking Plazas
- Strict land use and building control with relevant technical professionals

#### **2.1.2.1 OWNERSHIP PATTERNS**

The socioeconomic survey has revealed the ownership patterns in Sukkur city. The majority of the population in Sukkur city is living with their parents, the percentage of people who own their houses is very low as compared to the people living on rent. Very few lives on rent free basis. (Table 2-7)

Table 2-7: Housing Units by Tenure

Tenure Status	No.	%
Owner Occupied (Self Hired)	29	3.78
Owner Occupied (Not Self Hired)	605	78.88
On Rent	83	10.82
Subsidized Rent	26	3.39
Rent Free	24	3.13
<b>Total</b>	<b>767</b>	<b>100</b>

Source: Consultant's Socioeconomic Survey of Sukkur, 2013

#### 2.1.2.2 BUILDING AND CONSTRUCTION

Due to very high occupation rate, most of the old building structures are rehabilitated and newly constructed even in the old city area. Due to the high land value and worse law and order situation in newly developed areas, vertical building structures in the city are becoming popular even without any commercialization policy and implementation of building bylaws. Therefore, there is a need of preparing a detailed spatial plan that should narrate the commercialization of the major roads, prohibited areas for vertical structures and plan for urban renewal. According to socioeconomic survey 2013, around 60.5% housing units have been built by using other than proper material like Burnt Bricks, Mud Bricks/Mud, and Wood/Bamboo. RCC / RBC structures belong to 23.08% of the targeted socioeconomic survey. There is a very negligible portion of Asbestos sheets / steel's structure i.e. 3%.

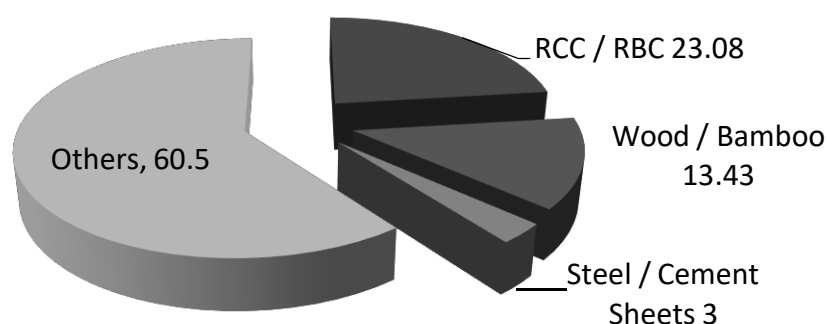


Figure 2-7: Material of Roof

There is a marked variation of percentages of housing units i.e. 86.83% having standard burnt bricks / blocks with cement bonding and 11.99% having walls of un-baked bricks/ Mud bricks in the targeted socioeconomic survey in Sukkur MC.

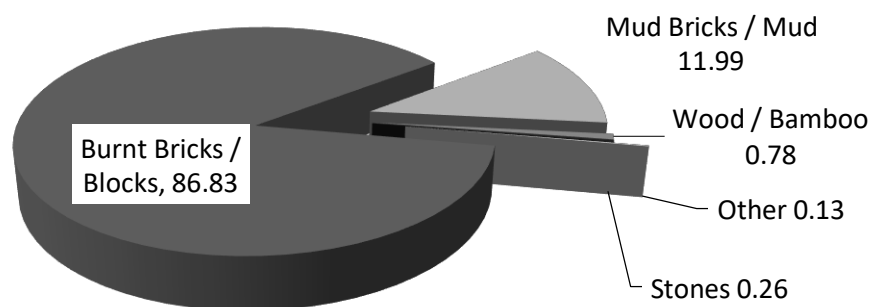


Figure 2-8: Material of Walls

### 2.1.2.3 KATCHI ABADIS IN SUKKUR

Katchi Abadis / Slums settlement is predominantly characterized by shanty construction, un-hygienic conditions and without having appropriate municipal/civic facilities. These are dilapidated, congested, faulty arranged, designed and constructed, and there is a lack of ventilation, light, water and sanitation facilities or a combination of these factors. Hence, these dwellings are detrimental to safety, health and moral norms. These dwellings do not provide safe, decent and sanitary housing. Slum dwellings are usually filthy and vermin infested and open to fire hazard.

Originally 29 Katchi Abadis / Slums were identified as slums within the limits of the Sukkur Municipal Corporation. These slums were spread in various parts of the City. In fact the work of improvement of slums is still pending with SMC, where 15 Katchi Abadis have been notified and 14 are non-notified till to date. In these 29 Katchi Abadis, there are 12,050 dwelling units and if we consider 7.5 household sizes with reference to the 1998 District Census Report of Sukkur then the population could be estimated at 90,375 on an area of over 1,000 hectares. Table 2-8 and Table 2-9 is showing the list, dwelling units and area occupied by each of the notified and non-notified Katchi Abadi.

The physical and social conditions of Katchi Abadis in Sukkur are below satisfactory where they have limited access to all basic amenities and sometime discrimination based on ethnicity has been felt as well. This phenomenon does not belong to Sukkur only, but it is prevailing all over the country. The main reason is the demand because of a backlog of housing, and supply at affordable rates.

Table 2-8: Notified Katchi Abadis

#	Name of Katchi Abadis	Land Transferred to SMC	Balance Land (Hectare)	No. of Dwelling Units
1	Wasapur colony	7.44	3.18	355
2	Baban Shah Colony	9.69	0.71	353
3	Exhibition Colony	7.44	-	240
4	Nusrat Colony.5	39.43	-	1274
5	Nusrat Colony.6	2.61	1.16	250
6	Maki Shah Colony	9.19	2	155
7	Kumbhar Para	2.38	2	276
8	Military Quarter	4.39	13	561
9	Regent Colony	11.43	6.15	286
10	New Goth	5.86	1.92	685

#	Name of Katchi Abadis	Land Transferred to SMC	Balance Land (Hectare)	No. of Dwelling Units
11	Shamsabad colony	17.28	2.23	610
12	Pak Colony	3.27	7.33	205
13	New Pind Colony	3.13	15.5	405
14	Kaan No. 18, 19 and police Head Quarter	259.42	0.57	625
15	Gole Takri Bhoosa Lane	14.33	52.6	1266
<b>Total</b>		<b>397.29</b>	<b>108.35</b>	<b>7546</b>

Source: Sukkur Municipal Corporation, Official Record

Table 2-9: Un-Notified Katchi Abadis

#	Name of Katchi Abadis	Land Transferred to SMC (Hectare)	Balance Land (Hectare)	Dwelling Units Number
16	Nusrat Colony.1	-	2.46	69
17	Nusrat Colony.2	-	1.48	66
18	Nusrat Colony.3	-	1.35	97
19	Nusrat Colony.4	-	10.66	255
20	Makhdoom Jumani	-	9.32	301
21	Adam Shah Colony	-	34.26	1174
22	Shah Faisal	-	15	300
23	Bashirabad	-	38	1140
24	Shaikh Colony	-	16	282
25	Mir Bahar Colony	-	20	503
26	Islam Nagar Colony	-	2.69	-
27	Bhittai Naghar Colony	-	1.25	-
28	Eid Gah Colony	-	1	200
29	Soomar Shah Colony	-	2	117
<b>Total</b>		<b>-</b>	<b>155.47</b>	<b>4504</b>

Source: Sukkur Municipal Corporation, Official Record 2013

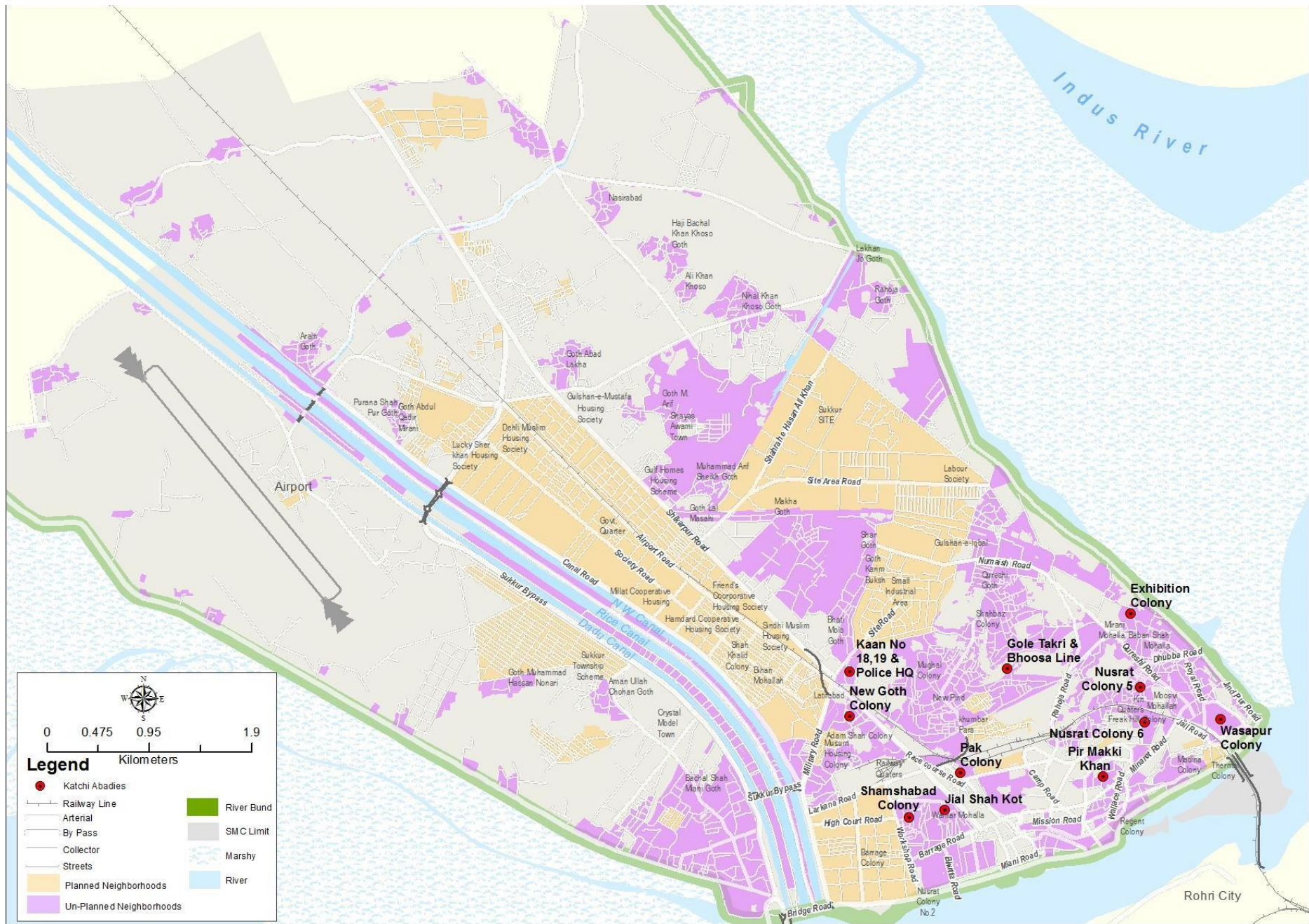


Figure 2-9: Map of Notified Katchi Abadis

### 2.1.3 HEALTHCARE FACILITIES<sup>b</sup>

According to the statistics collected from District Health Office, overall public health care situation is alarming, which can be understood through the Table 2-10. The most vulnerable situation is related to the mother and child health.

Table 2-10: District Health Indicator

Indicator	Current value
Antenatal care received at public sector facility	26%
Pregnant women who receive TT vaccine	55%
Deliveries taking place in public sector facilities	10%
Deliveries conducted by a skilled birth attendant	48%
Postnatal care received at public sector facility	13%
Children 12-23 months old fully immunized	71%

Land use analysis indicates that healthcare facilities are built on 62 acres (0.54%), which is also less than the required planning standard (2-3%). Besides the coverage in land use, Sukkur City is lacking health units, bed strength and medical and paramedical staff per capita. There is a critical requirement of the health facilities in Sukkur City.

#### 2.1.3.1 PUBLIC HEALTHCARE FACILITIES

Rapid population growth has put a high pressure on health services and facilities. Available facilities are insufficient and spatially placed improperly. Lack of knowledge of personal hygiene, improper community sanitation, impure and insufficient water supply; and deficient systems for refuse disposal have caused high morbidity and mortality rates.

There is a general hierarchy of health care facilities throughout the country. It is not comprehensive and most rural areas rely heavily on the big cities for general as well as specialized health coverage. However, there is a dire need to change this centralized system towards doorstep health facilities at least for general health coverage specific to that particular area.

The medical coverage is being provided by the Public Health sector in District Sukkur through 120 healthcare facilities (see Table 2-11). There are 452 hospital beds out of which 341 are situated in the secondary care health facilities with a total bed to patient ratio of 1: 2426 and roughly serving about 30% of the population. Surely, the situation is better in Sukkur City, but again, not at par with the desired standards. The major issues associated with the healthcare facilities are lack of medical and para-medical staff (as one indicator, more than 42 senior posts of Medical Officers and Senior Medical Officers are vacant in the District) lack of medical instruments (as one indicator, Not a single CT Scan facility is available in public sector in the District) Deteriorated condition of buildings. Government of Sindh is investing a lot of resources in public health care, but it still needs careful attention of all stakeholders. The Table 2-11 is showing the healthcare facilities distributed within Sukkur City.

<sup>b</sup> Updated Healthcare Facilities of Sukkur District are in the Addendum - page nos. 04-05

Table 2-11: Health Facilities by Type in Sukkur District

Type	Healthcare Facilities		
	District Govt.	PPHI	Total
Dist. Govt. Hospital (Teaching)	1	-	1
Taluka Hospital	2	-	2
Rural Health Centre	3	-	3
Basic Health Unit	-	26	26
Dispensaries	11	7	18
MCH Centre	-	1	1
Maternity Home	4	-	4
Urban Health Unit	1	-	1
Leprosy Clinic	1		1
Unani Shifa Khana	1		1
Experimental Dispensaries	61	-	61
SIUT	1	-	1
<b>Total</b>	<b>86</b>	<b>34</b>	<b>120</b>

PPHI = People's Primary Health Care Initiative

Source: District Health Office, Sukkur

In Sukkur, there is one 305-bed hospital, which receives health care users directly and from lower level health facilities including THQ hospitals provide specialist care. Now DHQ has been linked to Ghulam Muhammad Mehar Medical College, Sukkur as a teaching hospital facility. In addition to DHQ an under construction hospital of 300 beds is a good addition to the existing health care facilities. However, its proper commencement will be started at least in 2015-16. SIUT, Sukkur is also functional since 2009, SIUT unit provides outpatient facilities, dialysis, surgery, radiology, laboratory and lithotripsy. SIUT, Sukkur caters to the patient who previously had to travel to Karachi to avail treatment from Balochistan, Punjab and lower part of Sindh.

### 2.1.3.2 ASSOCIATED HEALTHCARE PROGRAMS

There are a number of initiatives being implemented in Sukkur, both in public as well as private/NGO sector. Among the Government initiatives are People's Primary Health Care Initiative, EPI, National Program for Family Planning and Primary Health Care, and T.B DOTS program.

- People's Primary Health Care Initiative is a public private partnership program between SRSO/PPHI & Government of Sindh whereby the Government has agreed to transfer management of BHUs, Dispensaries, and MCH Centers along with existing budgetary share to SRSO/PPHI. The Program was started initially in first five districts and later on, extended to the seventeen districts of Sindh including Sukkur. In Sukkur District PPHI is looking after 34 Primary Health Care Units including 26 Basic Health Units, 07 dispensaries, and 01 Mother-Child Health Centre.
- District Superintendent of Vaccination (DSV) under the supervision of the DO Health manages the EPI in the District. DSV is supposed to coordinate and supervise the activities of the EPI at all fixed centers and outreach teams.
- National Program for Family Planning and Primary Health Care provides the missing linkage between health care outlets and health service users. The linkage is provided through a network of Lady Health Workers (LHWs), who are specially trained in PHC, family planning

and community organization. There are 2150 sanctioned positions of LHWs, out of which 190 are lying vacant in the District. Through this program, LHWs are providing coverage to almost 85% of the total district population.

- T.B DOTS program was started in April, 2004. Training of doctors has been completed whereas only 50% of the paramedics and microscopists have been trained so far.
- Major services offered by the District Population Welfare Office include Family Planning, Maternal Care, Child Care and General Health Care Services. These services in District Sukkur are offered through one RHSC-A, 3, (three) RHSC-B, 2 (two) mobile service units and 20 (twenty) family welfare centers.
- A District Health Development Center (DHDC) was established in Sukkur in 1998 at the DHO Office under the World Bank-assisted Second Family Health Project to provide pre/in-service trainings and other research and development activities.

### 2.1.3.3 PRIVATE SECTOR HEALTHCARE FACILITIES

Due to lack of facilities and quality services at Government Healthcare Infrastructure, the private sector is more active. According to the survey conducted by the Consultants, there are 44 private sector healthcare service providers involved in delivering health services in District Sukkur especially in urban areas. List of private sector health care providers has been given in Table 2-12.

Table 2-12: List of Private Care Providers

	Names of Health Centers	Addresses	Category of Health Centers
1	Marie Stopes Society, Sukkur	Near Bata Shop, Bhutta Road, Sukkur	NGO
2	Shifa Clinic	Barrage Township, Sukkur	Hospital
3	Marvi Clinic	Munir Hotel, Barrage Road, Sukkur	Clinic
4	Hira Medical Center	Barrage Township, Sukkur	Clinic
5	Bachal Shah Dispensary	Near Al Faisal Medical Centre, Sukkur	Clinic
6	Regional Training Institution	Military Road, Near Tcs Head Office, Sukkur	Institution
7	Al-Raiz Clinic	Sharfabad Colony, Near Central Jail, Sukkur	Clinic
8	Hussain Shahzad Clinic	Bhutta Road, Sukkur	Clinic
9	Ali Clinic	Maqam Rd, Gharibabad, Sukkur	Hospital
10	Anwar Paracha Hospital	Near Humayon Gymkhana Sukkur	Hospital
11	Saeeda Hayyat Clinic	Ibrahim Gali Hanfia Masjid, Garibabad, Sukkur	Clinic
12	Ramsha Clinic	Garibabad, Sukkur	Clinic
13	Aashir Clinic	New Pind, Sukkur	Clinic
14	Mrs Sabir Clinic	Station Sukkur	Clinic
15	Falahi Markaz for Zacha Bacha	Opp/Elementary College Site Area Sukkur	Maternity Home
16	Chachar Clinic and Maternity	Bihar Colony, Doctors' Colony Sukkur	Clinic
17	Sadat Clinic	Airport Road Sukkur	Clinic
18	Arooba Clinic	New Goth, Near United Bakers, Sukkur	Clinic
19	Bab-E-Shifa Clinic	Opp/Sodagran Hospital Neem Ki Chari Sukkur	Clinic
20	Nayab Clinic	Qureshi Rd, Old Sukkur	Maternity Home
21	Fahad Clinic	Near Regent Cinema, Queens Road. Sukkur	Clinic
22	Noor-E-Mustafa Clinic	Dubba Road, Old Sukkur	Clinic
23	Ikhlaque Clinic	Qurashi Road, Old Sukkur	Clinic
24	Municipal Dispensary	Shahi Bazar, Near Jinnat Building, Old Sukkur	Hospital
25	Public Health School Sukkur	Civil Hospital, Sukkur	Institution

	Names of Health Centers	Addresses	Category of Health Centers
26	Huma Health Care Center	Opp Allahwala Masjid, Bunder Road Sukkur	Clinic
27	Sonia Clinic	B-1639 Bunder Road, Sukkur	Clinic
28	Nimrah Clinic	Nusrat Colony, No 4 Miyani Road, Sukkur	Clinic
29	Shafi Clinic	Near Bhv Bagarji, Doctors' Colony Bagarji	Maternity Home
30	Family Welfare Clinic	Lakhi Ghulam Shah	Clinic
31	Lakhi Hospital	Main Road, Lakhi	Hospital
32	Hafsa Noor Clinic	Memon Mohalla, Lakhi Road, Lakhi	Clinic
33	Memon Clinic	Memon Mohallah, Rohri, Sukkur	Hospital
34	Noor Clinic	Near Rohri Cement Works, Rohri	Hospital
35	Taluka Hospital (RHC)	Main Road, Rohri	Hospital
36	Baloch Clinic	Main Road, Rohri	Clinic
37	Cement Factory Rohri	Rohri Cement Factory, Rohri	Hospital
38	Saad Clinic & Maternity	Jamia Masjid Road, Panoaqil	Clinic
39	Sakhi Baba Charitable H	Mander Gali Ausda Ram, Panoaqil	Hospital
40	Taluka Hospital	Station Road, Panoaqil	Clinic
41	Aina Clinic	Near Jamma Masjid, Panoaqil	Clinic
42	Shah Zaib Clinic	Near Taluka Hospital, Panoaqil	Clinic
43	Al-Shifa Clinic	Dadlooi Basic Health Unit, Dadloi, Panoaqil	Clinic
44	F W C Kandhra	Near Jamia Masjid, Kandhra	Clinic

Source: District health profile Sukkur, 2005 and Field Survey, 2013

## 2.1.4 EDUCATION<sup>c</sup>

The education sector has a large network of its schools in the entire District Sukkur. There are about 1,227 schools, including Primary, Middle, Secondary and Higher Secondary Government schools. Out of which 380 of the boys, 221 for girls and 626 are co-education (boys & girls) schools. There are private sector schools registered with the Government. The literacy rate in the District was 46.62% in 1998, which has increased up to 58%, according to the District Department of Education.

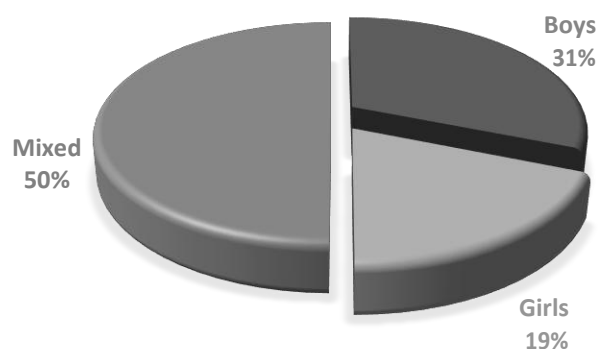


Figure 2-10: Educational Institutions by Gender in Sukkur District

Source: SEMIS Census 2010 – 2011, Sukkur District Education Profile

### 2.1.4.1 SCHOOL EDUCATION

There are 72 schools in Sukkur as per the SEMIS in various Union Councils. Table 2-13 show the list of all the schools. There are 14 boys, 18 girls, and 40 mixed (co-education) schools in Sukkur. There are 46 primary schools, 10 elementary, 15 high, and only one is a higher secondary school in Sukkur.

Table 2-13: List of Schools in Sukkur City

	UC NO.	Union Council Name	Mohalla	School Name and Address	Level	Gender
1	1	Ji-e-Shah	WALI ROAD, SEC 7	GBPS. TAMEER E NAU - TAMEER-E-NAU WALICE ROAD SUKKUR	Prim	Boys
2			WASPUR	GBPS. WASPUR - WASPUR SUKKUR	Prim	Boys
3			ISLAM COLONY	GBPS. AGHA BADRUDDIN COLONY SUKKUR - PO SUKKUR SECOND SHIFT OF	Prim	Mixed
4			THERMAL COLONY	GGPS. MODEL - THERMAL COLONY SUKKUR	Prim	Mixed
5			JAIL	GBPS. DISTRICT JAIL – DISTT. JAIL SUKKUR	Prim	Mixed
6			HUSSAINI ROAD	GBELS. GHARIBABAD - HUSSAINI ROAD GHARIBABAD	Elem	Mixed
7			MANZIL GAH ROAD	GBHS. TAMIR-E-NAU - MANZIL GAH ROAD SUKKUR	High	Boys
8			OLD SUKKUR	GBHS. MPL HIGH SCHOOL OLD SUKKUR - NEAR TANGA STANDOLD SUKKUR	High	Boys
9	2	Mir Masoom Shah	SUKKUR	GBPS. QADRIA RIZVIA - BABUR BAZAR THALLA SUKKUR	Prim	Boys
10				GGPS. QADIR RIZVIA - BANDAR STATION SUKKUR	Prim	Mixed
11			SUKKUR	GGPS. LIAQUAT MEMORIAL SUKKUR - NEAR GPO APWA CLUB SUKKUR	Prim	Mixed
12			HAMDARD SOCIETY	GGPS. QADRIA RIZVIA - SUKKUR	Prim	Mixed
13			SECTOR 7	GBPS. ISLAMIA WALICE ROAD SUKKUR - WALICE ROAD SUKKUR	Prim	Mixed
14			RAMCHAND STREET	GBPS. ISLAMIA BUNDAR STATION - SUKKUR	Prim	Mixed

<sup>c</sup> Updated Education sector of Sukkur District is in the Addendum - page nos. 08-26

	UC NO.	Union Council Name	Mohalla	School Name and Address	Level	Gender
15			BABAR BAZAR	GBELS. QADRIA RIZVIA - BABUR BAZAR THALLA SUKKUR	Elem	Boys
16			SUKKUR	GBHS. FARAN - (N) FARAN HIGH SCHOOL SUKKUR	High	Boys
17			NEEM KI CHARI	GGHS. DMB - SHAH FAISAL MOSQUE MINARA ROAD SUKKUR	High	Girls
18			MOCHI BAZAR	GGHS. ISLAMIA GHAT SUKKUR - MOCHI BAZAR	High	Girls
19			NEEM KI CHARI	GGHS. M.P.L. - M.P.L OPPOSITE GPO. SUKKUR	High	Girls
20			SUKKUR	GGHS. M.K HIGH SCHOOL - OPPOSITE DC OFFICE	High	Mixed
21	3	Shaheed Ganj	BAGH HAYAT ALI	GBPS. ISLAMIA - BAGH HAYAT ALI SHAH SUKKUR	Prim	Boys
22			SUKKUR	GGPS. BAGH E HAYAT SHAH - SHAIKH SHI ROAD ALI SHAH SUKKUR	Prim	Mixed
23			BUNDER	GGPS. ISLAMIA GHAT - RAILWAY PHATTAK BUND. ROAD SUKKUR	Prim	Mixed
24			SUKKUR	GGPS. MAQBOOL UNAISA BHAG HYAT - GGNS MAQBOOLUNNI SSA SUKKUR	Prim	Mixed
25			BAGH HAYAT ALI	GBPS. BAGH HAYAT ALI SHAH - BAGH HAYAT ALI SHAH, SUKKUR	Prim	Mixed
26			BAGH HAYAT ALI	GBPS. GHOSIA RIZVIA MIANI ROAD - BAG HAYAT ALI SHAH	Prim	Mixed
27			SABA	GBPS. PIARO KHARAS @ SABA - SABA P.O. BAGARJI SUKKUR	Prim	Mixed
28			BAGH HAYAT ALI SH	GBELS. MUSLIM ELEMENTARY SCHOOL - BAGH HAYAT ALI SHAH SUKKUR	Elem	Boys
29			Sukkur	GGELS. BAGH-E- HAYAT ALI SHAH - SHAIKH ALI ROAD	Elem	Girls
30			SHAHEED GUNG S.2	GBELS. NEW ERA MIDDLE SCHOOL SUKKUR - SHAHEED GUNG SUKKUR	Elem	Mixed
31			SHAHEED GANJ	GBHS. ISLAMIA - SHAHEED GANJ SUKKUR	High	Boys
32	4	Shaikh Sheen	NUSRAT COLONY	GBPS. SHOUKAT UL ISLAM - NUSRAT COLONY NO-4 SUKKUR	Prim	Mixed
33			NUSRAT COLONY	GBPS. NUSRAT COLONY NO 4 - NUSRAT COLONY NO-4. SUKKUR	Prim	Mixed
34			NC NO.4 SUKKUR	GBELS. GELS SHOUKAT UL ISLAM SUKKUR - NUSRAT COLONY NO. 4 SUKKUR	Elem	Mixed
35			BAGH HAYAT ALI	GBHS. ISLAMIA BAGH HAYAT ALI SHAH - BAGH HAYAT ALI SHAH SUKKUR	High	Boys
36	5	Adam Shah / Barrage Colony	SHAH FAISAL COLON	GBPS. SHAH FAISAL COLONY SUKKUR - H.M. SHAH FAISAL COLONY, SUKKUR	Prim	Boys
37			SUKKUR	GGPS. NEW GOTH ADAM SHAH - SHAH COLONY SUKKUR	Prim	Girls
38			BALUCH COLONY	GGPS. BARRAGE COLONY GG PC PRIMARY SCHOOL BERAJ COLONY SCHOOL Sukkur	Prim	Girls
39			ADAM SHAH COLONY	GGPS. ADAM SHAH COLONY SUKKUR - ADAM SHAH COLONY SUKKUR	Prim	Girls
40			ADAM SHAH COLONY	GBPS. RAILWAY SLEEPER FACTORY - NEAR C.S.F SUKKUR	Prim	Mixed
41			SUKKUR	GBPS. ADAM SHAH COLONY - H.M GPS ADAM SHAH COLONY SUKKUR	Prim	Mixed
42			JAGERANI MOHALLA	GBPS. SHAMS ABAD - JAGERANI MOHALLA SUKKUR	Prim	Mixed

	UC NO.	Union Council Name	Mohalla	School Name and Address	Level	Gender
43			BARRAGE COLONY	GBPS. BARRAGE COLONY - BARRAGE COLONY	Prim	Mixed
44			ADAM SHAH COLONY	GGELS. ADAM SHAH COLONY SUKKUR - ADAM SHAH COLONY SUKKUR	Elem	Girls
45			BARRAGE COLONY	GBHS. DOUBLE SECTION - BARRAGE COLONY SUKKUR	High	Boys
46			BERAJ COLONY	GGHSS. BARRAGE COLONY HIGHER SECONDARY SCHOOL - BERAJ COLONY	High. Sec	Girls
47			SUKKUR	GGPS. GHARIBABAD NO.3 SUKKUR - COLLEGE ROAD SUKKUR	Prim	Girls
48			SUKKUR	GGPS. ISLAMIA OLD SUKKUR - ROYAL ROAD SUKKUR	Prim	Girls
49	6	Shamsabad	SHAMSABAD	GGPS. SHAMSABAD SUKKUR - SHAMSABAD SUKKUR JAGERANI MOHALLA	Prim	Mixed
50			WARITAR SUKKUR	GBPS. MADINA COLONY SUKKUR - SUKKUR	Prim	Mixed
51			BHUTTO ROAD SUKKUR	GBPS. ACHAR GHITTI SUKKUR - MUSTAFA COLONY	Prim	Mixed
52			SUKKUR	GGPS. NUMAISH COLONY - NUMAISH PARATA	Prim	Girls
53			SUKKUR	GGPS. GHARIB ABAD NO.1 - SUKKUR	Prim	Girls
54			CHAND MASJID TAKK	GGPS. HAJJANI BAKHTAWER SUKKUR - NEAR ANWER PRACHA HOSPITAL Sukkur	Prim	Girls
55			SUKKUR	GGPS. RAILWAY COLONY 1 <sup>st</sup> SHIFT - STATION ROAD	Prim	Mixed
56			SUKKUR	GBPS. MAIN SUKKUR - H.M GPS MAIN SUKKUR	Prim	Mixed
57	7	GHARIBABAD	GHARIBABAD SEAT 2	GBPS. NATIONALIZED ISLAMIA - GHARIBABAD STATION	Prim	Mixed
58			SUKKUR G. ABAD	GGELS. GHARIB ABAD SUKKUR - SUKKUR JHAMANDAS ROAD	Elem	Girls
59			SUKKUR	GBHS. NO.1 SUKKUR - NEAR MASOOM SHAH MINARET SUKKUR	High	Boys
60			SUKKUR	GGHS. AL-FALAH - MASOOM SHAH MINARA ROAD SUKKUR	High	Mixed
61			OLD SUKKUR	GBPS. NUSRAT COLONY NO.6 - OLD SUKKUR	Prim	Mixed
62	8	Pir Illahi Bux		GGHS. SUKKUR - NEAR DIGITAL TELEPHONE EXCHANGE SUKKUR	High	Girls
63			SUKKUR	GGHS. MODERN HIGH SCHOOL SUKKUR - MINARA ROAD	High	Mixed
64			SUKKUR	GGPS. OLD SUKKUR NARISHALA (MAIN) - SUKKUR	Prim	Girls
65			SUKKUR	GGPS. SYEDA FATIMA OLD - OLD SUKKUR	Prim	Girls
66			DEH OLD SUKKUR	GBPS. OLD SUKKUR - OLD SUKKUR	Prim	Mixed
67	9	Old Sukkur	BAGH HAYAT ALI SH	GBPS. ISLAMIA MIANI ROAD - BAGH HAYAT ALI SHAH SUKKUR	Prim	Mixed
68			OLD SUKKUR	GGELS. S.F OLD SUKKUR - OLD SUKKUR	Elem	Mixed
69			OLD SUKKUR	GBELS. ISLAMIA SUKKUR - ROYAL ROAD OLD SUKKUR	Elem	Mixed
70			TANGA STAND OLD	GBHS. MEHRAN OLD SUKKUR - NEAR TANGA STAND	High	Mixed
71	10	Pak Colony	BALUCH COLONY	GBPS. BALUCH COLONY SUKKUR - H.M. BALUCH COLONY SUKKUR	Prim	Mixed
72	11	Kumbhar Para	WARD 6 SECTOR 32.	GBPS. A.D.C COLONY - H.M NEW GOTH SUKKUR	Prim	Mixed

Source: SEMIS, 2013

#### 2.1.4.2 TERTIARY AND HIGHER EDUCATION

Colleges in Sukkur are contributing their efforts to increase the educational level in this area by offering demanding courses and programs. Among the list of colleges/Universities in Sukkur there are 9 colleges and 5 higher institutions like Ghulam Muhammad Mahar Medical College, Sukkur institute of business Administration, the Sukkur institute of science & technology, Dadabhoy Institute of Higher Education which are providing important educational services for the students. Various other educational, government and private institutions are also certifying their role in the education zone to develop the vigorous nation.

These colleges and higher education institutes are insufficient for the region. Being a third largest city of the province and having linkages with more than 50 settlements within 100 km vicinity, it has high potential for higher education. However, due to the lack of higher educational infrastructure it has to depend upon other neighboring cities such as Khirpur, Larkan, Hyderabad and Karachi.

#### 2.1.4.3 VOCATIONAL EDUCATION

The focus of the vocational education is more towards technical skills instead of mere academic knowledge. To impart technical education, there is a network of vocational institutions in all over the province, which are based on polytechnic, mono technique and commercial education. These institutions are not only in Government Sector but also a huge list belongs to private institutions. Government of Sindh is highly concerned with the skill development programs specifically in the youth (from 18 to 35 years of age). A dedicated 'Benazir Bhutto Shaheed Youth Development Program' was initiated in the year 2008, which has trained 162,000 (approx) youth in 386 trades of 89 employable sectors with an objective to facilitate them for employment and curtail poverty. There are 8 Government Vocational Institutes in Sukkur City (see Table 2-14).

Table 2-14: Vocational Training Institutes in Sukkur

Name	Address
Vocational Training Institute	Near Hamid Floor Mills, Shikarpur Road
Government Polytechnic Institute (Women)	Minara Road
Government Polytechnic Institute	Golimar Sukkur
Government Institute of Business & Commercial Education	Minara Road
Government Vocational Institute (Boys)	Minara Road
Government Vocational Institute (Women)	Minara Road
Government Vocational School (Girls)	Old Sukkur
Vocational Training Center	Sukkur

#### 2.1.4.4 EDUCATIONAL LEVELS

The ratio of female education is higher as compared to males as other major cities of Pakistan i.e. 43.08% on primary level, 16.55% in middle level and 20.80% in Matriculation level, whereas males are 33.32% in primary, 14.25% in the middle, and 19.04% in matriculation respectively (Table 2-15).

The government claims to be fully committed to Universal Primary Education (UPE) and Education for All (EFA) up to 2015 to meet the Dakar Goals and MDGs. To achieve this goal, primary education will be made compulsory through legislation and introduction in all primary schools to enhance participation. The MTDF envisages 30,000 additional primary schools in the country. Other key strategies will include vocational / technical streams in 2000 secondary schools and provision of science laboratories and computer education in every school (MTDF 2005-2010).

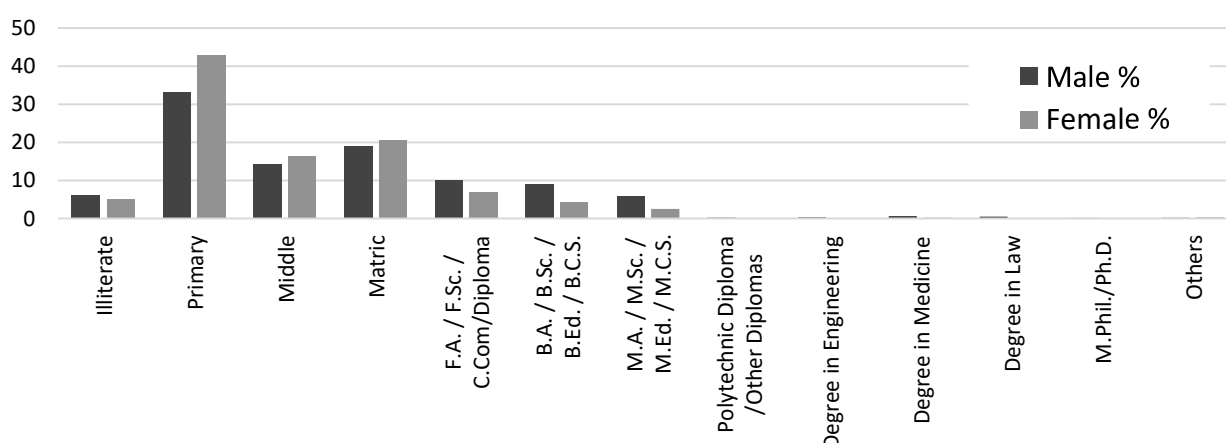


Figure 2-11: Education Level by Gender

Table 2-15: Education Level by Gender

Level of Education	Male		Female		Total	
	No.	%	No.	%	No.	%
Illiterate	160	6.18	112	5.12	272	5.70
Primary	864	33.32	941	43.08	1805	37.78
Middle	370	14.25	361	16.55	731	15.30
Matriculation	494	19.04	454	20.80	948	19.85
F. A. / F. Sc./C. Com/Diploma	266	10.26	152	6.94	418	8.748
B. A. /B. Sc. /B. Ed. /B C S	238	9.19	97	4.42	335	7.01
M.A./M.Sc. /M.Ed. /M C S	151	5.80	55	2.52	206	4.30
Polytechnic Diploma/Other Diplomas	6	0.23	0	0	6	0.12
Degree in Engineering	8	0.31	0	0	8	0.17
Degree in Medicine	17	0.64	4	0.20	21	0.44
Degree in Law	13	0.51	0	0	13	0.27
M. Phil. /PhD	2	0.08	0	0	2	0.04
Others	4	0.14	7	0.33	11	0.23
<b>Total</b>	<b>2595</b>	<b>100</b>	<b>2183</b>	<b>100</b>	<b>4778</b>	<b>100</b>

Source: Consultant's Socioeconomic Survey of Sukkur, 2013

As described above, females are more educated than males. This is reflected again through the table of currently enrolls in any educational institution. (Table 2-16)

Table 2-16: Currently Enrolment at an Educational Institution

	Male		Female		Total	
	No.	%	No.	%	No.	%
Yes	1036	39.92	1003	45.95	2039	42.67
No	1559	60.08	1180	54.05	2739	57.33
<b>Total</b>	<b>2595</b>	<b>100</b>	<b>2183</b>	<b>100</b>	<b>4778</b>	<b>100</b>

Source: Consultant's Socioeconomic Survey of Sukkur, 2013

During the survey, it has been found that most of the children / persons do not want to go to school / institution due to their living status below poverty line (see Table 3-6)

Table 2-17: Reasons for not attending any Educational Institution

Education is Expensive	93
Too Far Flung	8
Poor Quality of Schools	0
Had to Work at Home	919
Had to Help with Work	412
Parents do not Allow	466
Shortage of Male/Female Teachers	7
Ill/Handicapped	73
Too Young/Old	400
Child not Willing	977
Education Complete	33
Education not Useful	16
Marriage/Pregnancy	181
Due to Job or Work	1038
Others	155
<b>Total</b>	<b>4778</b>

Source: Consultant's Socioeconomic Survey of Sukkur, 2013

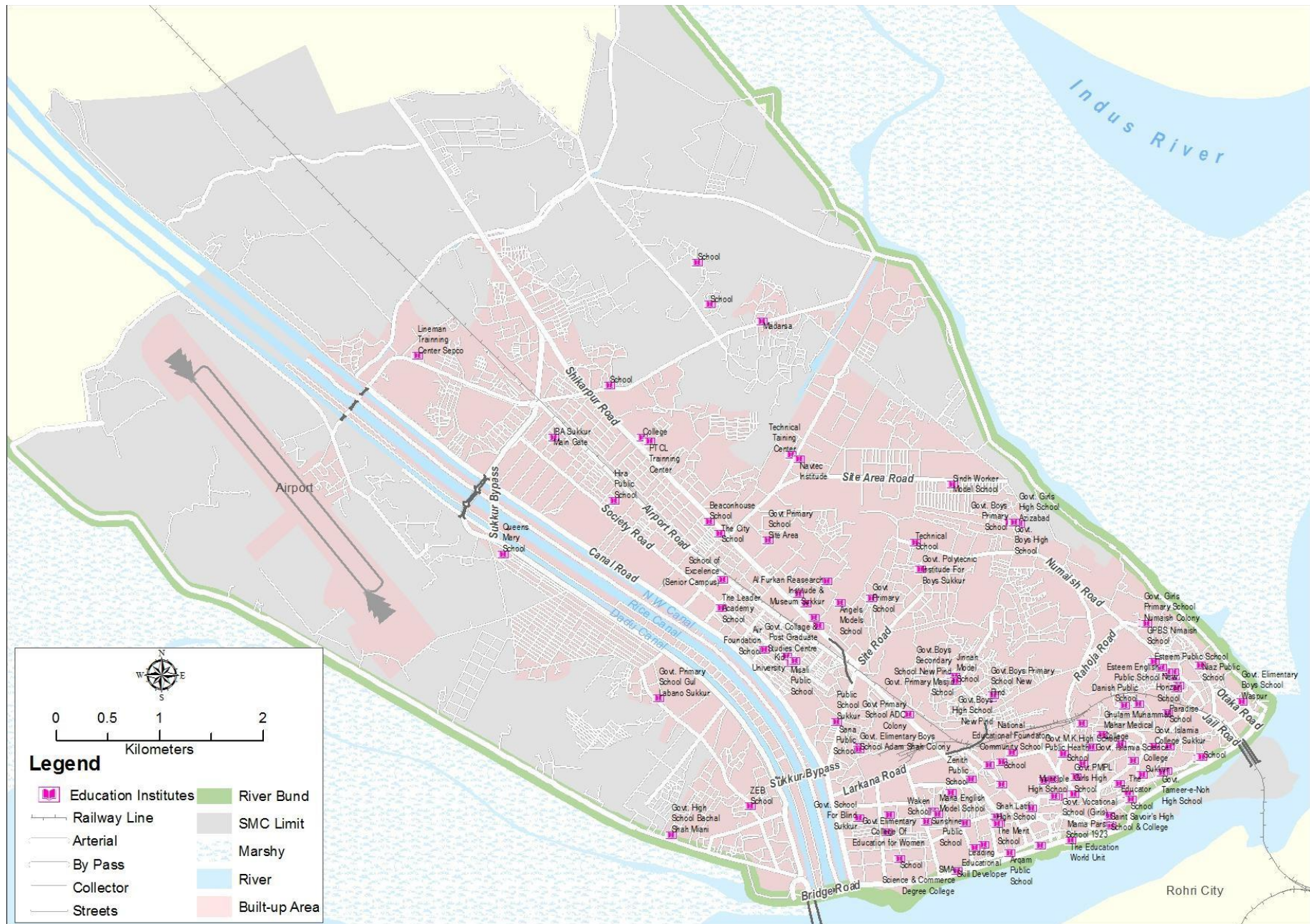


Figure 2-12: Spatial Distribution of Schools in Sukkur City (Sukkur and New Sukkur)

### 2.1.5 RECREATION AND SPORTS

The city is picturesquely situated at the right bank of River Indus with commanding views. Local authorities have developed many gardens on the outskirts of Sukkur which with the passage of time, were either destroyed or brought under residential use. Particularly in New Sukkur, land for parks and playgrounds was reserved in all planned housing schemes. Examples are Lab-e-Mehran Park (18.6 acres) and a number of other open spaces, Khalid Khan Park (8.6 acres), Municipal Stadium (6.6 acres), Municipal Park (5.2 acres) and Walking Track Park (5 acres) are obvious additions to public amenities of Sukkur since independence.

The present recreational area per 1,000 population in Sukkur is only 0.31 acres, which is far below the prescribed standard of national planning (NRM, 1986). It needs to be enhanced further. The provision of such spaces in congested areas of the city is either deficient or devoid of such facilities. The condition in the central old city has been more depressing as compared to new housing schemes developed since 1980s. Figure 2-14 shows the major designated open spaces in Sukkur.

The Table 2-18 provides a list of open spaces, the name of UC where it is located and the area under each of the open space. The Figure 2-13 shows the cumulative area of open spaces in each UC (UCs with no designated open spaces are omitted from the list and figure). Out of 18 UCs, designated open spaces are available in only 12 UCs with maximum area in UC No. 5, and minimum area in UC No. 7 with total area of 104.40 acres, which is less than the required area (according to standards).

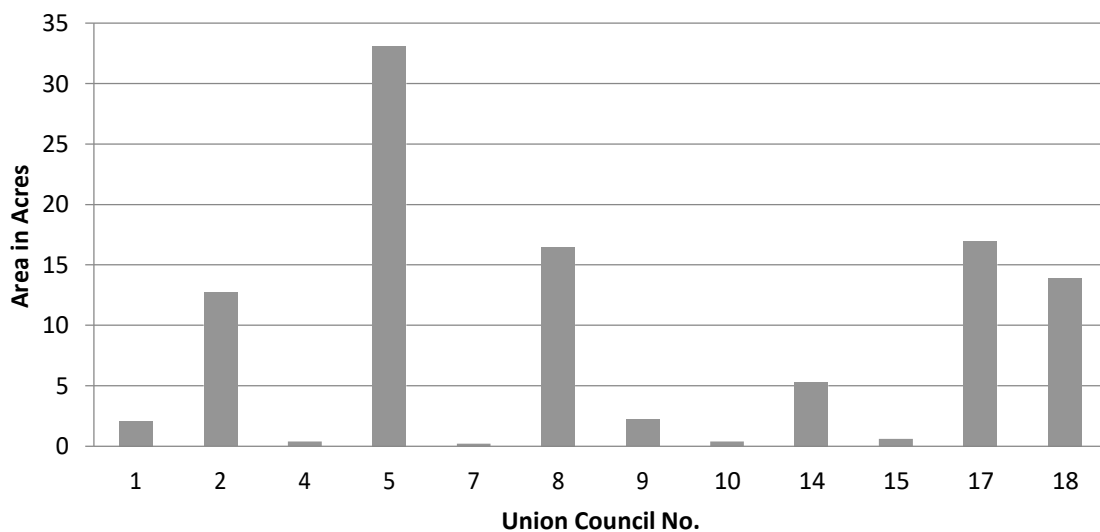


Figure 2-13: Existing Open Spaces Area in Each UC of Sukkur

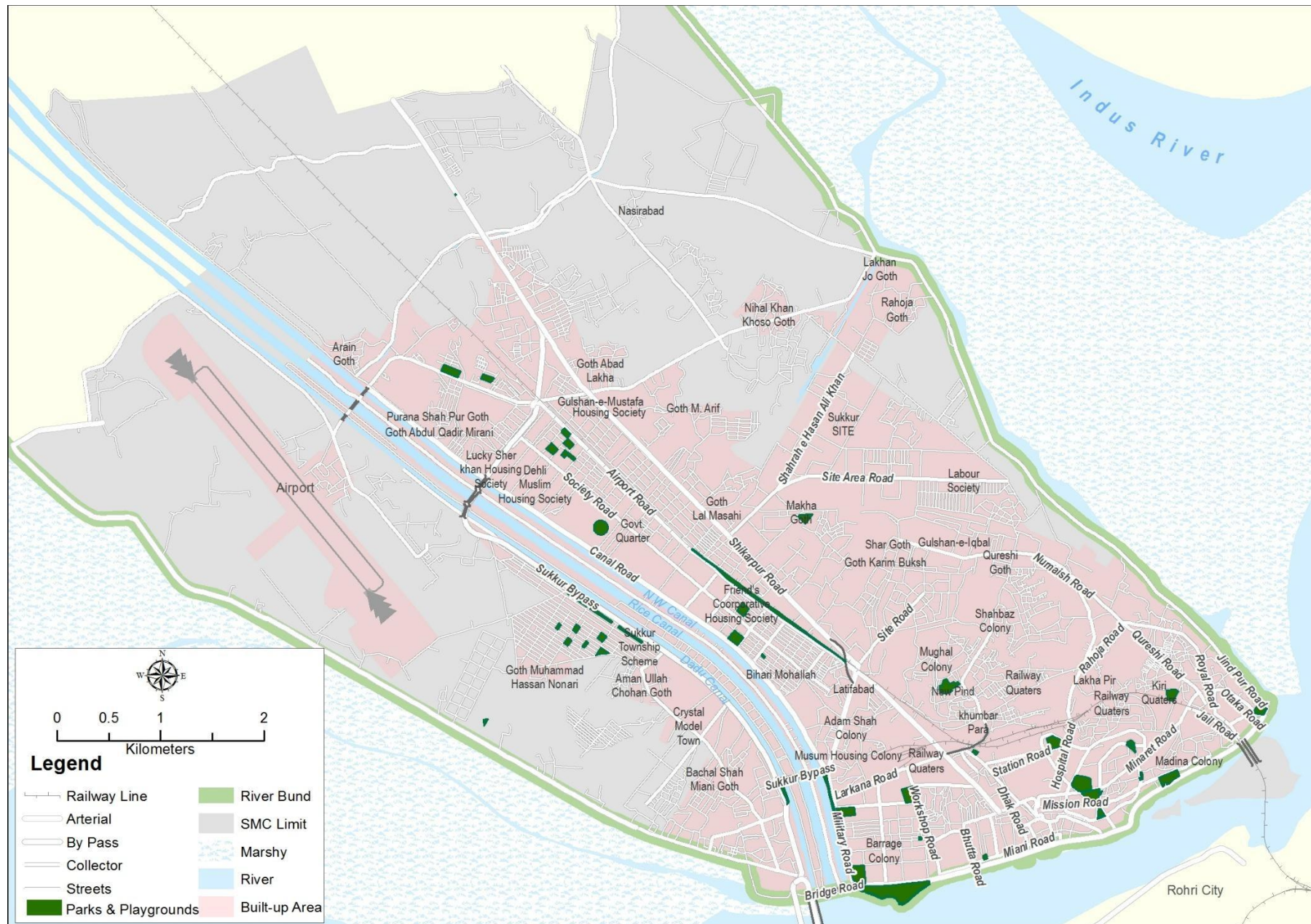


Figure 2-14: Parks and Playgrounds in Sukkur City

Table 2-18: List of designated Open Spaces in Sukkur

	<b>Names</b>	<b>UC No.</b>	<b>Area (Acres)</b>
1	Playground	1	2.1
2	Park	2	4.2
3	Manzil Gah Ground	2	3.6
4	Qasim Park	2	3.4
5	Municipal Children Park	2	0.8
6	Park	2	0.3
7	Park	2	0.2
8	Park	2	0.1
9	Children Park	2	0.1
10	Gaznavi Park	4	0.4
11	Lab-e-Mehran	5	18.6
12	Walking Track Park	5	5
13	Park	5	4
14	Park	5	3.3
15	Park	5	0.7
16	Park	5	0.5
17	Park	5	0.4
18	Park	5	0.2
19	Park	5	0.2
20	Park	5	0.1
21	Park	5	0.1
22	Park	5	0
23	Park	7	0.2
24	Municipal Stadium	8	6.6
25	Park	8	5.2
26	Park	8	3.5
27	Park	8	0.6
28	Park	8	0.6
29	Shah Abdul Latif Park	9	2.2
30	Park	10	0.4
31	Playground	14	3.7
32	Park	14	1.6
33	Park	15	0.6
34	Park	15	0
35	Khalid Khan Park	17	8.6
36	Park	17	3.7
37	Park	17	2.7
38	Park	17	1.8
39	Park	17	0.2
40	Park	17	0
41	Park	18	4.1
42	Park	18	1.3
43	Park	18	1.3
44	Park	18	1.3
45	Park	18	1.1
46	Park	18	1
47	Park	18	1
48	Park	18	0.8

	Names	UC No.	Area (Acres)
49	Park	18	0.7
50	Park	18	0.4
51	Park	18	0.4
52	Park	18	0.3
53	Park	18	0.2
Total			<b>104.4</b>

Source: Consultant's Field Survey

Sukkur Sports Complex has recently been initiated. There will be indoor sports facilities, including badminton, table tennis, basketball, volleyball, weightlifting, boxing, judo, karate. Cricket ground is planned keeping in view the requirements of first-class cricket and there would be space for up to 20,000 spectators. Separately, a synthetic hockey turf is being laid in Sukkur's hockey stadium.

## 2.1.6 LEVEL AND QUALITY OF SERVICES

### 2.1.6.1 SOURCES OF DRINKING WATER

The easy access to potable / safe drinking water is one of the basic human needs. According to the socioeconomic survey, the facility of piped water inside the premises is available to 43.68% of the housing units, whereas 33.51% have motor pump installed in their housing units. It is to be noticed that Hand pump is still being used in Sukkur MC, which has the percentage of 11.47 (see Table 2-19).

Table 2-19: Sources of Drinking Water

Source	#	%
Piped Water (Inside Compound)	335	43.68
Out Door Tap	72	9.39
Hand Pump	88	11.47
Motor Pump	257	33.51
Open Well	2	0.26
River/Stream/Pond/Canal	11	1.43
Other	2	0.26
Total	767	100

Source: Consultant's Socioeconomic Survey of Sukkur, 2013

### 2.1.6.2 DISTANCE TO REACH SERVICES

The socioeconomic survey is evident that the accessibility of municipal services is a major concern and to fulfill the requirement of potable water sample population have to walk a long way, as it is a basic need of life.

The sample population for socio-economic survey is living below the poverty line. To avail the facility they have to reach health facilities by foot, mostly.

Minimum 15 minutes' walk is required to reach the Grocery Shop, public transport terminals/stops, primary schools, and health clinic.

Table 2-20: Distance to reach drinking water

Time (minutes)	On Foot (#)	Mechanized (#)	Total (#)
0-14	739	2	741
15-29	21	0	21
30-44	0	5	5
Total	760	7	767

Source: Consultant's Socioeconomic Survey of Sukkur, 2013

The population is living below poverty line so they travel to the health facilities by foot, mostly.

Table 2-21: Distance to reach health facility

Time (minutes)	On Foot	Mechanized	Non-Mechanized	Total
0-14	608	0	0	608
15-29	133	2	24	159
<b>Total</b>	<b>741</b>	<b>2</b>	<b>24</b>	<b>767</b>

Source: Consultant's Socioeconomic Survey of Sukkur, 2013

Distance to reach Grocery Shop, public transport, primary school and health clinic is largely found within 15 minutes' walk.

### 2.1.7 PROBLEMS PERCEIVED BY PEOPLE

A large percentage of households (about 48%) perceived water supply to be the major problem, followed by sewerage (27%) and Roads (11%); (see Table 2-22). Roads in Commercial areas were ranked as a top priority problem, followed by water supply and sewerage. Households who gave a different opinion about perceived problems were less. They mentioned about school, hospital and gas supply.

Table 2-22: Citizens' Concerns

Problems	Number of households	%
Priority 1: Water Supply	369	48
Priority 2: Sewerage	207	27
Priority 3: Roads & Streets	84	11
Priority 4: School / Hospital	38	5
Priority 5: Gas Supply	23	3
Others	46	6
<b>Total</b>	<b>767</b>	<b>100</b>

Source: Consultant's Socioeconomic Survey of Sukkur, 2013

## 2.2 LAND USE, URBAN MORPHOLOGY AND GROWTH

### 2.2.1 LAND USE

The land use analysis indicates that almost 88% of the earmarks built-up area are in use of urban functions including residential, commercial, industrial, amenities, transportation, parks and playgrounds and areas allocated for residential schemes. The rest of the area is covered by non-urban

land uses such as agriculture, major canals and wasteland (in the form of large size water ponds). The details are given in Table 2-23.

Table 2-23: Distribution of Major Land uses in Sukkur Built-up Limits

#	Urban / Non-urban	Land use	Area	%
1	Urban	Residential	3741	25.67
2		Commercial	179	1.23
3		Industrial	605	4.15
4		Amenities	840	5.76
5		Transportation	1571	10.78
		Special Use	1046	7.18
6		Parks and Playground	99	0.68
	<b>Sub Total</b>		<b>8,081</b>	<b>55.45</b>
8	Non-urban	Agriculture	5596	38.40
9		Water Bodies	897	6.15
	<b>Sub Total</b>		<b>6493</b>	<b>44.55</b>
	<b>Grand Total</b>		<b>14,574</b>	<b>100</b>

Source: Consultant's Field Survey

According to the guidelines provided by the Sindh Cities Improvement Investment Project-03 for land use classifications for level one and two, the resultant analysis are given in Figure 2-16 and Table 2-24.

### 2.2.2 URBAN MORPHOLOGY

Sukkur City represents a mixed urban pattern as it started with random pattern based on the topography. The Old Sukkur City is following the hills and depressions for the alignment of streets and major roads. However, first time Grid Pattern was introduced into Barrage Colony, which is still the trend of new developments. All recent developments are following the linear pattern along the main arterial road with Grid within the housing schemes.

### 2.2.3 SPATIAL GROWTH

The Indus River at three sides bound Sukkur City from North to West. Historically, after spreading of the City from its origin to the nearest limit of River, the city is growing in the direction of north-west along Shikarpur Road (see Figure 2-15 and Figure 2-17). Major factors resulting in incremental growth are the natural population growth, migration from rural hinterlands, emergence of new residential colonies / neighborhoods, and market area.

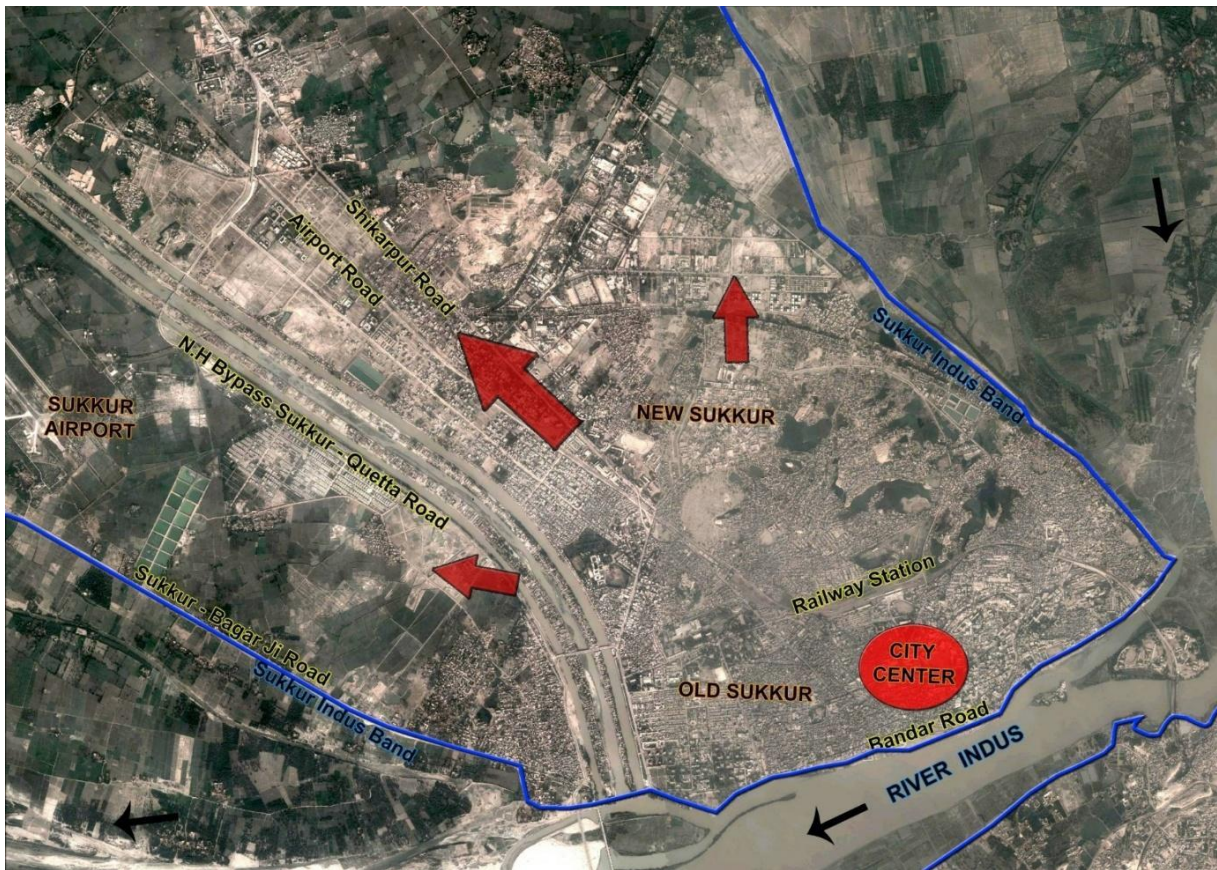


Figure 2-15: Growth Direction of Sukkur City in 2013

Source: Google Earth Historical Archive, 2013

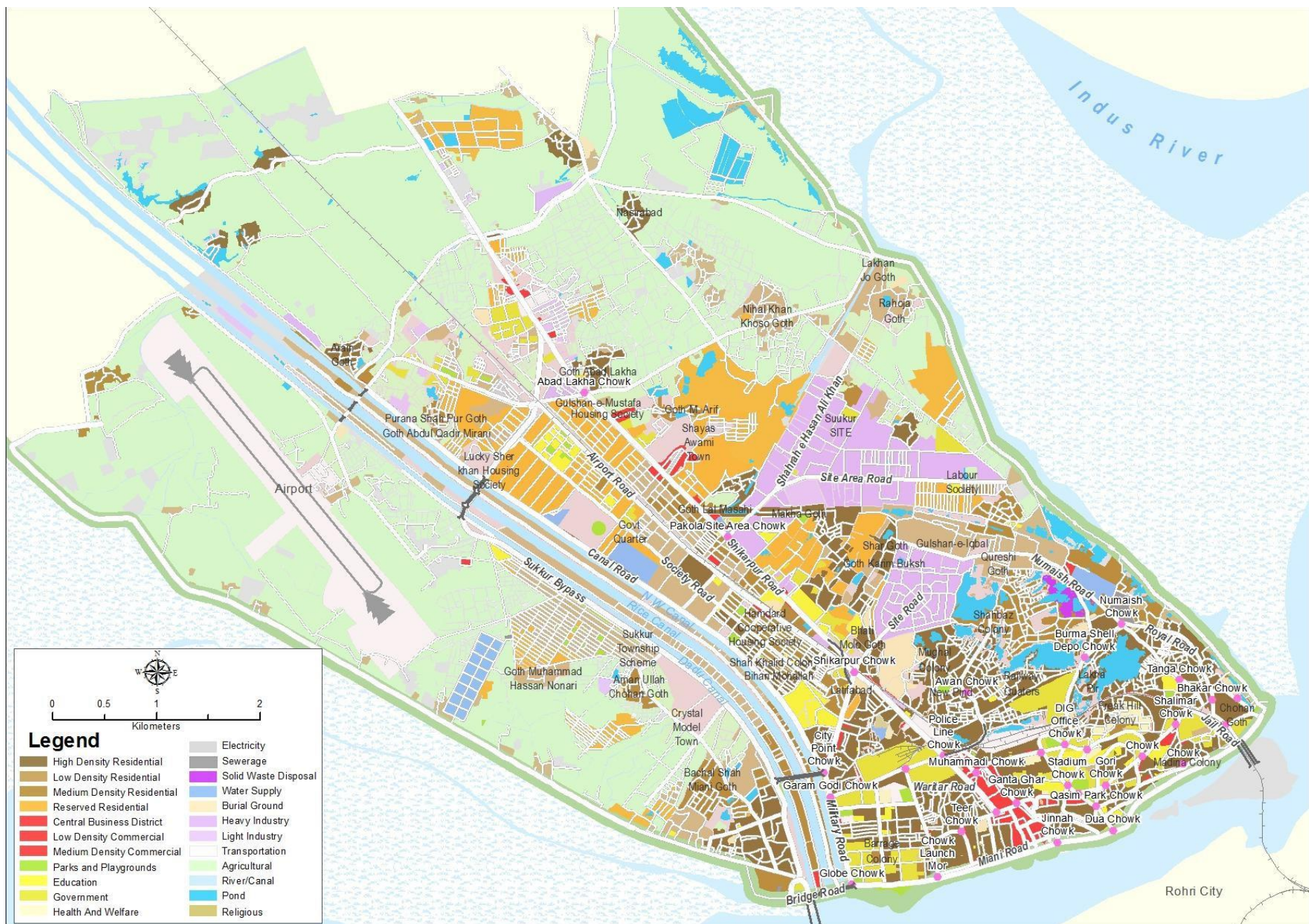
Table 2-24: Detailed Land use Analysis of Sukkur Built-up Area

URBAN / NON-URBAN	LAND USE			AREA		LAND USE STANDARDS	
	LEVEL 1	LEVEL 2	LEVEL 3	ACRES	%	NRM (%)	SBCA (%)
Urban	Residential	Residential	High Density Residential	1325	9.09		55
			Low Density Residential	957	6.57		
			Medium Density Residential	508	3.49		
			Reserved For Residential Purpose	952	6.53		
		Sub Total		3,741	25.67	45 - 52	
	Commercial	Commercial	Central Business District	35	0.24		5
			Low Density Commercial	38	0.26		
			Medium Density Commercial	105	0.72		
		Sub Total		179	1.23	2 – 3	
	Parks and Playground	Parks and Playground	Parks and Playgrounds	99	0.68		10*
			Sub Total	99	0.68	5 – 7.5	
	Amenities	Institutional	Education	174	1.19		3**
			Government	358	2.45		5**
			Health And Welfare	34	0.24		
			Mosque	0	0.00		
			Other Religious	23	0.16		
		Utilities And Municipal Service Facilities	Electricity	10	0.07		
			Sewerage	18	0.12		
			Solid Waste Disposal	19	0.13		
			Water Supply	102	0.70		
		Burial Ground	Burial Ground	102	0.70	2 – 5	
		Sub Total		840	5.76	7.5 - 10	
	Industrial	Manufacturing	Large-Scale Manufacturing/ Heavy Industry	538	3.69		
			Small-Scale Manufacturing/ Light Industry	67	0.46		
		Sub Total		605	4.15		
	Special Use	Special Areas	Vacant	1046	7.18		
			Sub Total	1,046	7.18		

URBAN / NON-URBAN	LAND USE			AREA		LAND USE STANDARDS	
	LEVEL 1	LEVEL 2	LEVEL 3	ACRES	%	NRM (%)	SBCA (%)
	Transportation	Transportation	Transportation	1571	10.78		22*
		Sub Total		1,571	10.78	25 - 30	
	SUB TOTAL (URBAN)			8,081	55.45		
Non-urban	Agriculture And Forestry		Agricultural	5596	38.40		
	Water Bodies		Canal	504	3.46		
			River	10	0.07		
			Pond	383	2.63		
	SUB TOTAL (NON-URBAN)			6,493	45		
GRAND TOTAL				14,574	100.00		

\* represents minimum percentage of land use

\*\* represents 5 % each for parks and playgrounds



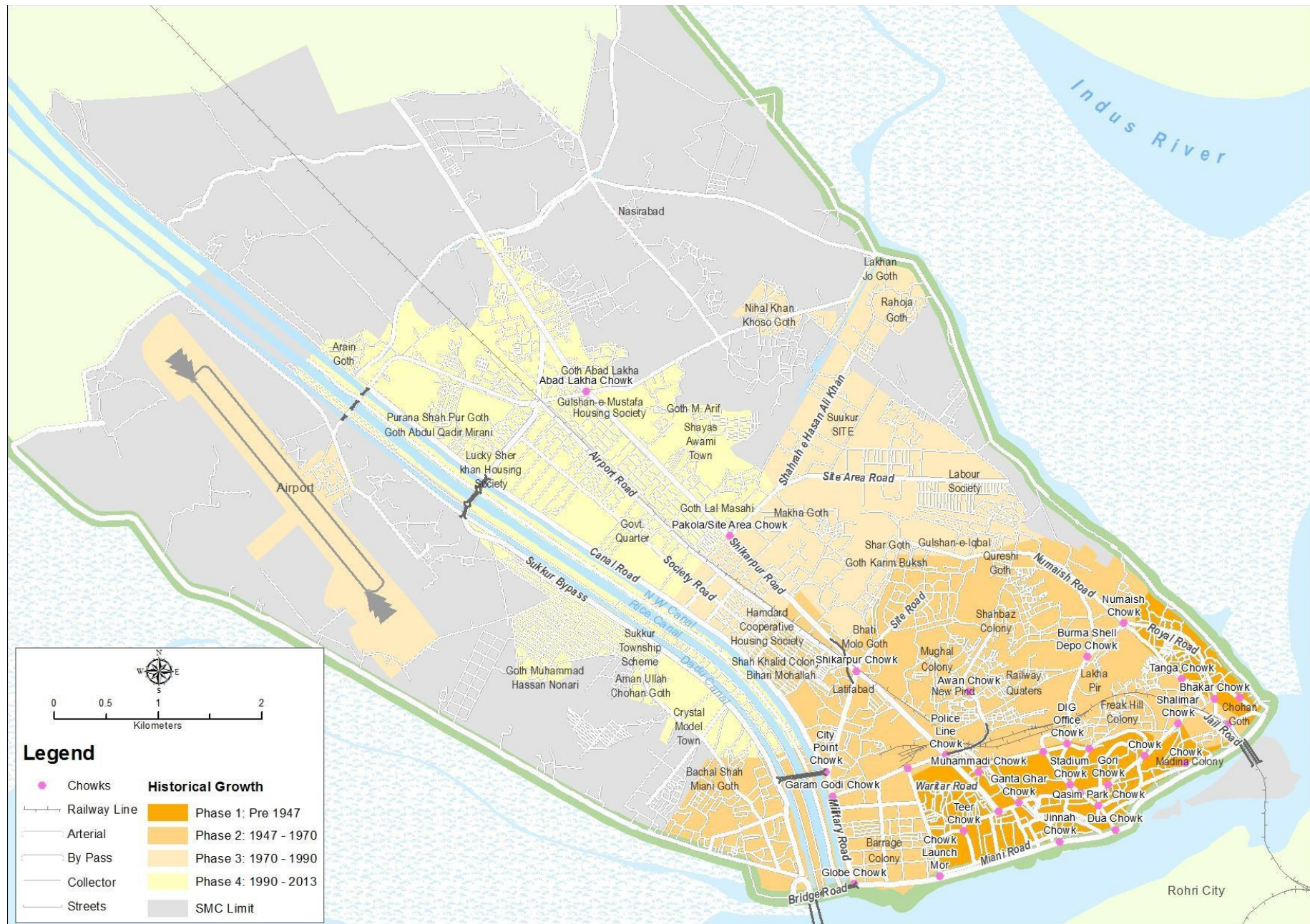


Figure 2-17: Historical Growth of Sukkur City  
(Updated map is at page no 02 of addendum)

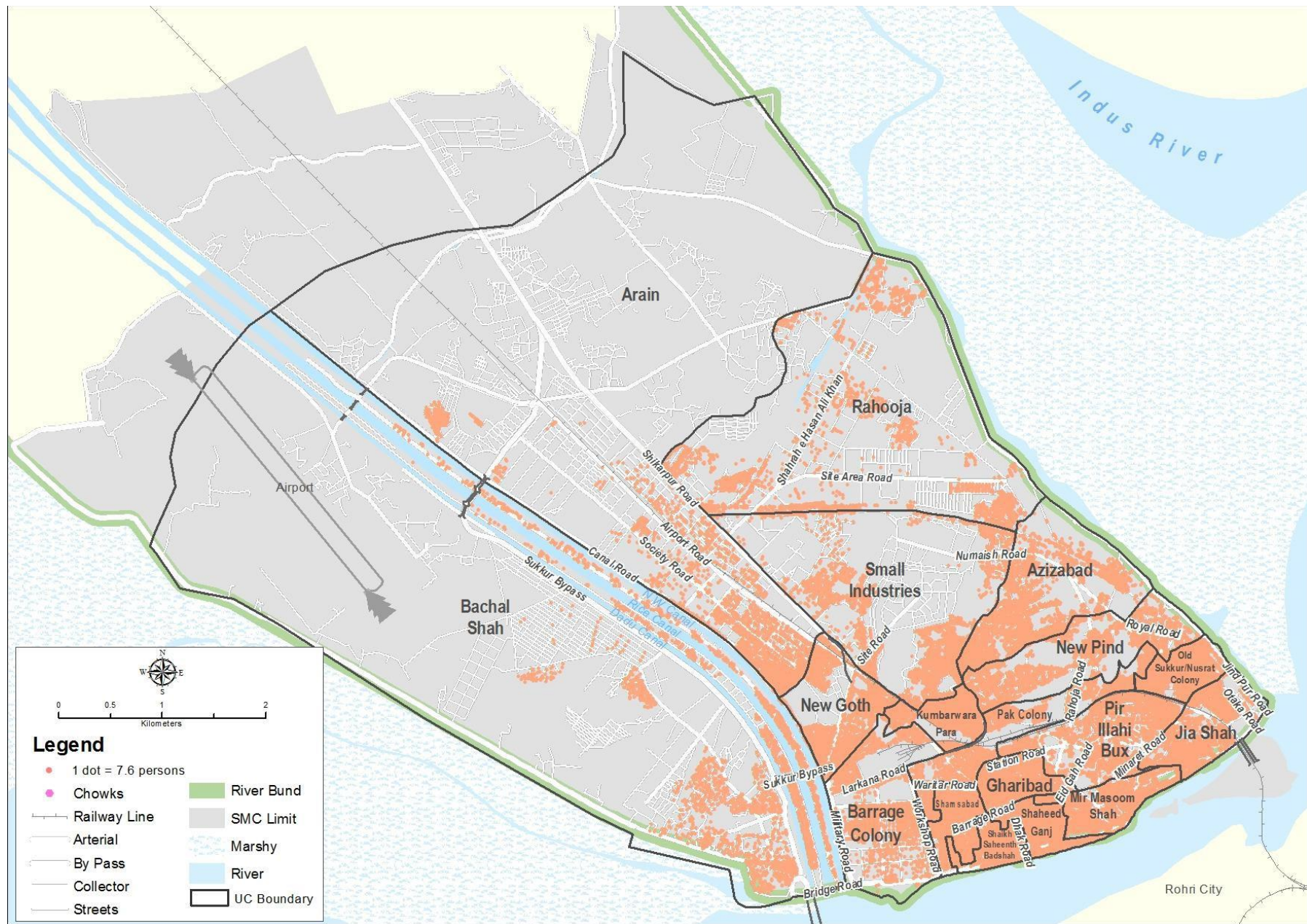


Figure 2-18: Population Distribution in Union Councils of Sukkur

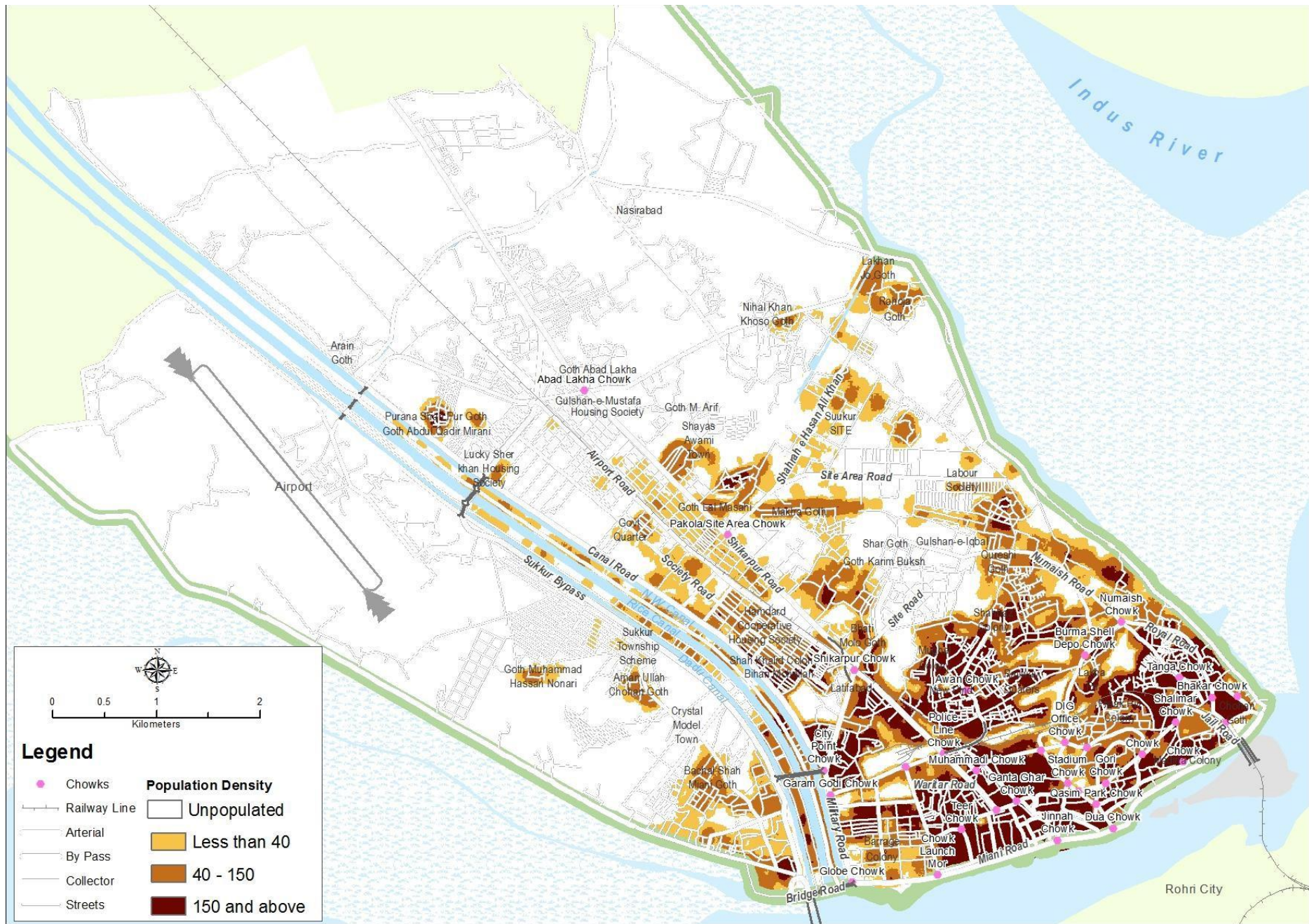


Figure 2-19: Population Density Gradient in Sukkur City

## 2.3 INFRASTRUCTURE

### 2.3.1 WATER SUPPLY<sup>d</sup>

Water supply is declared as one of the essential municipal services, according to Sindh Local Government Act 2013 (SLGA, 2013). NSUSC is performing this task on behalf of SMC. Sukkur has somehow a typical situation in this regard, situated along the right bank of River Indus just upstream of Sukkur barrage. Indus water is the main source of drinking water for the entire city. Scarcity of drinking water is badly felt by the community during dry season.

The water supply problem of Sukkur has been identified a long time ago. The problem aggravates during periods when the gates of the Sukkur barrage are opened for maintenance. At these times, the river level drops so that there is no water available at the present water intake point. When the River level is low, the water close to the town is highly contaminated and difficult to treat, to meet the safe drinking water quality standards. In recent years, a temporary solution to this problem has been found by pumping water across Bukkur Island from the main Indus channel and digging a temporary channel across the branch channel between Bukkur Island and the Sukkur intake<sup>1</sup>.

#### 2.3.1.1 EXISTING WATER SOURCES

The Existing source of raw water in the city of Sukkur is mainly river Indus and Kirthar Canal. The water directly comes out from the river Indus by an intake pumping station located on the right bank of Indus River just across the road from Bunder Road WTP. Through the intake, pumping station of Bunder Road water pumped out at Bunder Road and on the water treatment plant situated at Numaishgah. The water pumped out from Kirthar Canal comes into the water supply scheme phase IV near airport road.

The existing main municipal water supply of Sukkur city and part of New Sukkur is provided through two conventional water treatment plants (WTPs) and Water Supply scheme known as phase IV at Bunder Road WTP, Numaishgah WTP and Water Supply Rizvia Society (Airport Road). The source of raw water supply of these two plants and a Water Supply Scheme is an Intake Pumping Station (IPS) located on the right bank of the River Indus just across the road from the Bunder Road WTP and at a distance of about 3 kilometers from Numaishgah WTP and Kirthar Canal. The existing intake at River Indus is not ideally located for several reasons:

- In extreme flooding conditions, it is at risk.
- It is located downstream of untreated wastewater outfalls which dispose of about one third of the total wastewater discharge of the city.
- The raw water quality of River Indus is highly turbid throughout of the year, which causes major problems and expenses in its treatment.
- At certain times of the year, level of River Indus falls to a point that riverbed dries up completely at the location of existing intake pipes.

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<sup>1</sup>The NSUSC Report: Consulting Services for Optimal Approaches Review and Feasibility Study on Water Availability at Sukkur Intake (Loan: 2499-Pak), February 2012

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<sup>d</sup> Updated Water Supply sector of Sukkur is in the Addendum at page no. 28

- There is a strong probability that in the near future the low water level of Indus will frequently fall below at the location of the intake pipes, which will result in failure of the municipal water supply.

The existing intake is located on the right hand channel due to bifurcation of the Indus, around an island and this channel has lower flow than the main left hand channel. At present, intake pumping station location, contamination levels fall and rise in accordance with the flow of water in the right channel towards Sukkur. During high flows, contamination levels reduce due to dilution and vice versa. During extremely low flows (pond levels less than 195.0 ft.), water may become unfit for drinking purposes.

### 2.3.1.2 WATER DEMAND

It is estimated that out of total average daily water supply, which is around 11 MGDs, about 90% is used for domestic purposes and remaining 10% is consumed by commercial establishments, industrial units and other installations. Based on the present population and domestic water utilization, per capita per day water consumption has been adopted as 40 gallons. This figure is reasonable for Sukkur according to the population size and it is adopted and recommended by NSUSC for the City. At this figure, the water demand for the existing population in 2013 comes out as 22.1 MGDs with the 50% water supply gap.

Table 2-25: Water Demand for Sukkur City

Population years	Population (Persons)	Water Demand @ 40 GPCD (MGD)
<b>2013</b>	552,467	22.1
<b>2015</b>	590,445	23.6
<b>2020</b>	697,208	27.9
<b>2025</b>	823,275	32.9
<b>2030</b>	972,137	38.9
<b>2035</b>	1,147,916	45.9

### 2.3.1.3 EXISTING WATER SUPPLY

The existing water supply is 11 MGD through a system in the city of Sukkur is running by following water treatment / filtration plants through phase I, II, III and IV.

**PHASE-I** - Water filtration/ Treatment plant located on Bunder Road. The source of intake water is river Indus. The total capacity is 5 MGD. Using the PHE demand figure of 30 gal/capita/day and assuming that institutional, industrial, and commercial use is 20 % of domestic use and leakage is 25 % of demand, 5 MGD will serve a population of just over 110,000. Raw water is abstracted from the north bank of a branch of the Indus River by a Raw Water Intake Pumping Station (IPS) located just downstream of a geothermal plant.

In a water treatment plant on Bunder road, the flocculation section for each tank is about 3M wide x 12 m across and includes 10 no. RSJ I-beams supporting the distribution trough. There are two 12 m wide x 20 m long sedimentation tanks. There are two Chemical Dosing Tanks; no chemical dosing is presently carried out, as existing chemical dosing facilities are not suitable for effective application.

The settled water flows directly from the outlet channel to the adjacent Rapid Gravity Filters (RGF) located in a roofed building above the Old Service Pumping Station (OSPS). There are six filter beds of 3 m wide x 6 m long. The pumping station draws treated and filtered water from Old Clear Water Tank (OCWT) delivering it to the system and to the 1MG brickwork Islamia service reservoir located on the nearby hilltop, as well as a small component diverted for backwash. No chlorination facility is available. The laboratory is present in WTP, but instruments/equipment are not available.

**PHASE-II** – Water Supply Scheme constructed during 1960's. Based on 11 tube wells installed at the toe of the left bank of Kirthar Canal that was tuned into brackish so it was closed.

**Phase-III** - Water Filtration/Treatment Plant Located at Numaish Gah: The source of intake water is river Indus through intake pumping station of Bunder Road. The Numaish Gah WTP has a capacity of 1,350 m<sup>3</sup>/d = 2.5 MGD, which is the stated design capacity of the rapid gravity filters. The other 1 MGD is said to be the capacity of the settlement tanks built previously: however, the use of settlement tanks alone for treatment of turbid water is not enough to provide drinkable water so this cannot be considered as additional capacity of the works. Numaish WTP is making use of settlement ponds, clarification tanks, and rapid filtration units to provide water to a substantial percentage of the population of Sukkur. The WTP receives water from an intake pumping station (IPS) located on the Indus river at a distance of about (4,000 m = 13,000 ft.) in an easterly direction from the plant.

There are three raw water rising mains = 1 x 400 mm (16 in) dia. + 2 x 300 mm (12 in) dia. AC pipe - delivering water from this pumping station to five (5) settlement ponds. The Primary Sedimentation Tank/Ponds have a depth of about 1.8 m (6 ft.). The total active storage volume of the ponds is around 75,000 m<sup>3</sup> (16.5 MG). A settled water pumping station (SWPS) is located between the ponds and the main work facilities.

The pump house has four pump bed locations, but only three horizontal centrifugal pumps are presently mounted that deliver raw water to a 300 mm (12 in) main. Pump inlet pipes are four No x 100 mm (4 in) diameter above ground. The inlet (mixing) chamber is about 3M (10 ft.) wide x 4 m (13 ft.) long and includes one vertical shaft 25 HP rapid mixer. Secondary sedimentation tanks are two in number of overall rectangular dimensions, each about 30m long by 20m wide, including baffle walls running parallel to the length of the tanks to promote progressive settling. The flocculation tanks with overall dimensions 18m x 6m wide x 4.5m deep (approx.), would be three compartment rectangular tanks of similar depth to the secondary sedimentation tank. No chemical dosing is presently carried out even though a chemical dosing building is provided. Water from the outlet of the sedimentation basins drains by gravity to the rapid gravity filter (RGF) building where there is a total of four (4 No.) filter tanks of approximately 6m long x 4m wide.

- **Phase-IV** - Water supply scheme / treatment plant located in Rizvia Society, airport road. In the present situation, the Airport Road WTP is making use of settlement ponds only to provide water to a substantial percentage of the population of Sukkur. However, the water pumped into the system is of poor quality having had minimal treatment. The settlement ponds are heavily silted up so that they are probably working at less than 50% of potential capacity – desilting is therefore necessary. The settled water is presently pumped directly to overhead storage tank and the system without any filtration or chlorination. The inlet and supply pumping stations are presently in terrible condition both structurally and mechanically.

Figure 2-20 shows the existing water supply network in Sukkur City, which is partially covering the City. There are a number of residential neighborhoods, which are dependent on groundwater, including Ansari Mohalla, Madina Colony, Chachar Mohalla, Agha Badar Din Colony, Gulshan-e-Iqbal, Qureshi Goth, Pathan Colony and New Pind Area. Besides these un-served areas, most of the served areas are also using dual water sources i.e. Municipal Water Supply and Groundwater. It is mainly due to the contamination of sewage in water supply and very low water pressure.

#### 2.3.1.4 WATER SUPPLY INITIATIVES UNDER SCIP

There are a number of initiatives in the form of projects have been undertaken by NSUSC under the Government of Sindh. Major projects related to the Sukkur City Water supply are as under:

##### Distribution Network Improvement – I: New Sukkur

- DNI is located in new Sukkur along the military road the Adam shah overhead reservoir.
- Total cost of DNI-1 is PKR 116,356,560/-
- Total length of water supply line is 13.08 km

##### Distribution Network Improvement – II: Sukkur

- DNI-II is located in Sukkur along the Bunder Road main city feeding by Islamia overhead reservoir.
- Total cost of DNI-II is PKR 40,458,400/-
- Total length of water supply line 4.274 km

##### Distribution Network Improvement – III: Sukkur

- DNI-III is located in Sukkur in the clock tower fed by Islamia overhead reservoir.
- Total cost of DNI-III is PKR 104,773,760/-
- Total length of water supply line 8.35 km

#### 2.3.1.4.1 SPECIAL PROJECTS

The Additional Works under Variation-1 include laying of 450 mm diameter PE pipe from Bunder Road to WTP Numaishgah Sukkur, and laying of 12" diameter MS pipe (Adam Shah rising main, part work replacement of existing rising main from Phase-IV water works), P/L/J/T replacement of MS pipe by HDPE pipe 315 mm diameter at Lohar Disposal Shikarpur, P/L/J/T HDPE pipe along with Shahrah-e-Abbasi at Phase-IV water works is completed and connection with existing distribution lines are in progress. Laying of distribution lines of 75 mm diameter, 100 mm diameter, 150 mm diameter, 250 mm diameter at different locations of Sukkur city is also completed.

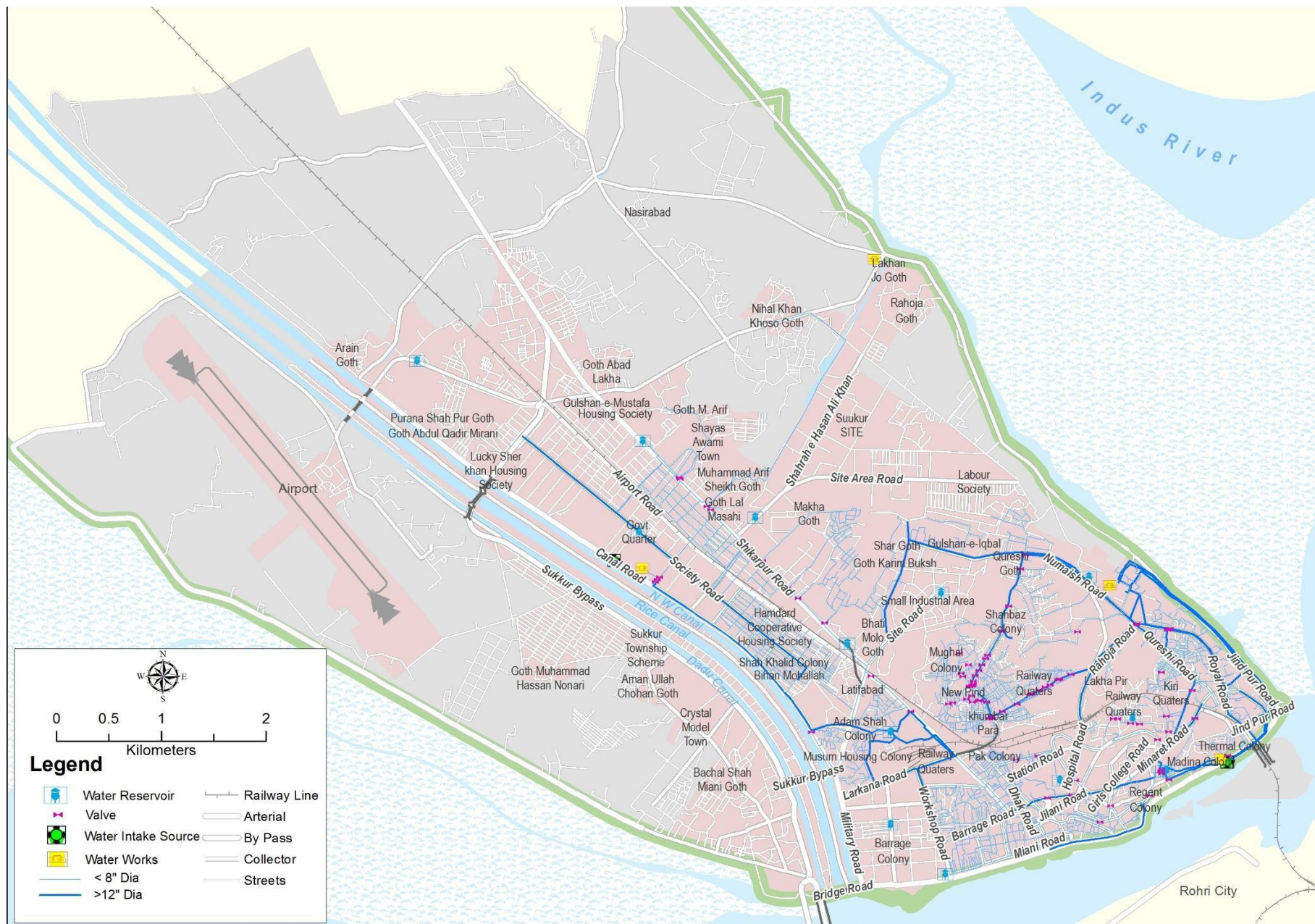


Figure 2-20: Existing Network of Water Supply in Sukkur  
Source: NSUSC 2012, and Consultant's Field Survey

### 2.3.1.5 WATER SUPPLY INFRASTRUCTURE IN THE CITY





Figure 2-21: Pictorial Views of Water Supply Infrastructure

#### 2.3.1.6 SUMMARY Of FINDINGS

According to NSUSC recent studies, water supplied in the city is polluted, especially during low water level at Indus water intake (winter season). High levels of arsenic, E-Coli and Fecal Coliforms are reported in the drinking water due to sewage water contamination in some areas.

- No regular testing and analysis of groundwater is conducted. The problems in the quality and mitigation measures are not disclosed to the consumers.
- The water loss in Sukkur is due to leakages, line losses, and illegal connections.
- Due to high operation cost, the expenses on water supply system are quite high while tariff fixed is quite low.

## 2.3.2 SEWERAGE AND DRAINAGE<sup>e</sup>

At present wastewater is discharged untreated to the River Indus, disposed off into several ponds in and around the town or pumped for treatment in the wastewater stabilization ponds between the airport and Sukkur Township after which it is pumped over the flood protection bund into a network of earth channels and used for irrigation. The wastewater 'Mega Project' that has been developed under PHED is to convey all the Sukkur/New Sukkur wastewater to the treatment plant and to extend it to provide the necessary capacity. Some Mega Project works are still under construction.

### 2.3.2.1 EXISTING WASTEWATER WORKS

#### 2.3.2.1.1 WASTEWATER COLLECTION AND TREATMENT

The sewerage system in Sukkur has existed since long in the form of open channels and drains. These were constructed following the design criteria of that time and a proper maintenance system was devised under municipal laws and regulations. Even now, open drains along the roadsides carry both the wastewater and storm. Currently, system has been improved and major trunk sewers taking wastewater to the wastewater treatment facility known as Mega Project, which has been developed over the years by the Public Health Engineering Department (PHED). Pumping stations (known as Disposal Stations) and forced mains associated with the Mega Project have been erected to serve local sewer and drainage networks. Centralized treatment in wastewater stabilization ponds at a single site has been planned for the wastewater from the whole city.

The wastewater system is a combined system carrying both wastewater, rain water and comprises:

- Conventional combined sewers in the central area of the town and to a lesser extent in other areas
- Open drains along the roadsides sometimes alongside sewers, but more often as the only provision for wastewater collection
- Major trunk sewers taking wastewater to the wastewater treatment plant known as the Mega Project, which has been developed over the years by the Public Health Engineering Department (PHED) of the Government of Sindh (GoS)
- Pumping stations (known as Disposal Stations) and Force Mains associated with the Mega Project (to serve local sewer and drainage networks)
- Treatment in wastewater stabilization ponds at a single site is planned currently; much of the wastewater is pumped or drained untreated to the River Indus and North West Canal (which surround the town on three sides) over or through flood protection bunds. These ponds have become highly polluted in quarried areas and on the eastern side of the town. Some passes to the wastewater stabilization plant through the Mega Project sewers and pumping stations

#### 2.3.2.1.2 COLLECTION SYSTEMS

The old town center (south of the railway up to the riverbank) and the more planned developments to the west of the town are generally well served and no additional capacity is required in most areas. The Miani, Shalimar, Police HQ and DCO Disposal Stations, which deliver to the Mega Project sewers, and Bashirabad, Lohar Mohalla and City Bypass Disposal Stations, which discharge serves these areas of the North West Canal. There is a priority/need for greater capacity at the Miani Disposal Station to cater for storm events and possibly for replacing part of the Bunder Road sewer leading to it. Shah Faisal Colony Disposal Station is close to DCO Disposal Station, inaccessible, and hence not required in the long term.

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<sup>e</sup> Updated Sewerage and Drainage sector of Sukkur is in the Addendum - page nos. 29-30

The area between the railway and the North West Canal is well served by the main Mega Project sewers, but their capacity is well short of the estimated requirement. This may become evident when the regular discharges to the river are stopped. The two main sewers draining to Shalimar Disposal Station lack capacity, though there is little evidence of this at present. It is presumed that they will need replacement later in the implementation of the Wastewater Master Plan prepared by the NSUSC.

The areas north of the railway line and along the eastern side of the town have heavily polluted ponds as evidence of inadequate wastewater collection services. These localities have great needs and include the poor unplanned Katchi Abadis situated on quarry. The Mega Project sewers in this vicinity include deliveries from Shalimar Disposal Station from some of the stations close to the eastern flood protection bank to the 42" sewer, which crosses to the west connecting to the DCO Disposal Station but a more rational, and comprehensive wastewater collection system is called for. According to the NSUSC wastewater plan, all sixteen disposal stations are not required (Jail Garden, Wasapur, Bakhar, Duba, Numaish, Gulshan, Numaish, Micro way, Meerani, Gaddani, Ahmed Nagar 1 & 2, Islam Colony, Shahbaz Colony, and Azizabad) though some pumping will be necessary.

The industrial and residential areas west of the railway and north of the Old Nara Road has no municipal wastewater services, except some connection to the 42" Mega Project sewer on the south. As observed during the field visits, most of the wastewater and sewerage network has been provided to meet specific local needs with little strategic planning and this has led to unnecessary number of disposal stations in a close proximity. The Mega Project is aimed to bring all the wastewater from the town to a common treatment plant is an appropriate strategic solution, but there is a need to rationalize the secondary collection networks.

#### *2.3.2.1.2.1 OPEN DRAINS*

The open drains are generally in concrete lined channels laid along the roadside, but several are unlined in the deprived areas. Since the drains are un-covered and there is yet no solid waste service, refuse is dumped or blown into the open channels causing blockages and a major maintenance challenge. Manually raked coarse bar screens are installed at the disposal stations to facilitate the removal of solid waste, but these are far from adequate in dealing with the problem.

Many of the drainage systems have been developed in an uncoordinated manner with outflows to ponds, which have consequently become heavily polluted. The structural condition and hydraulic configuration of the drains are variable and often poor. Clearly un-lined drains are not a good solution for conveying wastewater.

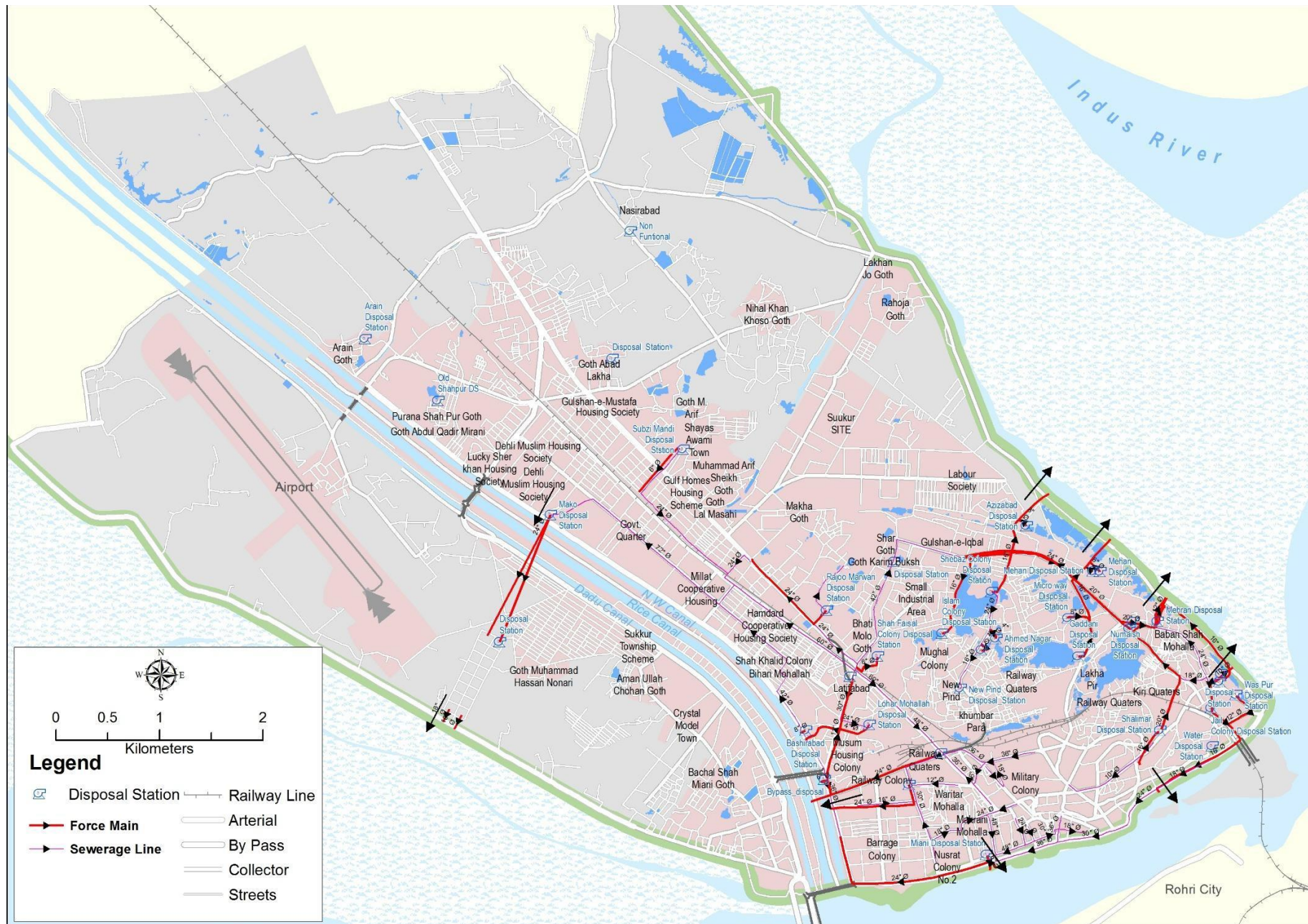


Figure 2-22: Existing Sewers & Pumping Stations

Source: NSUSC 2012, and Consultant's Field Survey

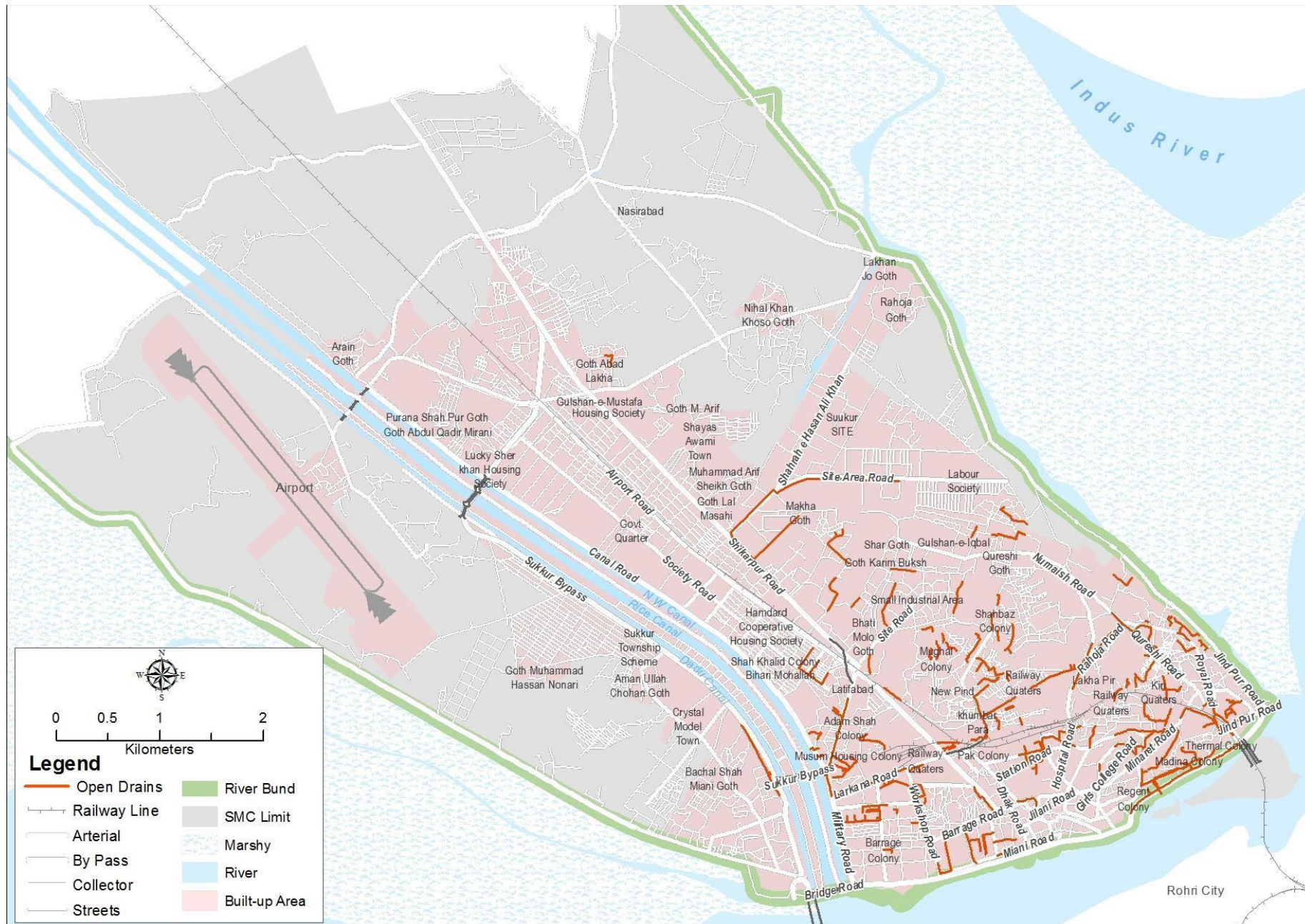


Figure 2-23: Existing Surface Drainage Network  
Source: NSUSC 2012, and Consultant's Field Survey

#### 2.3.2.1.2.2 COMBINED SEWERS

There is limited, but conflicting sewer-lines record available with Public Health Engineering Department (PHED) which includes the Mega Project trunk sewers and older secondary sewers in the city center. These include sewer routes and sizes, but not levels.

The Mega Project has been constructed by PHED to provide trunk sewers and pumping stations and to extend the wastewater stabilization pond system. Some components of this are still under construction. The Mega Project sewers are large reinforced concrete sewers up to 1830 mm (72") diameter bringing flows to the Makko Disposal Station delivering to the wastewater stabilization ponds across the canals. These facilities are mostly serving the CBD area and west of the city. From the invert level surveys of the Mega Project sewers, it is evident that most of them are laid to low gradients, which is limiting their hydraulic capacity and not achieving self-cleansing velocities. This situation further added to silting problem, in some cases up to 40% of the sewer depth due to un-trapped surface drains connections, open manholes (which also present significant hazards), leaking joints and infiltration, solids from the open drains and of course inadequate sewer de-silting through routine operations and maintenance. The old central area of the town and recently developed western areas are mostly provided with secondary sewers, but poorer areas towards north of the old city and along the east are not well served. These areas are more dependent on open drains. Concrete pipes have suffered from poor joints resulting in excessive infiltration or leakage, which may cause migration of fine materials from the soils causing voids in the backfill and sometimes road collapse.

Regular sewer cleaning is necessary to maintain their capacity and this is mostly done manually. Solid waste and other matter mostly entering through the open drains adds to the siltation problem and sometimes causes sewer blockages. Although NSUSC has one Jetter vehicle, but its use in old sewer may not be feasible. Despite all the problems mentioned above, the city is not facing any mammoth problem regarding sewerage. However, during rainy season, drainage is a significant issue.

#### 2.3.2.1.2.3 DISPOSAL STATIONS AND MAINS

There are 27 wastewater pumping stations in the Sukkur City (Sukkur and New Sukkur) operated by NSUSC known as Disposal Stations (DS) and six others are operated by different authorities.

Table 2-26: List of Disposal Stations

Mainai DS	Mirani DS
Shalimar DS	Gul Shair Chuhan DS
Jail Garden DS	Ahmed Nagar -1 DS
Wasapur DS	Shah Faisal Colony DS
Bhakar DS	DCO Office DS
Dooba DS -1	Sabzi Mandi DS
Dooba DS -2	Makko DS
Gul Shah DS	Ahmed Nagar -2 DS
Gadani DS	Bashirabad DS
Micro DS	City by Pass DS
Islam Colony DS	Lohar Mohalla DS
Azizabad DS	Numaish DS
Railway Ground DS	Police Head Quarter DS
Rajoo Marwari DS	

Table 2-27: Salient Characteristics of Disposal Stations

S. No	Location of Disposal Station	Incoming Sewer Type	Screening	No. of Screens	Screen Area (Sq. Ft)	Collection Sump Type	No. of Pumping Stations	Pumps					Force Main		
								Pump No.	Capacity	Head (Ft.)	In/Out Dia	Year Installed	Diameter	Material	Discharge Location
1	AHMAD NAGAR DISPOSAL STATION	Pump draws waste water direct from pond	-	-	-	Pond	1	1	-	-	4/3 in	1981	4 in	Plastic hose	Man hole
2	AHMAD NAGAR DISPOSAL STATION 02	Pump draws waste water direct from pond	-	-	-	Pond	1	1	450 GPM	40	5/4 in	2011	4 in	MS	Shahbaz DS
							1	2	450 GPM	40	5/4 in	2011			
3	AZIZ ABAD DISPOSAL STATION	Open/Closed Brick Channel	Yes	1	38	Circular Tank	1	1	300 GPM	40	4/3 in	1992	6 in	MS	Mainline
4	BASHIRABAD DISPOSAL STATION	AC Pipe	Yes	1	50	Circular Tank	1	3	300 GPM	40	6/6 in	1992	6 in	MS	N W Canal
									300 GPM	40	6/6 in	2010			
									300 GPM	40	4/4 in	2010			
5	BHAKAR DISPOSAL STATION	AC Pipe	Yes	2	24	Circular Tank	2	2	-	-	8/7 in	2011	16 in	MS	Makko DS
								5	-	-	6/6 in	1987	16 in	MS	Makko DS
									Just Foundation						
									-	-	6/6 in	1982			
									-	-	6/6 in	1980			
-	-	6/6 in	1980												
6	CITY BY PASS DISPOSAL STATION	AC Pipe	-	-	-	Rectangular Tank	1	2	-	-	8/8 in	-	8 in	MS	N W Canal
7	DCO DISPOSAL STATION	AC Pipe	Yes	1	36	Circular Tank	1	3	1500 GPM	-	8/8 in	2004	12 in	MS	Towards Makko Line
8	DOOBA DISPOSAL STATION	Pond/Mud Channel	Yes	1	14	Rectangular Tank	1	3	-	-	6/6 in	1992	12 in	MS	Indus River
											8/6 in				

S. No	Location of Disposal Station	Incoming Sewer Type	Screening	No. of Screens	Screen Area (Sq. Ft)	Collection Sump Type	No. of Pumping Stations	Pumps					Force Main		
								Pump No.	Capacity	Head (Ft.)	In/Out Dia	Year Installed	Diameter	Material	Discharge Location
9	GADDANI DISPOSAL STATION	AC Pipe	-	-	-	Circular Tank	1	2	1150 GPM	60	8/12 in	1998	12 in	MS	Indus River
											8/12 in	2002			
10	GULSHAH DRAINAGE DISPOSAL STATION	AC Pipe / Brick Chamber	-	-	-	Circular Tank	2	1	400 GPM	40	5/4 in	1982	12 in	MS	Main Line Indus River
								2	-	-	6/7 in	2011			
11	GULSHER CHAWAN DISPOSAL STATION	Mud Channel	-	-	-	Circular	1	1	-	-	4/3 in	2007	6 in	MS	Main Line
12	ISLAM COLONY DISPOSAL STATION	Rectangular Tank	Yes	1	77	Circular Tank	1	2	1150 GPM	60	6/5 in	-	8 in	MS	Indus River
13	JAIL GARDEN DISPOSAL STATION	AC Pipe	-	-	-	Circular Tank	3	2	500 GPM	45	5/4 in	1990	10 in	MS	Indus River
									800 GPM	50	6/5 in	1990			
								1	1150 GPM	55	6/6 in	1996	12 in	MS	Indus River
								3	-	-	6/6 in	2010			
14	LOHAR MOHALLA DISPOSAL STATION	Brick Channel	-	-	-	Circular Tank	1	1	450 GPM	40	5/4 in	2005	4 in	MS	N.W Canal
15	MAKKO DISPOSAL STATION	AC Pipe/Gutter	Yes	2	36	Circular Tank	3	2	-	-	12/12 in	2005	24 in	MS-AC	Sukkur WWTP
								3	-	-	12/12 in	2005	24 in	MS-AC	
								3	-	-	12/12 in	2010	24 in	MS-AC	
16	MEERANI DISPOSAL STATION	Mud Channel	Yes	1	78	Circular tank	1	2	300 GPM	40	6/5 in	1992	6 in	MS	Main Line
									450 GPM	40	4/3 in	1992			

S. No	Location of Disposal Station	Incoming Sewer Type	Screening	No. of Screens	Screen Area (Sq. Ft)	Collection Sump Type	No. of Pumping Stations	Pumps					Force Main		
								Pump No.	Capacity	Head (Ft.)	In/Out Dia	Year Installed	Diameter	Material	Discharge Location
17	MIANI DISPOSAL STATION	AC Pipe/Conc. Chamber	Yes	1	45	Rectangular/ Circular tank	2	7	1500 GPM	60	8/8 in	1994	24 in	AC	Indus River
									1500 GPM	60	8/8 in	1994			
									2500 GPM	30	12/12 in	1987	24 in	MS	Main Line
									2500 GPM	30	12/12 in	1987			
				2	16		1500 GPM		60	8/8 in	1972	18 in	MS	Indus River	
							1500 GPM		60	8/8 in	1972				
							1500 GPM		60	8/8 in	1972				
							2	-	-	8/8 in	2011				
18	MICRO DISPOSAL STATION	AC Pipe	Yes	1	62	Circular tank	1	1	-	-	6/5 in	2010	6 in	MS	Main Line
19	NUMAISH (PH) DISPOSAL STATION	AC Pipe/Circular channel	-	-	-	Circular Tank	1	2	-	-	8/8 in	2010	12 in	MS	Main Line
20	POLICE HQ DISPOSAL STATION	AC Pipe	Yes	1	84	Circular Tank	1	3	1400 GPM	-	10/8 in	1957	16 in	MS	N.W Canal
									650 GPM	-	6/8 in	1994			
									900 GPM	-	8/8 in	1994			
21	RAILWAY GROUND DISPOSAL STATION	AC Pipe	-	-	-	Circular tank	1	1	-	-	6/5 in	1992	12 in	MS	Police DQ DS
22	RAJU MARWARI DISPOSAL STATION	AC Channel	Yes	2	45	Circular tank	1	1	300 GPM	40	5/4 in	1992	6 in	MS	Makko DS

S. No	Location of Disposal Station	Incoming Sewer Type	Screening	No. of Screens	Screen Area (Sq. Ft)	Collection Sump Type	No. of Pumping Stations	Pumps					Force Main		
								Pump No.	Capacity	Head (Ft.)	In/Out Dia	Year Installed	Diameter	Material	Discharge Location
23	SABZI MANDI DISPOSAL STATION	AC Pipe	Yes	1	73	Circular tank	1	2	-	-	6/5 in	1987	6 in	MS	Makko DS
24	SHAH FAISAL COLONY DISPOSAL STATION	Brick Channel	-	-	-	Circular tank	1	1	300 GPM	40	4/3 in	1992	6 in	MS	Main Line
25	SHAHBAZ COLONY DISPOSAL STATION	AC Pipe	-	-	-	Circular tank	1	2	1150 GPM	60	8/7 in	2002	12 in	MS	Indus River
26	SHALIMAR DISPOSAL STATION	Brick Channel	Yes	1	6	Circular/ Rectangular tank	3	2	-	-	6/5 in	1997	12 in	MS	Indus River
								2	-	-	8/7 in	2011			
								1	-	-	8/7 in	2011			
27	WASAPUR DISPOSAL STATION	Concrete Chamber	-	-	-	Circular Tank	1	2	800 GPM	50	6/5 in	2002	10 in	MS	Sadhu Baila, Indus River
									800 GPM	50	6/5 in	2009			

The stations mostly comprise a manually raked inlet, coarse bar screen, collection sump, above ground centrifugal pumps in a building with suctions from the collection sumps, and delivery mains, power supply and control panel. Several disposal stations have no screens or sumps. Most of the pumps are electrically driven, but some have diesel engines. All the pumps are manually controlled. Only eight stations have standby generators for use during the frequent power outages, but seven DSs have at least one diesel-powered pumps (four DSs have both generators and diesel-powered pumps) but the generators frequently are moved from one location to another.

Almost all the disposal stations are in poor and unsafe condition. Several of the pumps are not working and none has stand-by pumps in operational condition. The operating pumps require frequent maintenance to clear blockages and repairs, as there is a high risk of failures. Accumulated manually removed screenings require regular removal from the stations as often as every few days at some stations. There is no regular wastewater flooding around the stations and if all the installed pumps are operational they would only be required to operate about 7 hours /day indicating that there is generally sufficient capacity. According to NSUSC reports, none of the stations has a long-term asset value and the disposal stations in the implementation of the Master Plan at the existing locations are proposed to be demolished and replaced entirely.

During September 2012 floods several of the pumping stations failed. In all cases, the power supply failed and of the six priority concerns, five had insufficient or almost zero stand-by generation capacity, which might otherwise have greatly reduced the period of flooding. However, Miani Disposal Station, which serves the critical central commercial area of the city, though lacking the full capacity of the recently installed PHED pumps, would warrant some additional storm flow pumping. The need for pumping discharges to the River Indus or North West Canal for use in exceptional conditions is proposed for all new pumping stations close to the river or canal.

#### 2.3.2.1.2.4 WASTEWATER TREATMENT PLANT

Key requirements of the wastewater system are:

- To provide safe and hygienic means of collecting wastewater from properties in the town
- Removing waste water from the heavily polluted ponds
- Protecting the River Indus and irrigation canals from wastewater pollution
- Providing safe and environmentally acceptable means of disposal

Since the 1970's, the wastewater plan for Sukkur has been to convey wastewater from the town to wastewater stabilization ponds (west of the city). This is valid in the wastewater Mega Project on which construction is in progress under PHED.

The existing wastewater stabilization ponds have been constructed in 1970s by the PHED and have not yet been transferred to NSUSC. All flows to the plant are pumped from the Makko Disposal Station through 02 Force Mains and a gravity connection after being pumped across the three irrigation canals. The plant is arranged in two parallel streams of eight ponds each about 100 m<sup>2</sup> on a 22-hectare site. There are no preliminary treatment facilities such as screens, no flow controls or by-pass provision, and no boundary, support or security facilities other than at the outlet pumping station. Pond sizes given to NSUSC by PHED are as follows:

Table 2-28: Details of Stabilizing Ponds

Streams	Ponds per stream	Plan dimensions (ft. x ft.)	Depth (ft.)	Capacity of each (m <sup>3</sup> )	Area of each (m <sup>2</sup> )	Total capacity (m <sup>3</sup> )	Total Area (m <sup>2</sup> )
2	1	400 x 400	11	50,000	15,000	100,000	30,000
	1	300 x 300	11	28,000	8,000	56,000	17,000
	2	300 x 300	10	25,000	8,000	102,000	33,000
	2	300 x 300	8	20,000	8,000	82,000	33,000
	2	300 x 300	7	18,000	8,000	71,000	33,000
<b>All ponds</b>						<b>411,000</b>	<b>164,000</b>

Source: Wastewater Master Plan by NSUSC

The earth embankments from local clay soils are generally well formed and in sound condition with no evidence of seepage. There is ponding adjacent to the inlet end of the plant probably due to leakage from the Force Mains or gravity sewer. There are no visible connections between the ponds. The final ponds have few more concrete circular chambers, which are presumed to collect and distribute flows.

An outlet pumping station is required to lift the treated wastewater over the Indus River protection bund after which it is distributed to irrigation channels. Constructing pipes through the protections bank is not permitted by the Irrigation Department. There is an old sump and pump house and a new pump house is being constructed by PHED.

#### 2.3.2.1.2.5 FLOW RECORDS

Neither NSUSC has Sukkur MC have any records of water supply, consumption and wastewaters discharged. None of the capacities of the pumps is known and there are no flow meters at the disposal stations.

#### 2.3.2.1.3 ADEQUACY OF WASTEWATER SERVICE

Most of Sukkur has wastewater collection systems, which avoid standing of wastewater on roads/streets except during occasional heavy rainfall. However, the system is vulnerable to pump failures and demand regular extensive maintenance at both pumping stations and the sewers. The poorest part of the city (in the quarried area) and along the eastern side are poorly served resulting in ponds, heavily polluted with wastewater and causing public health risks, environmental and amenity degradation.

A major portion of the wastewater is disposed untreated deviating National Environmental Quality Standards (NEQS), which is causing damage to water quality in the River Indus and the irrigation network. The existing wastewater stabilization ponds would be insufficient to treat the full flow of the city.

#### 2.3.2.2 SUMMARY OF FINDINGS

- The old city center south of the railway (up to the river bank) and the more planned developments to the west of the city are generally well served and no additional capacity is required in most of these areas
- There is a priority need for greater capacity at the Miani Disposal Station to cater for storm events and possibly for replacing part of the Bunder Road sewer leading to it.
- Shah Faisal Colony Disposal Station is close to the DCO Disposal Station and quite inaccessible hence not required for the long term.

- The areas north of the railway and along the eastern side of the town have heavily polluted ponds, an evidence of inadequate wastewater collection services.
- The industrial and residential areas (west of the railway) and north of the Old Nara Road has no municipal wastewater services, except some connection to the 42" Mega Project sewer on the south.

### 2.3.2.3 PICTORIAL VIEWS OF WASTEWATER INFRASTRUCTURE





Figure 2-24: Pictorial Views of Wastewater Infrastructure Condition

### 2.3.3 SOLID WASTE MANAGEMENT<sup>f</sup>

Solid Waste Management (SWM) is an important component of urban environmental administration, and requires immediate intervention with separate budgetary allocation to keep our cities clean and healthy. In case of Pakistan, the PEPA along with SEPA, has taken regulatory measures to ensure the proper solid waste collection and disposal in urban areas.

#### 2.3.3.1 INSTITUTIONS AND REGULATIONS

In Sindh, EPA is attached to the Environment and Alternate Energy Department and responsible for the implementation of the Pakistan Environmental Protection Act, 1997. There is a Regional Office of EPA in Sukkur since 1998. Under the Sindh Local Government Act, 2013 (Schedule-II), removal, collection and disposal of refuse are a compulsory function of the Sukkur Municipal Corporation, as quoted below:

“A Corporation, Municipal Committee or Town Committee shall make adequate arrangements for the removal of refuse from all public streets, public latrines, urinals, drains and all buildings and lands vested in the Council concerned and for the collection and proper disposal of such refuse”

To fulfill its statutory responsibility, Sukkur MC (then TMA) entered into an agreement titled “Services and Asset Management Agreement (SAMA) with North Sindh Urban Services Corporation (NSUSC) in October 2009. The NSUSC was established in 2009 by the Government of Sindh under the companies ordinance (1984) in collaboration with the Asian Development Bank (ADB) to manage the sanitation, water supply, sewerage and solid waste in the urban areas (06 Municipal Areas) of North Sindh. It included Sukkur, Shikarpur, Khairpur, Larkana, Ghotki and Kashmore. Since the inception of this corporation, the SWM has been done by the NSUSC. The service areas include urban UCs 01 to 11 under SMC jurisdiction. Currently there are no user charges for sewerage and solid waste management services provided by the NSUSC. The discussion with local people during field visits

<sup>f</sup> Updated Solid Waste Management sector of Sukkur is in the Addendum - page nos. 30-32

revealed the perception that the solid waste collection facilities in the city of Sukkur have been improved considerably.

### 2.3.3.2 ASSETS AND OPERATION OF SWM

A Skip platform for primary and secondary solid waste collection (procured in 2011) have been placed in various places as shown in Figure 2-30. However, leftover solid waste, and open dumping on the road side and near the water compounds has been observed in various UCs.

#### 2.3.3.2.1 EXISTING ASSETS

According to NSUSC, currently 167 vehicles are available with MCS/NSUSC for conducting SWM operations in Sukkur. The details are presented in Table 2-29.

Table 2-29: Existing Vehicle Fleet in Operation for SWM in Sukkur

Sr. No.	Vehicle Type	Existing Quantity
1.	Dumper (tractor + Trolley)	8
2.	Hooklift (Matervan)	1
3.	Flat-bed (Hino/Mazda)	2
4.	Chingchi	4
5.	Skip Truck – Side Loader (3.5 m <sup>3</sup> )	8
6.	Skip Truck – Re- Loader (7 m <sup>3</sup> )	2
7.	Hook Lift Container (2.5 m <sup>3</sup> )	8
8.	Skip Container (3.5 m <sup>3</sup> )	102
9.	Skip Container (7 m <sup>3</sup> )	32
<b>TOTAL</b>		<b>167</b>

Source: NSUSC Study: Key Performance Indicator Assessment – SWM, February 2013.

### 2.3.3.3 SOLID WASTE COLLECTION

In Sukkur, the community normally throws garbage outside their houses, in the open sewerage channels, drains and streets with no attempt to find any other means or to dispose of properly in the allocated places such as *Kachra Kundi's*/waste containers. Municipality services are also not providing suitable facilities to the community for the collection of waste. Therefore, the community disposes off their refuse in the household dustbin first and then on the streets or at the corner of the houses.

The habit of inappropriate solid waste disposal by residents has caused sewerage and filthy conditions in the form of standing sewer water on the streets. A great health risk is associated due to the growth of vector-borne diseases in such areas that might lead to epidemics in Sukkur.

NSUSC reports that the collection rate achieved by the end of 2012 was about 70%, and the target within 2013 was around 85%. This translates to that investment and efforts are required to meet the target and to reduce the left over refuse/solid wastes.



Figure 2-25: Waste Disposal by Public within Community area



Figure 2-26: Used Plastic bags, fruits and other waste in neighborhood

#### 2.3.3.3.1 PRIMARY COLLECTION

The primary collection of the municipal waste is based on collection points distributed within the cities. Few hook-lift containers are currently available. In addition, a “door-to-door” collection is being done, while waste is carried either by wheelbarrows, handcarts or donkey carts to various collection points. Most of the primary collection is a community based as NSUSC and MC are not providing the service collection of solid waste collection.

#### 2.3.3.3.2 SECONDARY COLLECTION

The calculation of waste generated volume is based on a waste density of  $325\text{kg/m}^3$  and a daily generation potential of  $0.45\text{ kg/PE/day}$ . The current efficiency is at the average 33.3% (ranging from 29% to 54.6%). It is strongly dependent upon available collection, loading and transportation equipment plus the transportation time required for discharging the loads. The efficiency calculation referring to the situation before NSUSC services has been based on theoretical models and results in an average collection efficiency of 18.3%. The efforts of NSUSC have almost doubled the efficiency rate according to their report. The net-volume calculation (PE per available collection volume) ranges at the moment from  $10,560\text{ PE/m}^3$  down to  $4,737\text{ PE/m}^3$  with an average of  $7,558\text{ PE/m}^3$ . The new system allows results below the benchmark of  $1,500\text{ PE per net volume [m}^3]$ .

#### 2.3.3.3.3 HOSPITAL AND HAZARDOUS WASTE

Waste from hospitals and healthcare facilities in the towns are currently co-disposed with other waste and there is no separation of infectious and hazardous waste from the general waste stream within the hospitals. In some cases, the infectious and clinical waste is disposed of in the spaces behind the hospital and there is no separate collection of hospital waste. Waste pickers have been observed sorting through waste piles and separating used medicine and other medical materials for recycling or resale.

#### 2.3.3.3.4 MECHANICAL SWEEPING

Currently, there is no mechanical sweeping equipment in SMC and NSUSC. However SMC/NSUSC intends to purchase mechanical street sweeping equipment.

#### 2.3.3.3.5 DISPOSAL SITUATION

Mostly the collected waste is disposed off in dumps. Depending upon the location, size and property issues, secondary and tertiary (fly-tips) dump sites are undertaken (see Figure 2-28). At present, there is no properly managed dumpsite available in Sukkur. Tertiary sites are often established by drivers, located in the service areas (partly in the City) in order to save transportation time. The dumpsites are

established for land reclamation purposes (filling of water logged area to gain land) and have fly-tip characteristics. In general, waste from households and curbside (*kachra kundi*) has mixed composition.

Table 2-30: Collection Rate - Collection Efficiency Previous and Current

City Name	PE <sup>2</sup>	Mg/day	Generation Volume/day (m <sup>3</sup> /day)	Dumper	Hook-Lift	Tipper	Chingchi	Volume per day (m <sup>3</sup> /day)	Collection efficiency (%) Current	Collection efficiency (%) Before
<b>Khairpur</b>	264,000	118.80	365.54	3	1			80	21.9	12.0
<b>Shikarpur</b>	288,000	129.60	398.77	4	1			100	25.1	13.8
<b>Larkana</b>	582,000	261.90	805.85	11	1	1	20	286	35.5	19.5
<b>Sukkur</b>	<b>450,000</b>	<b>202.50</b>	<b>623.08</b>	<b>7</b>	<b>1</b>	<b>6</b>		<b>340</b>	<b>54.6</b>	<b>30</b>
<b>New Sukkur</b>	<b>162,000</b>	<b>72.90</b>	<b>224.31</b>	<b>2</b>	<b>1</b>			<b>45</b>	<b>20.1</b>	<b>11.0</b>
<b>Rohri</b>	102,000	45.90	141.23	2	1			60	42.5	23.4
<b>Total</b>	1848,000	832	2558.77	29	6	7	20	911	33.3	18.3

Source: NSUSC Study: Key Performance Indicator Assessment – SWM (004), February 2013.

Table 2-31: Net Volume Ratio

City Name	PE <sup>3</sup>	Net Volume (Current)	Current PE/net volume [m <sup>3</sup> ]	Net Volume After optimization	After optimization PE/net volume [m <sup>3</sup> ]	Net Volume after new equipment arrived	PE/Net Volume after new equipment arrived
<b>Khairpur</b>	264,000	25	10,560	27.5	9,600	282	935
<b>Shikarpur</b>	288,000	27.5	10,473	30	9,600	188	1532
<b>Larkana</b>	582,000	57	10,211	59.5	9,781	755	771
<b>Sukkur</b>	<b>450,000</b>	<b>95</b>	<b>4,737</b>	<b>97.5</b>	<b>4,615</b>	<b>265</b>	<b>1,698</b>
<b>New Sukkur</b>	<b>162,000</b>	<b>22.5</b>	<b>7,200</b>	<b>25</b>	<b>6,480</b>	<b>209</b>	<b>775</b>
<b>Rohri</b>	102,000	17.5	5,829	25	4,080	167	611
	1,848,000	244.5	7,558	264.5	6,986	1,866	990

Source: NSUSC Study: Key Performance Indicator Assessment – SWM (004), February 2013.

Sukkur and New Sukkur share a main dumpsite, located close to the water works. In New Sukkur is one tertiary site close to UC 13, opposite a school, which has to be removed immediately.

<sup>2</sup> Population Equivalent = Inhabitants

<sup>3</sup> Population Equivalent = Inhabitants



Figure 2-27: Existing solid waste dumping site near Numaishgah

#### 2.3.3.4 LANDFILL SITE

Recently a land of around 260 acres has been identified and request for the land acquisition is forwarded to the Government of Sindh. It is in the vicinity of the Sukkur City in Rohri for the solid waste disposal as a properly designed sanitary landfill site. This acquired land will serve not only for the Sukkur City but also for its neighboring settlements including the Rohri Town. Currently, the design work of the landfill site has been accomplished by a consultant and its construction will start in the first quarter of next year. The details of the landfill site are given in Table 2-32.

Table 2-32: Physical and Design Characteristics of Landfill Site

<b>Physical environment</b>	
Ground conditions	Sand underlain by limestone
Water table as drilled	Expected to be 20 m below ground level however there may be perched water tables
<b>Site Information</b>	
Area	106 ha
Area for design	76 ha
Average waste generation for urban areas	0.45 kg per person per day
Waste input for 10 years	1,674,446 tons
Waste generation 2012	129,398 tons per year
Waste generation 2022	177,307 tons per year
In place density	650 kg/m <sup>3</sup> to 950 kg/m <sup>3</sup>
Daily input of waste	545 m <sup>3</sup> /day
Volume required for 2 years for in place density of 650 kg/m <sup>3</sup>	404,518 m <sup>3</sup>
Volume required for 10 years (for in place density of 650 kg/m <sup>3</sup>	2,576,071 m <sup>3</sup>
Volume required for 10 years (for in place density of 950 kg/m <sup>3</sup>	1,860,496 m <sup>3</sup>
Number of vehicle visits	50-40 per day
<b>Design</b>	
Total life of landfill	10-15 years
Landfill gas production (After 2 years)	2.408 × 10 <sup>6</sup> m <sup>3</sup> /yr
Landfill gas production (After 10 years)	8.9992 × 10 <sup>6</sup> m <sup>3</sup> /yr
Landfill gas production (After closure)	6.0283 × 10 <sup>6</sup> m <sup>3</sup> /yr
Final top slope gradient	1:15-1:30

Source: Rohri Landfill Site Conceptual Design, July 2012, by NSUSC, MMP & Nippon Koei UK

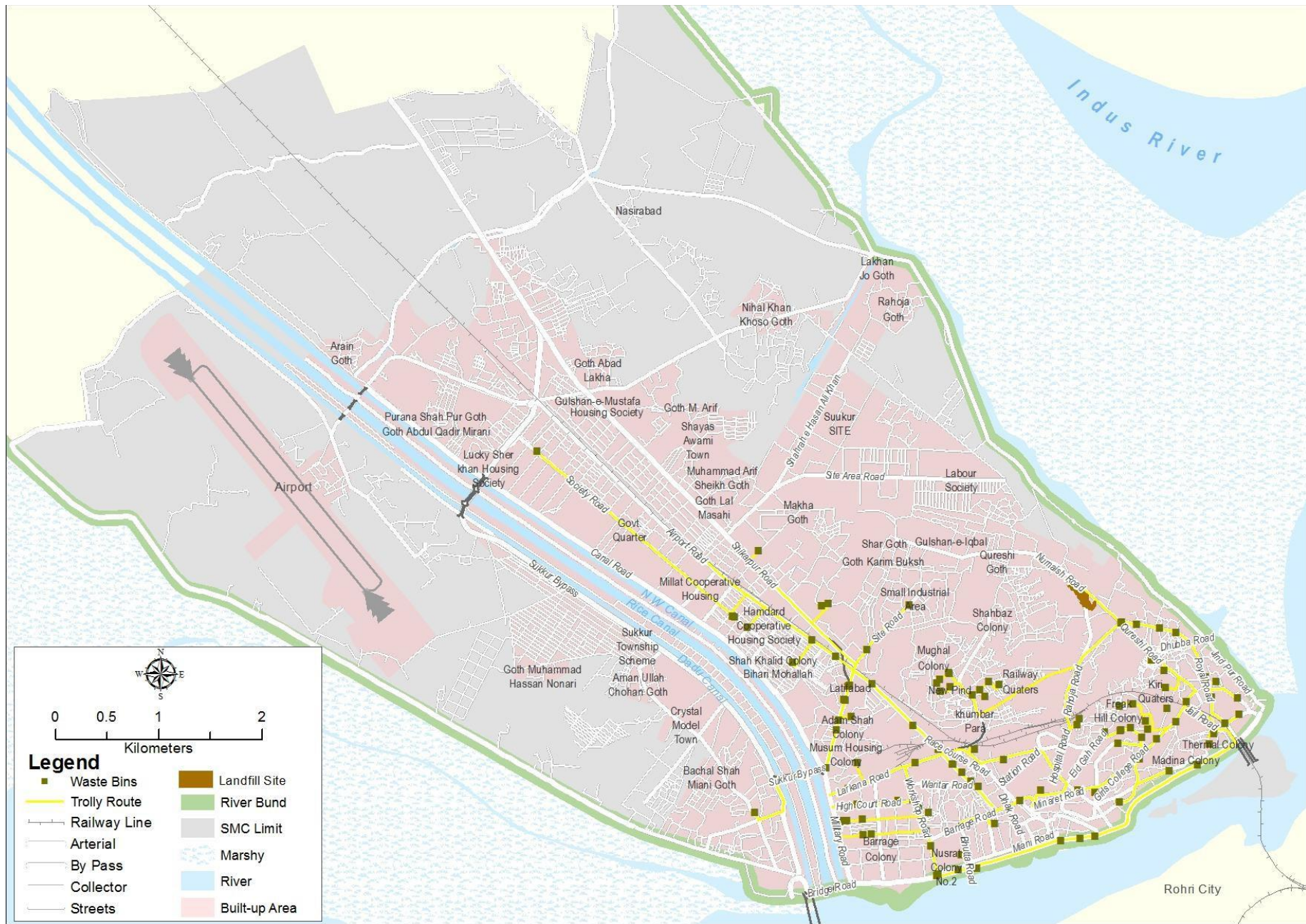


Figure 2-28: Sukkur Solid Waste Management  
Source: NSUSC 2012, and Consultant's Field Survey



Figure 2-29: Proposed landfill site at Rohri

Source: NSUSC 2012, and Consultant's Field Survey

### 2.3.3.5 SUMMARY OF FINDINGS

- The existing local implemented legislation does not support resource recovery.
- Segregation at source or at primary, secondary collection points, or at the disposal is not available resulting into inadequate recycling.
- There is lack of arrangement for separate collection, handling and disposal of hospital wastes, chemical & hazardous waste, and industrial wastes.
- Non-availability of scientific and actual data on SWM.
- Available vehicles and other machinery for SWM operation is not sufficient.
- Shortage of skilled staff to carry out SWM operation efficient.
- Existing practices of waste disposal in the landfill site are not scientific, thus creating environmental issues.
- There is no policy or incentive package to attract informal sector for waste recycling.
- Stringent policy for SWM and then its enforcement is not in place.
- Scarcity of funds for planned activity to enhance the SWM capacities.

### 2.3.3.6 PICTORIAL VIEWS OF SOLID WASTE MANAGEMENT



Figure 2-30: Pictorial Views of Solid Waste Management Condition

### 2.3.4 UTILITY SERVICES, O&M EXPENDITURE AND REVENUES

NSUSC is maintaining the basic utility services including water supply, sewage disposal and solid waste management. According to their records the only revenue source is the billing of water supply. Revenue is made up of domestic and non-domestic water connections. NSUSC budgeted the increase in the number of connections by 20% and increase in tariff rates for

the period of six months applicable from January 1, 2014 for FY 2013-14. Revenue breakup is as under:

Table 2-33: Revised Revenue Breakup for FY 2013-14

Service	PKR in Million
Water supply	15.14
Wastewater and drainage	10.73
Solid waste collection	10.73
Total	36.60

Source: NSUSC

Besides salaries, the most of the expenditure is related to the electricity bills and fuel for generating power. The main cause of higher cost is pumping of water and wastewater. Details of Operation and Maintenance expenditures are given in Table 2-34 and Table 2-35.

Table 2-34: O&M Expenditure for FY 2013-14 – Sukkur City

Description	PKR in Million
Salaries & wedges	182.230
Deputation allowances	16.503
Employee incentive	4.126
Office rent	0.261
Electricity/ Power generation	102.602
Chemicals & consumables	9.425
Travel & conveyance	2.177
Vehicle cost - SWM	18.310
Maintenance & regular repair	14.238
Office running cost	0.420
Other operating expenses	1.000
Total operating expense	351.281
Bad debts-50%	18.301
Operating Profit/ (Loss)	332.980
TMA Salary GoS Share	182.229
Operational shortfall	150.752

Source: NSUSC

Table 2-35: O&M for FY 2013-14 – New Sukkur

Description	PKR in Million
Salaries & wedges	36.54
Deputation allowances	5.496
Employee incentive	1.374
Office rent	-
Electricity/ Power generation	68.464
Chemicals & consumables	0.039
Travel & conveyance	1.417
Vehicle cost - SWM	-
Maintenance & regular repair	4.860
Office running cost	0.167
Other operating expenses	1.090
Total operating expense	119.442
Bad debts-50%	-
Operating Profit/ (Loss)	119.442
TMA Salary GoS Share	36.536
Operational shortfall	82.906

Source: NSUSC

### 2.3.5 POWER AND ELECTRICITY

#### 2.3.5.1 RESPONSIBILITY OF ELECTRIC SUPPLY

Supply of Electricity in Sukkur is the responsibility of the SEPCO (Sukkur Electric Power Company). SEPCO consists of Sukkur, Ghotki, Khairpur and Rohri, Pano Aqil and Sukkur Circle (Rural Area).

#### 2.3.5.2 PRESENT STATUS SEPCO IN SUKKUR MC

##### 2.3.5.2.1 POWER GENERATION, TRANSMISSION & DISTRIBUTION

There is no power generation facility in Sukkur MC Vicinity. There was one power generation unit in the early 1980s, which was operational until late 1990s but is no more in operation now SEPCO jurisdiction consists of 56300 sq. Kms (Source: SEPCO website).

SEPCO divides Sukkur MC in four zones i.e. Sukkur-I, Sukkur-II, Bunder Road and SITE Sukkur fed by three Grid Stations i.e. 132 KV Grid Station at Sukkur SITE, 133 KV Grid Station at Arian Road and 66 KV Grid Station in Sukkur city which is in the process of up-graded to 132 KV (Figure 2-31 & Figure 2-32 ).

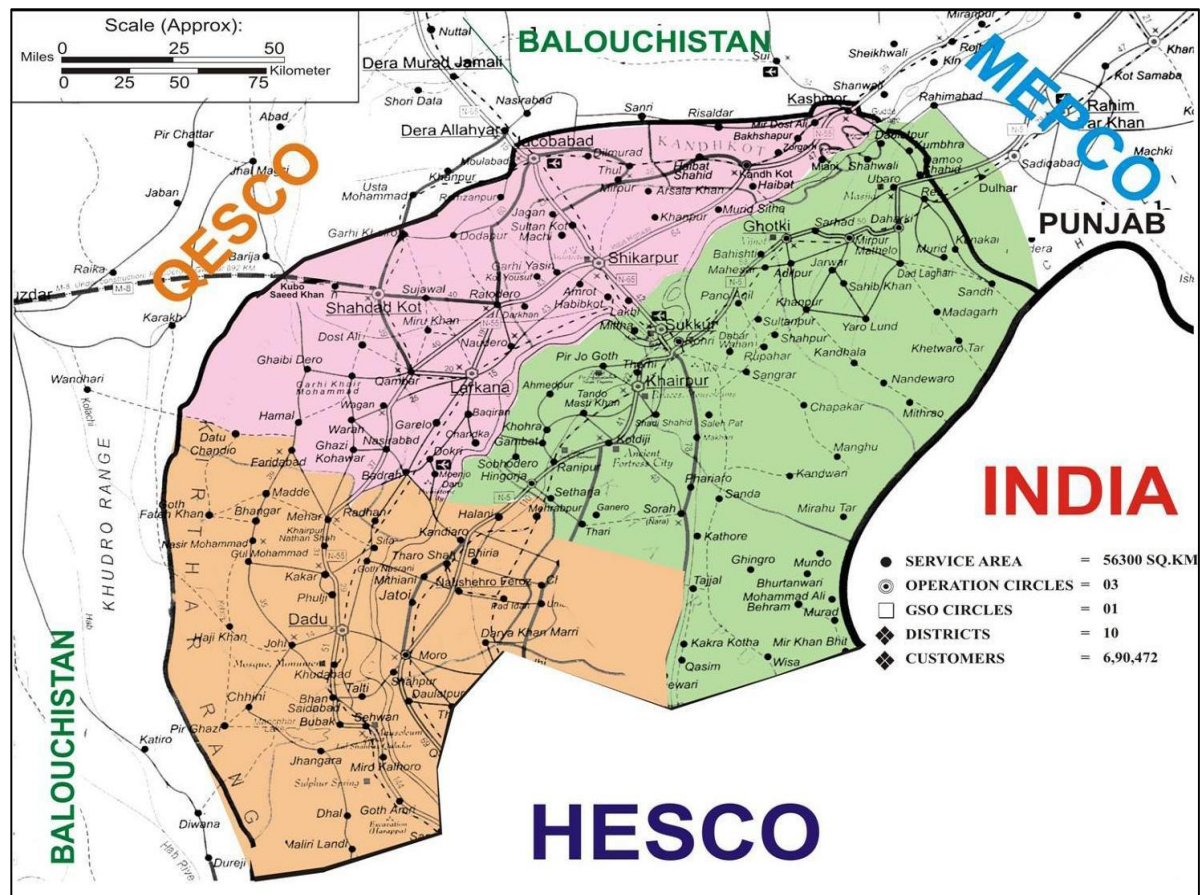


Figure 2-31: Geographical Area of SEPCO

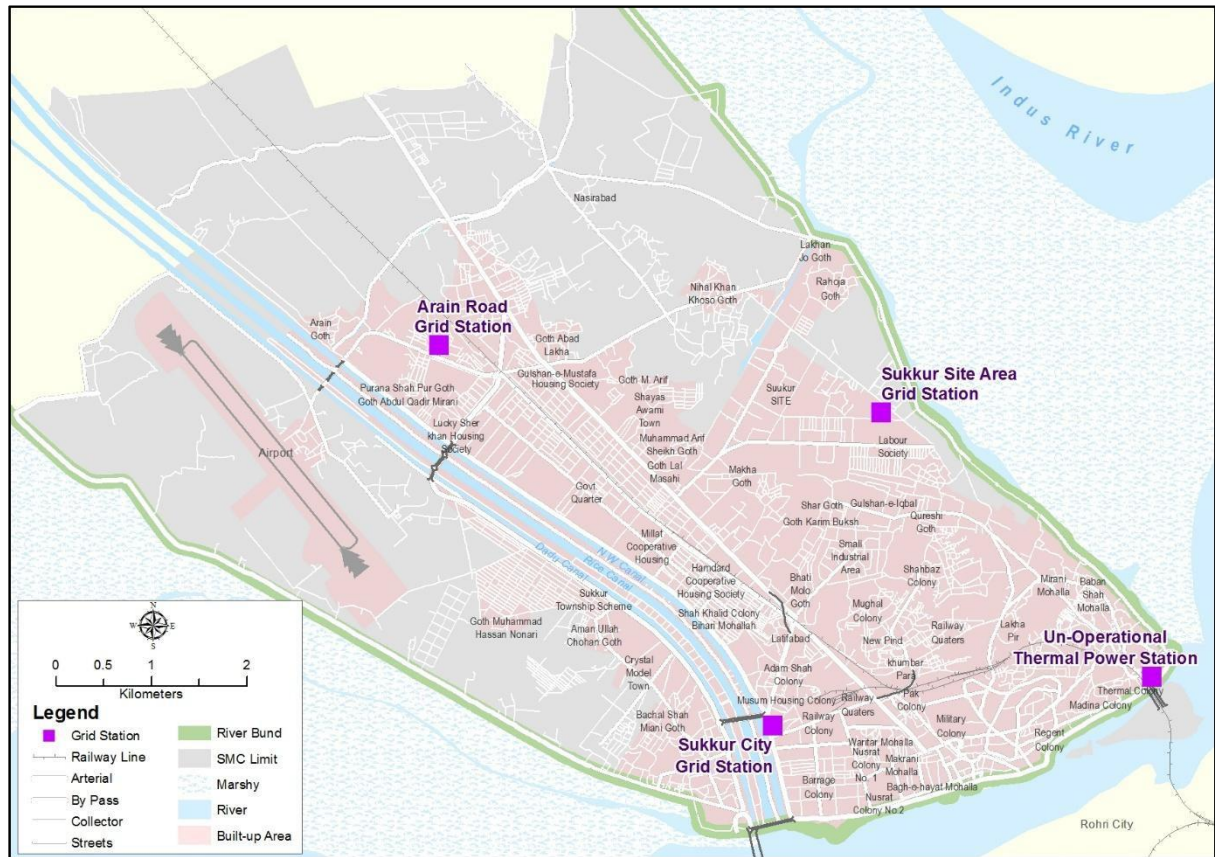


Figure 2-32: Locations of Grid Stations

There are 180 transformers installed in Sukkur-I zone. Details are as under:

Table 2-36: Sukkur-I: Capacity wise Number of Transformers in KVA

	Name of Feeder	Capacity Wise No. of Transformers in KVA								Total
		10	15	25	50	100	200	400	630	
1	Station Road	1	-	22	11	21	31	-	1	87
2	Mir Masoom	-	-	2	6	16	25	-	-	49
3	Minara Road	-	-	3	6	15	19	1	-	44
<b>Total</b>		<b>1</b>	<b>0</b>	<b>27</b>	<b>23</b>	<b>52</b>	<b>75</b>	<b>1</b>	<b>1</b>	<b>180</b>

Source: Office of Operation Circle, SEPCO, Sukkur

Domestic connections are 6327 whereas 3534 are commercial out of 10036.

Table 2-37: Sukkur-I: Number of Connections

	Name of Feeder	Capacity Wise No. of Transformers in KVA						Total
		DOM	COMM	IND	AGR	BULK	OTH	
1	Station Road	2791	1085	65	-	2	6	3949
2	Mir Masoom	2134	1878	57	-	-	8	4077
3	Minara Road	1402	571	35	-	1	1	2010
<b>Total</b>		<b>6327</b>	<b>3534</b>	<b>157</b>	<b>-</b>	<b>3</b>	<b>15</b>	<b>10036</b>

Source: Office of Operation Circle, SEPCO, Sukkur

#### 2.3.5.2.1.1 SUKKUR-II ZONE:

Sukkur-II zone consists of Shahi Bazar, Queens Road, Nishtar Road and Sarafa Bazaar, which is feeding line of 11 KV having length of 39.47 Kms whereas length of L.T. Line is 13.75 Kms.

Table 2-38: Sukkur-II: Length of Transmission Lines

	Name of Feeder	Sub Division	Division	Length of 11 KV Line (Kms)	Length of LT Line (Kms)
1	Shahi Bazar	Sukkur-II	Sukkur	8.23	3.66
2	Queens Road	Sukkur-II	Sukkur	10.5	3.5
3	Nishtar Road	Sukkur-II	Sukkur	6.24	3.13
4	Sarafa Road	Sukkur-II	Sukkur	14.5	3.46
<b>Total</b>				<b>39.47</b>	<b>13.75</b>

Source: Office of Operation Circle, SEPCO, Sukkur

There are 180 transformers installed in Sukkur-II zone. Details are as under:

Table 2-39: Sukkur-II: Capacity wise Number of Transformers in KVA

	Name of Feeder	Capacity Wise No. of Transformers in KVA								Total
		10	15	25	50	100	200	400	630	
1	Shahi Bazar	1	-	8	13	20	57	-	1	100
2	Queens Road	-	-	4	4	5	16	-	-	29
3	Nishtar Road	-	-	5	4	3	17	-	-	29
4	Sarafa Road	-	-	4	5	2	11	-	-	22
<b>Total</b>		<b>1</b>	<b>0</b>	<b>21</b>	<b>26</b>	<b>30</b>	<b>101</b>	<b>0</b>	<b>1</b>	<b>180</b>

Source: Office of Operation Circle, SEPCO, Sukkur

Domestic connections are 7933 whereas 5598 are commercial out of 13687.

Table 2-40: Sukkur-II: Number of Connections

	Name of Feeder	Capacity Wise No. of Transformers in KVA						Total
		DOM	COMM	IND	AGR	BULK	OTH	
1	Shahi Bazar	1686	1175	38	-	1	11	2911
2	Queens Road	2200	718	42	-	-	2	2962
3	Nishtar Road	1106	922	21	-	-	1	2050
4	Sarafa Road	2941	2783	36	-	-	4	5764
<b>Total</b>		<b>7933</b>	<b>5598</b>	<b>137</b>	<b>0</b>	<b>1</b>	<b>18</b>	<b>13687</b>

Source: Office of Operation Circle, SEPCO, Sukkur

#### 2.3.5.2.1.2 BUNDER ROAD ZONE:

Bunder Road zone consists of Bunder Road, High Court Road, Shamsabad, Jinnah Chowk and Qasimabad which is feeding line of 11 KV having length of 50.24 Kms whereas length of L.T. Line is 33.34 Kms.

Table 2-41: Bunder Road: Length of Transmission Lines

	Name of Feeder	Sub Division	Division	Length of 11 KV Line (Kms)	Length of LT Line (Kms)
1	Bunder Road	Bunder Road	Sukkur	5.74	5.8
2	High Court Road	Bunder Road	Sukkur	5.3	1.5
3	Shamsabad	Bunder Road	Sukkur	7.5	7.44
4	Jinnah Chowk	Bunder Road	Sukkur	14.8	6.5
5	Qasimabad	Bunder Road	Sukkur	16.9	12.1
<b>Total</b>				<b>50.24</b>	<b>33.34</b>

Source: Office of Operation Circle, SEPCO, Sukkur

There are 234 transformers installed in Bunder Road zone. Details are as under:

Table 2-42: Bunder Road: Capacity wise Number of Transformers in KVA

	Name of Feeder	Capacity Wise No. of Transformers in KVA								Total
		10	15	25	50	100	200	400	630	
1	Bunder Road	-	-	4	6	12	30	-	-	52
2	High Court Road	-	-	2	5	8	18	2	-	35
3	Shamsabad	-	-	3	7	18	21	1	-	50
4	Jinnah Chowk	1	-	1	6	18	16	-	-	42
5	Qasimabad	-	1	7	3	19	23	1	1	55
<b>Total</b>		<b>1</b>	<b>1</b>	<b>17</b>	<b>27</b>	<b>75</b>	<b>108</b>	<b>4</b>	<b>1</b>	<b>234</b>

Source: Office of Operation Circle, SEPCO, Sukkur

Domestic connections are 9,706 whereas 2,917 connections are commercial out of 12950.

Table 2-43: Bunder Road: Number of Connections

S. No	Name of Feeder	Capacity Wise No. of Transformers in KVA						
		DOM	COMM	IND	AGR	BULK	OTH	Total
1	Bunder Road	2834	1030	170	-	2	4	4040
2	High Court Road	370	154	10	-	7	6	547
3	Shamsabad	1654	381	25	-	1	3	1764
4	Jinnah Chowk	1736	480	31	1	2	3	2253
5	Qasimabad	3412	872	55	-	1	6	4346
Total		9706	2917	291	1	13	22	12950

Source: Office of Operation Circle, SEPCO, Sukkur

#### 2.3.5.2.1.3 SITE SUKKUR ZONE:

SITE Sukkur zone consists of the Airport, Saidabad, Shahrah-e-Abbasi, Sabzi Mandi, Shahrah-e-Tasneem, PAF, Indus valley, Naseerabad, CAA, Bachal Shah, ADC, Golimar-I, New Pind, Ahmed Nagar, Society, Military Road and Pak Railway which is feeding line of 11 KV having length of 293.69 Kms whereas length of L.T. Line is 123.91 Kms.

Table 2-44: SITE Sukkur: Length of Transmission Lines

	Name of Feeder	Sub Division	Division	Length of 11 KV Line (Kms)	Length (Kms)
1	Airport	SITE Sukkur	Sukkur	8.55	3.72
2	Saidabad	SITE Sukkur	Sukkur	54.45	31.5
3	Shahrah-e-Abbasi	SITE Sukkur	Sukkur	10.45	2.1
4	Sabzi mandi	SITE Sukkur	Sukkur	14.88	8.55
5	Shahrah-e-Tasneem	SITE Sukkur	Sukkur	6.5	4.66
6	PAF	SITE Sukkur	Sukkur	1	-
7	Indus valley	SITE Sukkur	Sukkur	2.98	-
8	Naseerabad	SITE Sukkur	Sukkur	125.53	12.6
9	CAA	SITE Sukkur	Sukkur	3.5	-
10	Bachal Shah	SITE Sukkur	Sukkur	29.66	24.42
11	ADC	SITE Sukkur	Sukkur	6.55	5.33
12	Golimar-I	SITE Sukkur	Sukkur	5.55	6.5
13	New Pind	SITE Sukkur	Sukkur	4.57	6.5
14	Ahmed Nagar	SITE Sukkur	Sukkur	6.86	8.35
15	Society	SITE Sukkur	Sukkur	10.66	8.18
16	Military Road	SITE Sukkur	Sukkur	1	1.5
17	PAK Railway	SITE Sukkur	Sukkur	1	-
<b>Total</b>				<b>293.69</b>	<b>123.91</b>

Source: Office of Operation Circle, SEPCO, Sukkur

There are 798 transformers installed in SITE Sukkur zone. Details are as under:

Table 2-45: SITE Sukkur: Capacity wise Number of Transformers in KVA

	Name of Feeder	Capacity wise No. of Transformers in KVA								Total
		10	15	25	50	100	200	400	630	
1	Airport	2	-	18	16	5	7	-	-	48
2	Saidabad	-	2	40	18	9	8	3	-	80
3	Shahrah-e-Abbasi	-	-	12	5	2	7	3	2	31
4	Sabzi mandi	1	-	30	37	18	19	1	1	107
5	Shahrah-e-Tasneem	-	-	5	3	9	14	1	-	32
6	PAF	-	-	-	-	-	6	-	-	6
7	Indus valley	-	-	-	-	-	-	-	-	-
8	Naseerabad	1	4	33	7	3	1	-	-	49

	Name of Feeder	Capacity wise No. of Transformers in KVA								Total
		10	15	25	50	100	200	400	630	
9	CAA	-	-	-	-	-	1	-	1	2
10	Bachal Shah	1	3	38	18	2	1	1	-	64
11	ADC	1	-	28	60	25	23	6	15	158
12	Golimar-I	-	-	19	44	18	16	4	2	103
13	New Pind	-	-	7	4	9	6	-	-	26
14	Ahmed Nagar	-	-	2	-	7	13	-	-	22
15	Society	-	-	11	22	13	19	-	-	65
16	Military Road	-	-	3	-	-	2	-	-	5
17	PAK Railway	-	-	-	-	-	-	-	-	-
<b>Total</b>		<b>6</b>	<b>9</b>	<b>246</b>	<b>234</b>	<b>120</b>	<b>143</b>	<b>19</b>	<b>21</b>	<b>798</b>

Source: Office of Operation Circle, SEPCO, Sukkur

Domestic connections are 11893 whereas 2372 are commercial out of 15002.

Table 2-46: Number of Consumers

	Name of Feeder	Number of Connections						
		DOM	COMM	IND	AGR	BULK	OTH	TOTAL
1	Airport	392	38	32	16	2	3	483
2	Saidabad	1301	159	44	48	1	2	1555
3	Shahrah-e-Abbasi	127	35	16	10	2	1	191
4	Sabzi mandi	1352	696	63	16	5	8	2140
5	Shahrah-e-Tasneem	1290	128	6	2	3	3	1432
6	PAF	-	-	-	-	1	-	1
7	Indus valley	-	-	1	-	-	-	1
8	Naseerabad	282	20	12	25	1	1	341
9	CAA	-	-	1	-	1	-	2
10	Bachal Shah	1056	136	19	44	-	2	1257
11	ADC	512	128	112	17	2	4	775
12	Golimar-I	553	235	119	-	1	1	909
13	New Pind	1221	153	30	1	-	4	1409
14	Ahmed Nagar	2002	309	22	-	-	-	2333
15	Society	1755	323	18	-	3	4	2103
16	Military Road	50	12	3	1	2	-	68
17	PAK Railway	-	-	1	-	1	-	2
<b>Total</b>		<b>11893</b>	<b>2372</b>	<b>499</b>	<b>180</b>	<b>25</b>	<b>33</b>	<b>15002</b>

Source: Office of Operation Circle, SEPCO, Sukkur

### **2.3.5.3 RENEWABLE ENERGY POTENTIAL OF SUKKUR**

The Country's energy demand had grown at an annual consumption growth rate of 4.8% in the past five years, but now it is expected to grow at 8 to 10% per annum until the end of this decade. Most of the power comes from oil and gas about 65% of total installed capacity. These resources are Non-Renewable. We need renewable and safe alternate resources. In Sukkur Region, there is a great potential of Hydro and Solar energy.

#### **2.3.5.3.1 SOLAR ENERGY**

It is believed that the energy scarcity problem could be resolved to a considerable extent by the utilization of solar energy in an environmentally sustainable manner. Therefore, solar potential assessment and environmental emissions reduction analysis of a site in Sukkur has been worked out. This is to demonstrate the capability of solar energy potential towards energy adequacy and environmental sustainability i.e. carbon dioxide emission reductions in the end. Figure 2-33 shows the average annual solar energy, where Sukkur is in high-energy potential region.

The process of solar powered electrical power generation systems needs to be initiated on small and medium scale in various locations of Sukkur in a bid to resolve the problems of energy shortage and the alarming levels of environmental emissions. The utilization of solar power as an energy fuel would overcome the problems of energy crisis in the region and facilitate the process of considerable reduction of CO<sub>2</sub> emissions. Since the potential advantages of such development are considerable, they are bound to leave a positive impact on social, cultural and economic sectors.

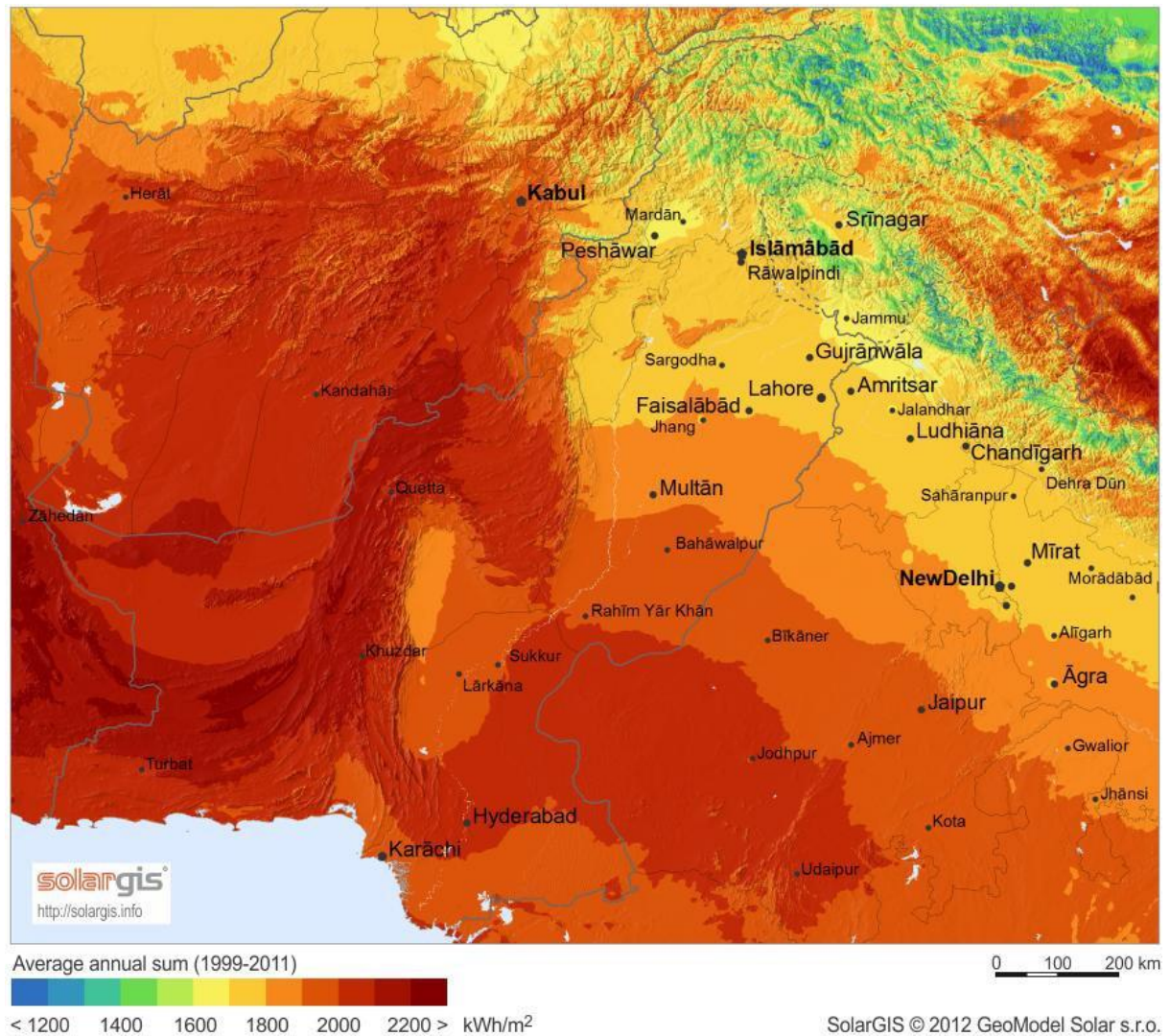


Figure 2-33: Average Mean daily Radiation in Pakistan KWH/sq. m

#### 2.3.5.4 HYDROPOWER

Within the last 45 years, three irrigation barrages have been constructed across the Indus in Sindh Province. The command areas of the three barrages are Sukkur Barrage 3.12 million hectares, Kotri Barrage 1.12 million hectares, and Guddu Barrage 1.172 million hectares. The Irrigation & Power Department, Government of Sindh is responsible for conducting hydropower activities in the province, including facilitating and liaising with the respective agencies.

A study related to the hydropower project identified in the Sindh has identified that there are some potential located on Nai Gaj Fall of Nai River, Guddu, Sukkur and Kotri Barrage and in different locations of Rohri and Nara Canals. Feasibility studies of the projects on Rohri canal and Guddu Barrage have been completed and it is expected that implementation work will be started in the near future. Presently, no hydropower projects are in operation or under implementation in the Sukkur Region in either the public or private sectors.

Altogether, eighteen potential sites of an estimated total capacity of 193 MW with medium and low head at different canals have been identified. Table 2-47 illustrates the details of raw

sites of projects with the total capacity of 126 MW while Table 2-47 shows the list of solicited projects with a total capacity of 67 MW. Figure 2-34 shows the identified hydropower potential and solicited sites in the province.

Table 2-47: Identified Potential Hydropower Projects

	Project	Location	Capacity (MW)
1	Kotri HPP	Kotri Barrage	29
2	Sukkur HPP	Sukkur Barrage	15.5
3	Rohri Canal HPP	Rohri Canal RD 328+256	2.29
4	Rohri Canal HPP	Rohri Canal RD 578+522	1.47
5	Nara Canal HPP	Nara Canal RD 0+000	2.69
6	Nara Canal HPP	Rohri Canal RD 25+000	13.02
7	Nara Canal HPP	Rohri Canal RD 135+000	7.63
8	Nara Canal HPP	Rohri Canal RD 139+000	14
9	Nara Canal HPP	Rohri Canal RD 335+000	9.93
10	Nara Canal HPP	Rohri Canal RD 395+000	7.31
11	Nara Canal HPP	Rohri Canal RD 472+000	9.61
12	Nara Canal HPP	Rohri Canal RD 560+000	9.52
13	Nai Gaj Fall HPP	Nai River, Kirthar Mountain	4.2
<b>Total</b>			<b>126.17</b>

#### 2.3.5.5 SUMMARY OF FINDINGS

- Supply is well connected to the National Grid of Electricity
- Since WAPDA has become PEPCO (Pakistan Electric Power Company) that it created its sub companies in which SEPCO (Sukkur Electric Power Company) is one of them. Recovery figures have been improved since SEPCO system.
- It has been observed that power generation can be done by the construction of head-works at three canals and on a river.
- “Kunda” system is so much popular and can be seen especially in the Sukkur East (Old Sukkur) and Sukkur Central (CBD and its outskirts).
- Due to this Kunda system, power shortage is becoming acute and noticeable following by outdated installed network and low voltage problems.

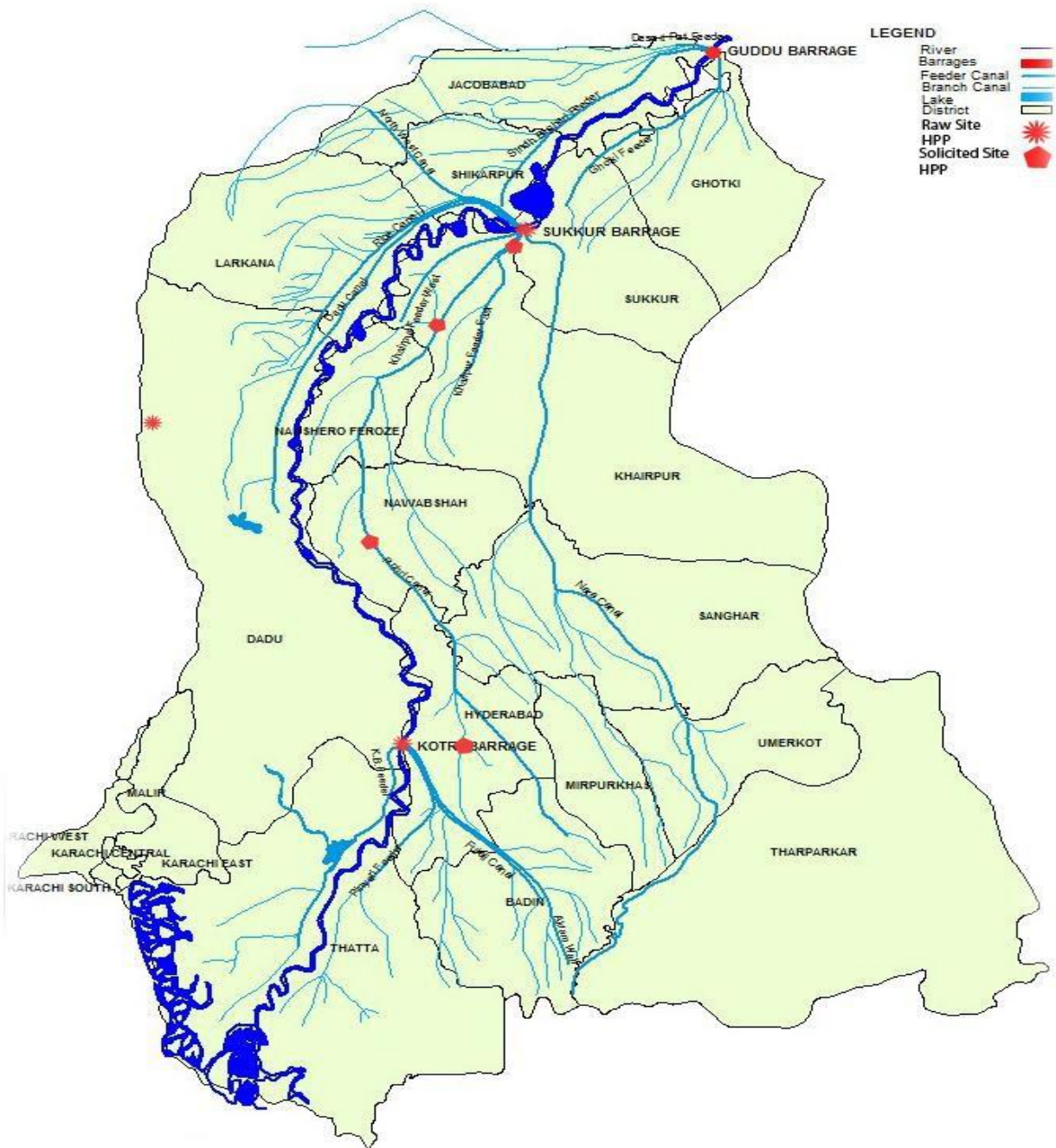


Figure 2-34: Identified Hydropower Resources (Raw Sites) and Solicited Sites in Sindh

### 2.3.6 FIRE FIGHTING

A fire service is essential public services for a community. Fortunately, Sukkur City has not experienced any major urban fire incidents so far. However, considering the pace of urbanization, density of households, coupled with industrialization, the risk of urban fire is higher in the City, particularly in the CBD/congested part of the city. There is a mix land use with narrow streets and no hydrants. It was told that earlier a network of hydrants existed, but with the new developments, it is gone. The current development trend is resulting in high

density with vertical development, rising encroachments on narrow streets, and without any care for any unforeseen incident of fire. Escape routes and fire-fighting arrangements in newly constructed apartment buildings are non-existent.

The CNG and petrol filling stations located in congested areas are the potential source for any unfortunate incident. Similarly, the sale of petroleum products in bottles and cans at small shops located within residential areas is also common. These practices combined with mass culture of smoking cigarettes and electricity short-circuiting could pose a major fire risk.

Another important aspect regarding build environment of the old city of Sukkur is the self-driven urban regeneration. Old houses (1-2 storeys) are being converted to multi-storey buildings with mixed land uses, commercial at ground floor and apartments in upper floor without following any spatial standards. Moreover, construction quality and utility services installation are of poor quality. As the CBD is dominated by commercial wholesale and retail activities, old houses in narrow streets are being used as storage space. Sometimes highly combustible material like petroleum products and chemicals are stored there. This whole situation has added to a highly vulnerable situation for fire incidents and other types of disasters. The access to these areas is extremely difficult, particularly in the first hour (the golden hour) for response to fire or any building collapse situation.

The data provided by the SMC fire department shows that there were 275 recorded fire incidents in the year 2009-10, and 305 in year 2011-12. There was no causality, but keeping in view the ground realities as narrated above, there is a high risk of huge fire incident.

Assessment of the existing firefighting capacity revealed an awful situation. There are only two fire stations in Sukkur. One of them is operational hydrant (near Islamia College). According to the national standards, there must be a fire station for 100,000 populations with an area of 2025 square meters. Most of the available fire tenders are not in working condition mainly due to non-availability of funds. Being part of the SMC, financial crunch has resulted non-payments of salaries to the fire staff for several months. A list of the available equipment and their condition is given in Table 2-48.

Table 2-48: Fire Fighting Equipment and their Condition

	Name of Particulars	New battery	Quantity	Condition
1	Purchase of new two fire vehicles along with snorkel	-	02 Nos.	Major repair
2	Bed ford No. SK-4751			Complete major repair
3	Fire Brigade No. 6	04 Nos. from battery AGS Comp:12 Volt:	04 Nos.	Major repair
4	Fire Brigade Iveco No. 7	04Nos. from battery AGS Comp:12 Volt:	02 Nos.	Major repair
5	Fire Brigade Master No. 8	New 02 Batteries from AGS company	04 Nos.	Major repair
6	Fire Brigade No. 9 Hino	-	-	Working condition
7	Fire Brigade No. 11 Isuzu	-	-	Working condition
8	Fire Brigade No. 10 Hino	-	-	Working condition
9	Delivery Pipe		2000 FT.	

	Name of Particulars	New battery	Quantity	Condition
10	Fire man Extinguish Slender		12 Nos.	
11	Gas Masque		12 Nos.	
12	Chemical Foam		500 liter	
13	Ailments		50 Nos.	
14	Carbon dioxide		06 Nos.	
15	Staff Dress		55 Nos.	
16	Nozzle		06 Nos.	
17	Cap & Bag		55 Nos.	
18	Long Boot		55 Nos.	
19	Half Boot		55 Nos.	
20	Balcha		12 Nos.	
21	Tagari		12 Nos.	
22	Tecum		12 Nos.	
23	Kodar		12 Nos.	
24	Tailor		01 Nos.	

### 2.3.7 GAS SUPPLY

Sukkur, which have small & large scale industries contribute a little part in the economy of Pakistan, but now a days it is highly affected by the load shedding of gas & electricity. The two major gas pipelines, which runs towards Sukkur, are linked from Karachi and second from Qadirpur (Ghotki). Due to the low pressure of gas, most people are unwillingly using LPG in Sukkur. The industrial sector is extremely disturbed, which results lack of production. In winter, supply of gas is very low in Sukkur & other parts of Sindh.

The gas field reservoir of Sindh & their locations are given below:

Gas Field	Location
Zamzama	Johi-Dadu
Bhit	Sehwan
Mari	Ghotki
Mari Deep	Daharki-Ghotki
Kadanwari	Khairpur
Kunar Deep	Hyderabad
Qadirpur	Ghotki
Miano	Sukkur
Sawan	Khairpur
Kandh kot	Kashmore
Kandhra	Rohri

Sui Southern Gas Company Ltd. (SSGC) is the only authorized distributor of Natural Gas in this region. The current domestic demand of the Sukkur City is around 281 million cubic feet per month, whereas commercial and industrial demand is approximately half of the domestic needs. Natural gas is also being used in vehicles in the form of Compact Natural Gas (CNG). Currently, SSGC is managing the demand through its load balancing method in which it regulates the region wise pressure and gas supply scheduling for CNG. However, the supply of gas is far beyond the actual cumulative demand. The total supply of SSGCL to the city is 250 million cubic feet per month, which is distributed among domestic, commercial, industrial, and CNG users (see Table 2-49). Therefore, other fuel sources are being used in domestic, commercial, and industrial units, including LPG, fuel wood, and coal and kerosene oil. For managing the demand and supply on a regional level, SSGC has implemented a ban on the new connections to any newly developed housing schemes, industrial units, or commercial complexes throughout the service region.

Table 2-49: Consumer Connections of Natural Gas Supplied by SSGC

Type of Consumers	Connections
Domestic	35,888
Commercial	336
Industrial	34
Others	13

The total length of a laid network of SSGC's gas distribution in the city is around 379 km. The overall network condition of SSGC is good all over Sukkur. However, some rehabilitation of the distribution network is in progress and proposed, wherever needed (see Table 2-50 & 2-51).

Table 2-50: Rehabilitation Schemes of Gas Network in Progress (2013-14)

Sr.	Sukkur	Steel				P.E			Total		Service Pipe		
		6"	4"	2"	1"	125 mm	63 mm	40 mm	Steel	P.E	No. of	3/4"	20 mm
1	Bashirabad Military Road Sukkur	-	-	-	-	0.4	4.5	0.5		5.4	250	0.375	1.25
2	Nau Goth Shikarpur : Road Sukkur	0.309	-	-	-	2.94	7.171	1.512	0.309	11.623	1200	1.8	6
3	Shah Faisal Colony Golimar Road Sukkur	-	-	-	-	-	1	0.7	-	1.7	150	0.225	0.75
4	Golimar Site Area Sukkur	-	-	-	-	2	3	0.5	-	5.5	100	0.15	0.5
5	Revenue Colony Central Jail	-	-	-	-	1	1	1	-	3	100	0.15	0.5
<b>TOTAL</b>		<b>0.309</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>6.34</b>	<b>16.671</b>	<b>4.212</b>	<b>0.309</b>	<b>27.223</b>	<b>1800</b>	<b>2.7</b>	<b>9</b>

Source: SSGC, 2013

Table 2-51: Proposed Rehabilitation Schemes of Gas Network

Sr.	Name Of Scheme	Existing Dia wise Pipe (km)						Total	Proposed Dia wise Pipe (km)						Total
		6"	4"	2"	1"	63 mm	40 mm		8"	6"	4"	2"	125 mm	63 mm	
1	PRS Adam Shah to Public School Military Road Sukkur	-	-	2.5	-	-	-	2.5	-	-	2.5	-	-	-	2.5
2	Teer Chowk to Tandoori Hut Sukkur	-	-	-	-	0.5	-	0.5	-	-	-	-	0.5	-	0.5
3	Bhutta Road via Miani Road to Beri Chowk Sukkur	-	-	1	-	-	-	1	-	-	1	-	-	-	1
<b>Total</b>		<b>0</b>	<b>0.5</b>	<b>3.5</b>	<b>0.5</b>	<b>0.5</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>0.5</b>	<b>3.5</b>	<b>0.5</b>	<b>0.5</b>	<b>0</b>	<b>5</b>

### 2.3.8 INFORMATION AND COMMUNICATION

In recent days, telecommunication is networked through landline and wireless services. In Pakistan, landline network of PTCL is dominating the telecom field, but with time-to-time change in technology and ultra-modern, sophisticated modes of telecommunication occupies the space in telecommunication industries of Pakistan. Among these technologies GSM, based cellular services are on top.

In the context of all types of telecommunication modes, Sukkur city is rated in top 40 cities of Pakistan and all types of telecommunication means are present either completed or partial (i.e. with limited services).

#### 2.3.8.1 TELECOMMUNICATION SERVICE PROVIDERS IN SUKKUR

Sukkur, being a city of Pakistan, telecommunication services is categorized in three broad classes based on service providers.

##### 2.3.8.1.1 FIXED LINE OPERATORS: PTCL (ETISALAT)

In Sukkur, city landline based number of registered customers are Thirteen Thousand and Five Hundred (13,500) other than DSL customers, which are 600 in total. In addition to wire line operations, PTCL also provides fixed line service through its countrywide CDMA based WLL (Wireless Local Loop) network, under the VF one brand name. In the Internet segment, PTCL provides fixed broadband through conventional copper wire & FTTC and wireless broadband based on Evo Rev A and B technology with the brand name of EVO. PTCL has also introduced a 3G Tab. In the cellular segment, the second largest cellular provider in Pakistan, Ufone based on GSM 800/1900 technology, is also a wholly owned subsidiary of PTCL. In addition to these services, PTCL also offers some of the world's first commercial HD TV services based on IPTV with the brand name of Smart TV and home surveillance and alarm over broadband under the brand name iSentry. PTCL is also part of the consortium of three major Submarine communication cable networks: SEA-ME-WE 3, SEA-ME-WE 4 and I-ME-WE.

PTCL Smart TV is an Internet Protocol TV service in Pakistan owned by Pakistan Telecommunication Company Limited (PTCL). It entered the IPTV-sector on 14 August 2008,

by launching a digital interactive television service for the first time in Pakistan. The service is currently available in 42 major cities in Pakistan besides Sukkur City.

#### 2.3.8.1.2 MOBILE OPERATOR

- Mobilink (Orascom Telecom)
- Ufone (PTCL)
- Warid Telecom
- ZONG (China Mobile)
- Telenor Pakistan (Telenor)

As of February 2012, Pakistan has 116 million subscribers in total, a 62% penetration rate. Another estimate, made on June 2011, estimated 58.126% penetration rate over a population estimate of around 187 million. The telecom regulator is the PTA (Pakistan Telecommunication Authority).

Table 2-52: Cellular GSM Service Providers of Pakistan

Rank	Operator	Technology	Subscribers (in millions)	Ownership
1	Mobilink	GSM-900/1800 MHz (GPRS, EDGE) 2100 MHz UMTS Wimax	35.2 (Feb 2012)	Orascom Telecom
2	Telenor	GSM-900/1800 MHz (GPRS, EDGE) 2100 MHz UMTS, HSDPA, HSUPA, HSPA, HSPA+	28.8 (Feb 2012)	Telenor
3	Ufone	GSM-900 MHz (GPRS, EDGE) 2100 MHz UMTS, HSDPA, HSUPA, HSPA, HSPA+	22.4 (Feb 2012)	Etisalat(26%) and Government of Pakistan
4	Zong	GSM-900/1800 MHz (GPRS, EDGE) 2100 MHz UMTS, HSDPA, HSUPA, HSPA, HSPA+	15 (Feb 2012)	China Mobile
5	Warid	GSM-900/1800 MHz (GPRS, EDGE) 2100 MHz UMTS, HSDPA, HSUPA, HSPA, HSPA+	14.5 (Feb 2012)	Warid Telecom (70%) and SingTel (30%)

Wateen Telecom operates the largest Wimax network service in Pakistan deployed throughout 25 cities, providing Wireless Broadband Internet services to all its customers Including Sukkur City. Mobilink Besides its cellular service recently Mobilink has also started its DSL/Wimax internet service in 26 major cities of Pakistan including Sukkur.

#### 2.3.8.1.3 WIRELESS LOCAL LOOP OPERATORS & INTERNET SERVICE PROVIDERS

- PTCL (Etisalat) (3G,EVO,Nitro)
- Wateen (WI-MAX,WI-FI)
- WorldCall (Cable Net, USB Wireless)
- Wi-Tribe (Qatar tel) (Wireless Internet)
- Mobilink (Infinity, WI-MAX)

All others GSM based cellular companies are providing the EDGE, GPRS and 3G internet Facilities.

#### **2.3.8.1.3.1 MOBILE BANKING**

In recent days, mobile banking has become one of the fastest modes to share funds. Most of the Cellular companies are collaborating with different banks to start branchless or without accounts banking. In 2008, Telenor acquired majority shares of Tameer Microfinance Bank Limited for its mobile financial services project. They named the branchless banking service "Easy paisa" and launched it in October 2009. In a country of over 180 million population, with only 10,000 bank branches and approximately 15 million bank accounts, easypaisa was Pakistan's first branchless banking deployment aimed to increase access to financial services for the people of Pakistan. With over 25,000 easypaisa shops across the country, Easypaisa was also quoted by CNN as the 'model to follow' in Mobile Banking at launch. Same as Zong timepay and Ufone also provided branchless mobile banking in Sukkur City along with Mobilink mobicash.

#### **2.3.8.1.3.2 RADIO SERVICES**

In Sukkur Radio Pakistan is working Along FM Radio services Like 106.2 MHz Hum FM (Shamal Media Services).

## 2.4 ROADS AND TRANSPORTATION<sup>8</sup>

An efficient transportation system is essential for the movement of people and goods from one place to another. Sukkur is serving as a socioeconomic crossroad to the developing cities in Sindh, Punjab and Baluchistan as the gateway to three provinces. The City holds an important transportation link, be it air, land, water or rail.

Sukkur is the third largest city of Sindh with a population over half million. It is the nerve center of the entire irrigation system and a major junction of the railway network. Being an urban service area, the city attracts people from the whole region for health, education, employment and business opportunities. It adjoins rice-growing belt of upper Sindh consisting of districts Shikarpur, Kashmore, Larkana, Jacobabad, and Dadu. The communication linkages of Sukkur with other parts of the country are imperative for overall economic progress of the region and boosting services industry itself in Sukkur and its surroundings.

Sukkur is facing transportation problems like most of the other cities of Pakistan. These include encroachments, haphazard on-street parking, improper design of roads and intersections, poor pavement conditions and non-uniform right of way. These problems are due to lack of proper enforcement, increasing population growth and rapid increase in vehicle ownership.

A large housing project approved without conducting traffic and environmental impact assessments cause severe problems. For example, Sukkur Township is located at highway. By the time this township would fully develop, the terrible traffic congestion and environmental issues are likely to occur, thus finishing the utility of the highway.

Commercial areas and markets are causing problems of traffic and parking. It includes Clock Tower, March Bazar, Sarafa Bazar, Shahi Bazar, Shaheed Gunj, and Ghaziabad. Auto-rickshaws, cars, delivery carts, Suzuki vans etc. constitute the majority of traffic in these commercial areas.

To understand the extent of transportation and surveys were carried out in the field covering major aspects of roads, traffic and transportation problems, which formed the primary data. Analyses of these data have led to determine the formulation of the current situation and to furnish recommendations to improve the traffic flow in the city of Sukkur. The primary purpose of the consultant's study was to help transportation decision making toward a better future of Sukkur. Improvement of transportation and traffic situation in Sukkur needs two prompt strategies

- Construction / development and / or improvement of transportation infrastructure.
- Employment of Transportation Management Techniques.

Construction can be undertaken at such places where enough land/space is available to undertake such activities. It is capital-intensive option and requires a good amount of funds.

Transportation Management Techniques can be used at places where enough land / space is not available for new construction. Improvement can only be done through proper management of existing facilities. It is the comparatively low capital-intensive option and it emphasizes on the optimum usage of existing facilities by effective management.

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<sup>8</sup> Updated Road and Transportation sector of Sukkur is in the Addendum - page nos. 35-37

Under the current Road Sector Annual Development Plan (ADP) of Sukkur District, there are 358 on-going/new development with an approved budget of PKR 3,025 million, which is consuming about 77% of the ADP.

#### **2.4.1 THE ROAD NETWORK**

The road network is considered as a vehicle for economic development and social change. In case of Sukkur, the road network comprising of arterials and collectors is available in the City. The shape and pattern of the arterial road network are following the typical geography and location of the City with respect to River Indus and other adjoining cities like Rohri (twin city), Khairpur, Shikarpur, Pano Akil, and Jacobabad. However, looking at the aerial view of the City, it may be termed as mix of linear and organic patterns. These patterns have defined the obesity of the City and vice versa. National Highway (N-65) is connecting the City with N-5 in south and Shikarpur in the north-west. The map given in Figure 8-1 is presenting an overview of existing road network of Sukkur.

Secondary and Tertiary roads network in Sukkur is below the acceptable standards, especially in the Old City area. It is generally due to lack of planning and un-controlled growth of the City. There had been a few efforts at the local level under some packages. However, towards the airport, new housing projects are giving away to some good built environment, resultantly efficient road pattern.

##### **2.4.1.1 PRESENT STATUS OF ROAD NETWORK**

###### **2.4.1.1.1 PHYSICAL CONDITION**

The difference is visible in old and new part of the City. Heavy traffic, mixed modes of transportation, narrow and encroached right-of-way (ROW) are the main characteristics. This results in traffic jams and accidents. The conditions are comparatively better at the new developments in the peripheral areas of the City.

###### **2.4.1.1.1.1 MAJOR ROADS**

Road users experience a number of traffic problems such as wrong parking, encroachments, delays, poor management at intersections and the unsatisfactory geometric design of roads. Operational capacity of roads is reduced due to poor quality of pavement surface, inadequate pedestrian walkways, inadequate lighting and lack of designing intersections. Asphalt patching was done for 12.5 Kms of roads. Following are the major roads within Sukkur City.

- Queens Road
- Mission Road
- Dhak Road
- Bunder Road
- National Highway (N-65) / Bypass Road
- Shikarpur Road
- Airport Road
- Society Road



Figure 2-35: Roadway Hierarchy of Sukkur City

#### Important intra-city links from Sukkur:

- Link to Southern Punjab (Rahimyar Khan, Multan) via Pano Akil and Ghotki
- Link to Baluchistan via Shikarpur and Jacobabad
- Link to Khairpur via National Highway (N5), Therhi
- Link to Larkana via Madeji, Naudero
- Link to Hyderabad, Karachi via N5

During the expansion of the city towards north-west (along Shikarpur Road and Airport Roads), planned development emerged, and there roads are following Chess-board/grid iron patterns. The population density is comparatively low; therefore, future volumes are expected to be reasonable. The quality of construction is good (even for the access roads). No significant problem was observed or reported in these localities, however, Shikarpur Road, the direct link to the highway, is without any service road or buffer areas.

Roadway lighting is not well illuminated. There is an institutional unit in the Sukkur Municipal Corporation (SMC) headed by Executive Engineer for the installation and maintenance of the roadway lighting. Table 2-53 has been shared by the SMC, which shows the lights maintained and paid by SMC. There are 1263 lights on 71 roads/streets in the City. Out of these 71 roads/streets, 64 have separate electricity conductors.

Table 2-53: Roads / Street Lights Maintained by SMC

	Name of Road / Street	No. of Lights			Separate conductor owned by SMC
		Sodium (250 W)	Mercury (150 W)	Tube (40 W)	
1	Stadium Road	7	7	-	Yes
2	Hussaini Road	2	13	-	Yes
3	Gharibabad	-	5	30	No
4	Mehran Markaz	-	-	20	No
6	Minara Road	7	11	6	Yes
7	Local Board	3	10	8	Yes
8	CMC Sukkur	5	10	-	Yes
9	DC Compound	-	5	-	Yes
10	Civil Hospital Road	-	25	-	Yes
11	Eid Gah Road	2	7	-	Yes
12	Hussaini Road	-	7	-	Yes
15	Sheikh Sheen Road	1	10	10	Yes
17	Shahi Bazar	-	15	5	Yes
18	Clock Tower	10	-	-	Yes
19	Bagh e Hayat	5	4	10	Yes
20	Cloth Market	5	4	12	Yes
21	Green Shop	-	12	12	Yes
22	Sarafa Bazar	6	7	5	Yes
23	Wallace Road	6	15	10	Yes
25	Tanga Stand	4	-	-	Yes
30	Pirzada Chowk	5	5	12	Yes
31	Gindpur	2	10	-	Yes
32	Jinnat Building	2	12	5	Yes
33	Latif Park	3	6	2	Yes
34	Nusrat Colony	-	6	15	Yes
35	Nusrat Colony	-	5	10	Yes
36	Islamia Collage	4	12	4	Yes
37	Pir Hajan Shah	1	3	5	Yes

	Name of Road / Street	No. of Lights			Separate conductor owned by SMC
		Sodium (250 W)	Mercury (150 W)	Tube (40 W)	
38	Baban Shah	2	10	10	Yes
39	Microwave	3	10	15	Yes
41	Goal Takri	-	10	15	No
42	New Pind	-	32	20	No
43	Goal Takri	7	5	6	No
44	Qureshi Road	1	8	4	Yes
45	Numaish Road	21	9	3	Yes
46	Qureshi Road	2	20	5	Yes
47	Nusrat Colony (6)	-	2	3	Yes
48	Tonga Stand	8	12	12	Yes
49	Session Court	3	5	10	Yes
50	Regent Cinema	3	10	8	No
51	Municipal Commissioner Road	12	8	-	Yes
52	Adam Shah	12	15	8	Yes
53	Shikarpur Road	23	4	22	Yes
54	Shikarpur Road	12	6	-	Yes
55	Shikarpur Road	17	7	-	Yes
56	Waritar Road	5	15	7	Yes
57	Bunder Road	16	11	-	Yes
58	Makrani Mohalla	-	-	22	Yes
59	Nusrat Colony	3	8	11	Yes
60	Bagh Karam Ali Shah	-	-	32	Yes
61	Paradise Cinema	22	6	12	Yes
62	Industrial Area	6	4	15	Yes
63	Jail Shah Kot	11	6	20	Yes
64	Miani Road	2	4	15	Yes
65	Shikarpur Road	6	3	8	Yes
66	Lab e Mehran	15	-	-	Yes
67	Bunder Road	3	11	-	Yes
68	Thermal Colony	7	-	4	Yes
69	Bunder Road	11	-	-	Yes
70	Bhutta Road	3	6	-	Yes
71	Bhutta Road	4	2		

Source: Executive Engineer Office, SMC

#### 2.4.1.1.1.2 MAJOR ROAD INTERSECTIONS

Most of the road intersections (chowks) are upgraded to accommodate the traffic load. Some have continuous high volume due to their location and surrounding land uses, such as Qasim Park Chowk, Dolphin Bakery Chowk, and Ghanta Ghar Chowk. There are traffic issues due to heavy vehicles, and railway level crossing, like Shikarpur Phattak Chowk. In general, traffic volume is high during the peak hours ranging from seven to 11 am in the morning, 12 to 2 pm in the afternoon, and 7 to 9 pm in the evening. Ayub Gate Chowk experiences periodic high traffic load on each Friday due to “Friday Bachat Bazar”. Moveable and immovable encroachments on roads and intersections are common, causing hindrance to traffic flows and contributing to accidents. In the road network, some points usually become common destinations for tourists and out-diners, like Qasim Park Chowk. City Point Chowk is usually jammed when buses arrive and depart for intercity passenger transportation. There are two graded intersections (flyovers), Police Lines to New Pind crossing Race Course Road, and ii) Shikarpur

Railway crossing passing over Shikarpur Road. Both are constructed using RCC. Following list shows major road intersections/chowks in Sukkur:

- Abad Lakha Chowk
- Awan Chowk
- Bhakar Chowk
- Burma Shell Depot Chowk
- Chowk Launch Mor
- City Point Chowk
- DIG Office Chowk
- Dolphin Bakery Chowk
- Garam Godi Chowk
- Ghanta Ghar Chowk
- Globe Chowk
- Gurdwara Chowk
- Jinnah Chowk
- Jiye Shah Chowk
- Kalma Chowk
- Madrassa Chowk
- Muhammadi Chowk
- Numaish Chowk
- Pakola / Site Area Chowk
- Police Line Chowk
- Purana Sukkur Chowk
- Qasim Park Chowk
- Shalimar Chowk
- Shikarpur Phattak Chowk
- Stadium Chowk
- Suzuki Stand Chowk
- Tonga Chowk
- Teer Chowk

In Sukkur, there is strength of above 50 Traffic Policemen in the City.

Table 2-54 shows the deployment of traffic police at various intersections. However, during the survey, most of the Chowks were found without any traffic constable. Traffic signals have been installed at two intersections only, namely Police Lines and Dolphin Bakery Chowks. During discussion with traffic police, following road intersections were chalked out as critical from the traffic management point of view, where physical re-modeling and/or traffic management measure are required.

- Police Line Chowk
- Ghanta Ghar Chowk
- Dolphin Bakery Chowk
- Shikarpur Phattak Chowk
- Garam Godi Mor
- Muhammadi Chowk

Table 2-54: Details of Policemen for Managing Traffic

S. No.	Name of Intersection	No. of Traffic Constables
1	Ayub Gate Chowk	1
2	Bypass Chowk	1
3	City Point Chowk	1
4	Clock Tower Chowk	4
5	Dadu Chowk	1
6	Dolphin Bakery Chowk	1
7	Dua Chowk	1
8	Fountain Chowk	1
9	Garam Godi Mor	1
10	Globe Chowk	2
12	Muhammadi Chowk	1
13	Police headquarter Chowk	2
14	Shikarpur Phattak Chowk	2
15	Teer Chowk	1
	<b>TOTAL</b>	<b>20</b>

Source: Traffic Police office, Sukkur

#### 2.4.1.2 OPERATION AND MAINTENANCE

Operation and maintenance of the streets and collector road network is generally a responsibility of the Municipal Corporation, Sukkur according to the Schedule-II of SLGO 2013. However, national highways, and provincial highways are the responsibility of the National and Provincial Highways Authority/Department respectively.

There is a general observation and the local authorities are not performing voice of public that O&M function properly. There is no mechanism for regular inspection, inventorying the network, pavement and allied infrastructure/road or street furniture for evaluation and maintenance requirements. Patching is restricted to areas of influential people instead of basing it on traffic demand. On the other hand, poor road/street drainage is detrimental to the pavement life.

Encroachment on roads and streets (permanent / moveable) is a big issue, which is common in all urban centers of the country. This problem presents its full intensity in CBD and the old city areas. Usually about half of the ROW is encroached, resulting frequent traffic jams, environmental pollution and wastage of time and resources of the residents.



Figure 2-36: Encroachments along the Roads

Organizational inefficiencies, lack of training, and political influences have not allowed the municipality staff to deliver the O&M function on modern lines. Authorities are unaware of latest tools / systems of database collection and management, developing interfaces with respect to GIS, timely assessment of maintenance requirements, etc.

#### 2.4.1.3 ROAD TRAFFIC

For assessment of future demand for any utility, it is essential to collect current level and pattern, and the factor that may likely influence the future demand. In order to understanding of situation of traffic density, it is important to know the registered number of motor vehicles in the District. However, solely this data will not give a true picture. The road users do not necessarily register vehicles in Sukkur. The following tables are presenting an overview of registered motor vehicle until July 2013 in Sukkur District.

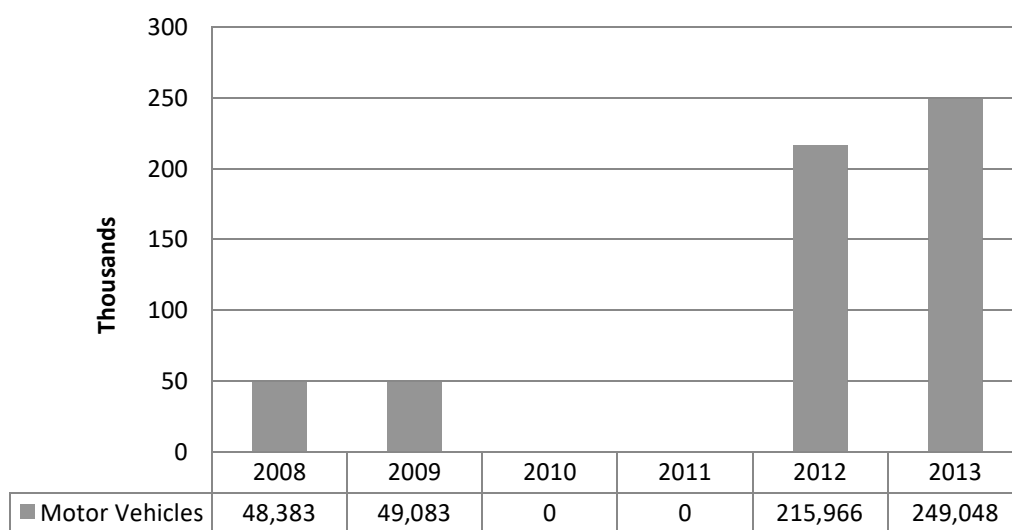


Figure 2-37: Registered Motor Vehicles

Source: Motor Registration Authority, Sukkur – 2013

Table 2-55: Registered Motor Vehicles

#	Type of Vehicle	As on 1/7/2008	As on 1/7/2009	As on 1/7/2012	As on 1/7/2013
1	Motor Cycle	42,060	41,920	192,087	228,800
2	Taxi	112	112	1,803	1,145
3	Motor Car/Jeep	870	940	1,145	1,803
4	Rickshaw	395	430	7,309	7,891
5	Mini Bus/Bus	816	937	4,426	
6	Truck	600	695		
7	Tractor	2,400	2,800	9,164	9,377
8	Pick-up/Others	1,130	1,249		
9	Ambulances			14	14
10	Water/Oil Tanker			18	18
	<b>TOTAL</b>	<b>48,383</b>	<b>49,083</b>	<b>215,966</b>	<b>249,048</b>

Source: Motor Registration Authority, Sukkur – 2013

From the above data, it is reflected that within last five years, total registered vehicles has been increased five times. Significant increase has been witnessed in Rickshaws and Motor Cycles. This shows the increasing trend in motorcycle ownership and expanding use of Rickshaws as individual public transport.

To know the traffic situation, reconnaissance survey was conducted on all major roads and intersections. Traffic counts were conducted during the peak hours at selected 10 intersections during the month of October 2013 as presented in Figure 2-38. This count was conducted during the peak-hours in the morning, afternoon and evening. The average hourly count segregated by type of vehicle is presented in the table. The data show that on each Chowk (intersection), average 2,455 vehicles have travelled in various direction amounting to 24,550 vehicles per hour in a day. The highest count was at Police Line Chowk with 3450 vehicles, and lowest was at Pakola/Site Area Chowk with 1,456 vehicles.

Traffic count presents just number of vehicles, but not their impact and contribution in the traffic volume. For example, a car is not comparable with bus from the area and impact on road and traffic movement. The cumulative capacity of a road is the carriage capacity of the concerned carriageway. Therefore, using passenger car equivalent factors given in the National Reference Manual of Planning and Infrastructure Standards of Pakistan, the vehicle count has been converted to passenger car units.

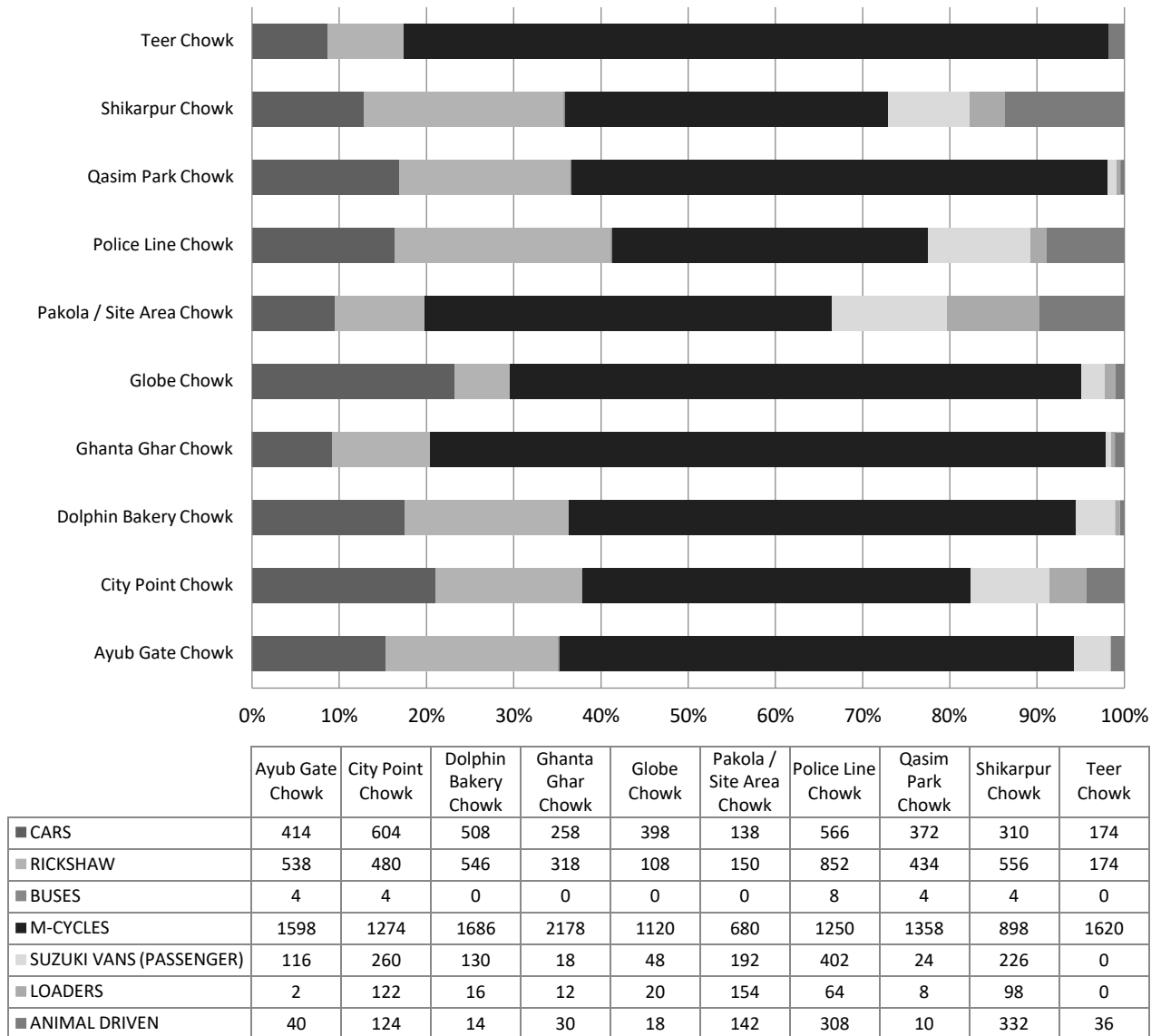


Figure 2-38: Peak-hour Traffic at Selected Intersections

Total PCUs at 10 selected intersections is 25,300, with average PCUs on each *Chowk* as 2530. The highest PCUs value is at Police Line *Chowk* with 4,310 PCUs, whereas the lowest PCUs at Globe Chowk with 1520 PCUs, as shown in Figure 2-38. From the PCUs values at various intersections, major improvements in engineering design and traffic management may be perceived at Police Line, Shikarpur and City Point Chowks, and minor improvements may be taken up at Ayub Gate, Dolphin Bakery, and Ghanta Ghar Chowks. This conclusion also corresponds to the suggestions given by the traffic police in section 2.4.1.1.1 (Physical Condition of Road Network). Animal driven vehicles are more in volume at Shikarpur and Police Line Chowks.

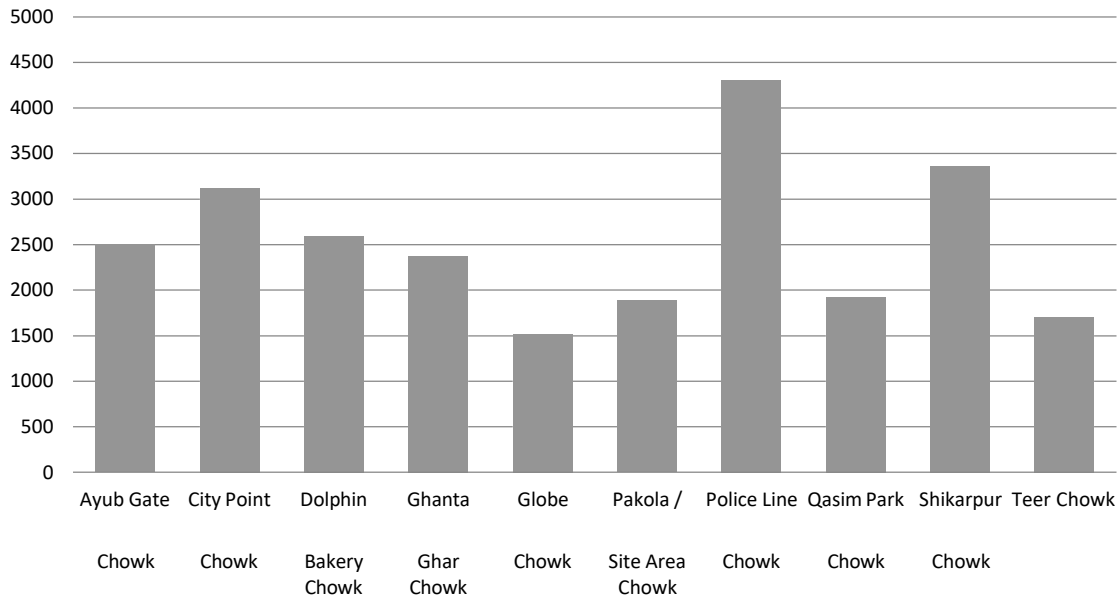


Figure 2-39: Accumulated Average Peak-hour Traffic on Selected Intersections (PCUs)

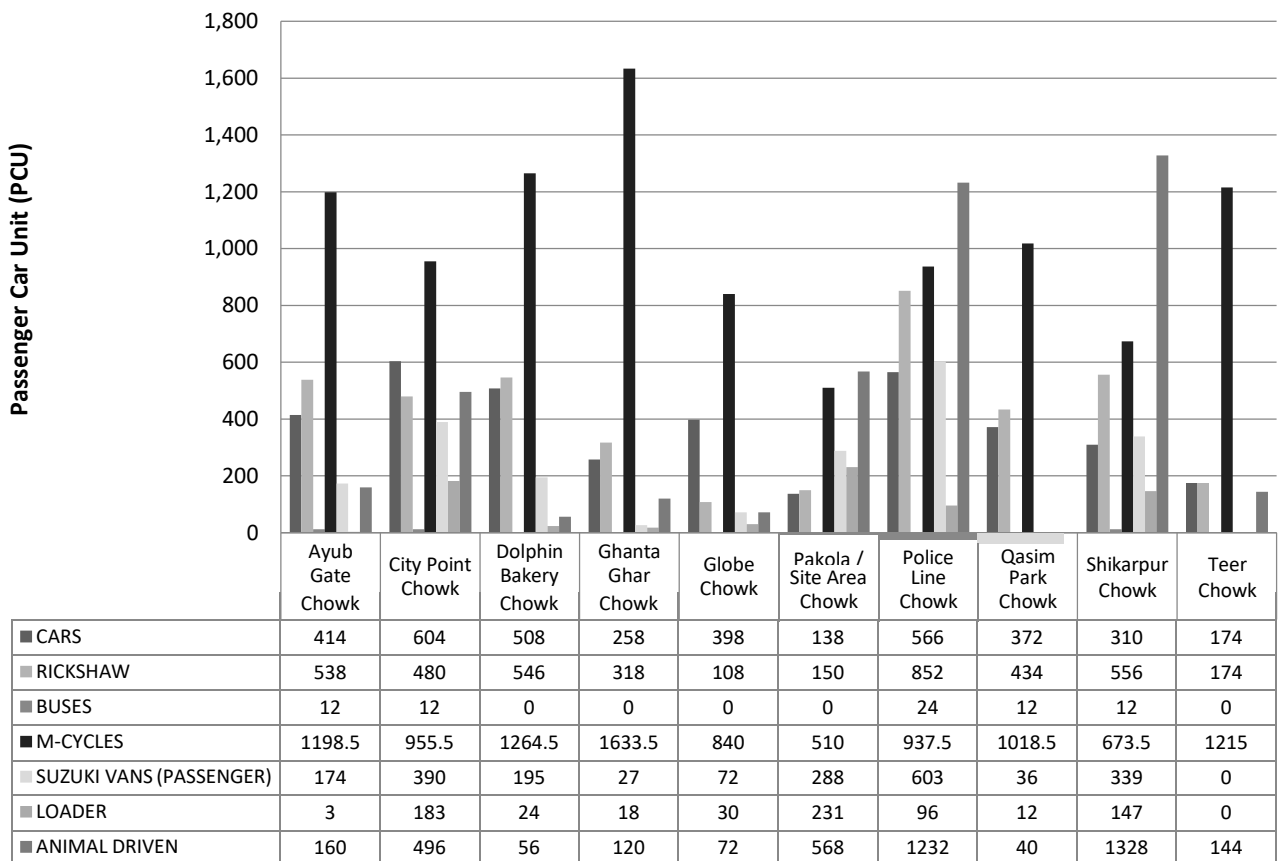


Figure 2-40: Peak-hour Traffic (in PCUs) at Selected Intersections

Since most of the above intersections are located in and around the old city within the CBD (Central Business District), and constitute the predominant center of intense economic activity and employment, it influences enormously the daily traffic flow of the City's road network. On working days during the morning hours traffic from almost all parts of the City gravitates to this center, while in the evening the traffic reverses back to the outlying areas. This characteristic traffic pattern causes enormous congestion and pressure on the urban transport system.

#### 2.4.1.3.1 SCREEN LINE TRAFFIC COUNT AT LANSDOWNE BRIDGE

As Sukkur has two-way dependency relationship with Rohri i.e. physical and economic. People daily commute between these twin cities, for jobs, education, and business purposes. Table 2-56 below presents daily traffic flow via old and famous Lansdowne Bridge. This count was carried out in the morning and evening of the same day and it shows that 1,723 vehicles passed through this link. Heavy traffic is not allowed on the bridge therefore no buses cross over this bridge.

Table 2-56: Traffic Count at Lansdowne Bridge Traffic (Linking Sukkur with Rohri)

Time Slot	Direction	M. Cycle	Rickshaw	Car	Suzuki Van	Mini-Bus / Wagon	Bus	Animal Driven	TOTAL
7:30 to 8:30 AM	To Sukkur	214	37	72	44	17	0	13	397
	From Sukkur	202	31	48	35	9	0	8	333
7:30 to 8:30 PM	To Sukkur	270	60	75	43	18	0	13	479
	From Sukkur	331	55	68	38	13	0	9	514
TOTAL		1017	183	263	160	57	0	43	1723

Source: Consultant's Field Survey, 2013

#### 2.4.2 PUBLIC TRANSPORT

Public transport is the means and way for the general citizen to connect their work with living places and to move within and outside the City for meeting their social and economic needs. As already mentioned city is well connected by all means of transportation (road, railway, and air), however, only roadway public transportation for inter and intra city movement has been discussed. Sukkur with an estimated population of around 0.5 million does not need any sophisticated mass transit system, however an efficient and respectable means of transportation are the need of any city. Considerable personal vehicle (car/motor cycle) ownership exists in the City, but even then a large population is adopting shared and individual public transport which includes buses, minibuses, taxis, rickshaws, vans and even animal driven vehicles like 'Tonga'.



Figure 2-41: Rickshaw is most common for para transit (Ghanta Ghar Chowk)

Table 2-57: Movement of Public Transport Vehicle (Bus/Mini-Bus) to and from Main Bus Terminal

	City (Origin/Destination)	Frequency
1	Rahimyar Khan	80
2	Larkana	12
3	Chak	44
4	Hyderabad/Karachi	28
5	Sanghar	12
6	Quetta	8
7	Lahore	4
8	Multan	4
<b>Total</b>		<b>192</b>

Source: Consultant's Field Survey, 2013

Rickshaws are most commonly used as para transit, whereas Suzuki vans are used for shared public transport. Designated places for taxi/rickshaw and van stands are available, but they are not built for this purpose. One important aspect of intercity movement is the travelling to and from Rohri, which is considered as the twin city of Sukkur. Some people do use the rail link for this short travelling, but most of the people use road transport to cover this distance of 5 to 10 kilometers.

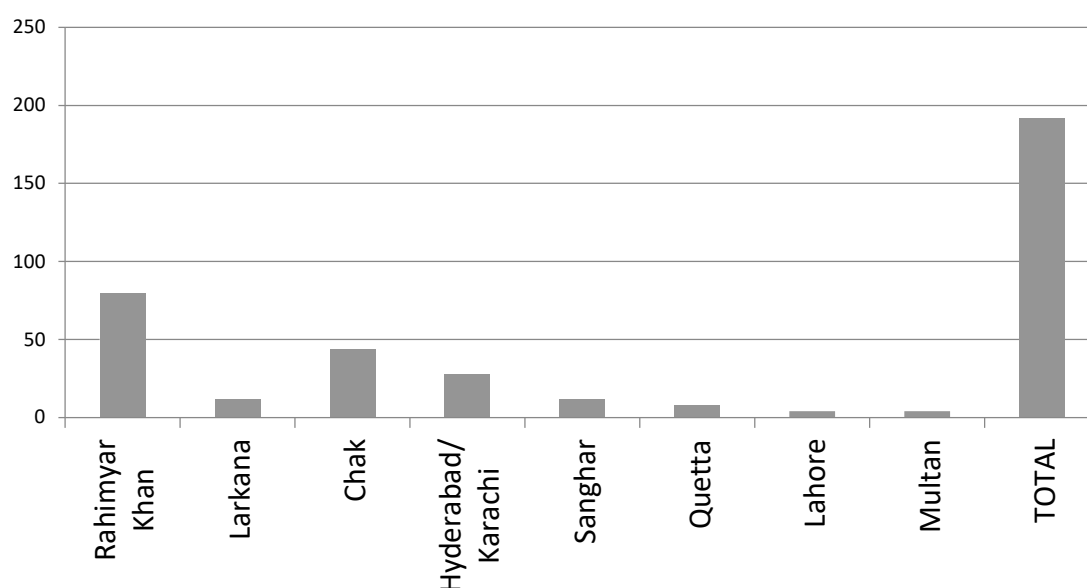


Figure 2-42: Daily Movement of Buses/Mini-Buses from Sukkur to various destinations

Regarding the intercity movement of passengers and goods, direct connections to several major cities are available via buses, minibuses and vans however a sizeable number of people use Rohri as origin and destination while travelling to north and south of the country. The reason is obvious that Rohri is located on the main highway and railway corridor. The data has been collected from the bus terminal of Sukkur City located in the north-west on Shikarpur Road. It is a purpose built terminal. About 200 buses/minibuses and 1600 vans (Toyota Hiace etc.) leave and arrive at this terminal connecting major settlements in the surroundings and to major cities in the country. Table 2-58 and Figure 2-43 show daily movement back and forth the Main Bus Terminal of Sukkur, facilitating about 44,000 passengers daily.

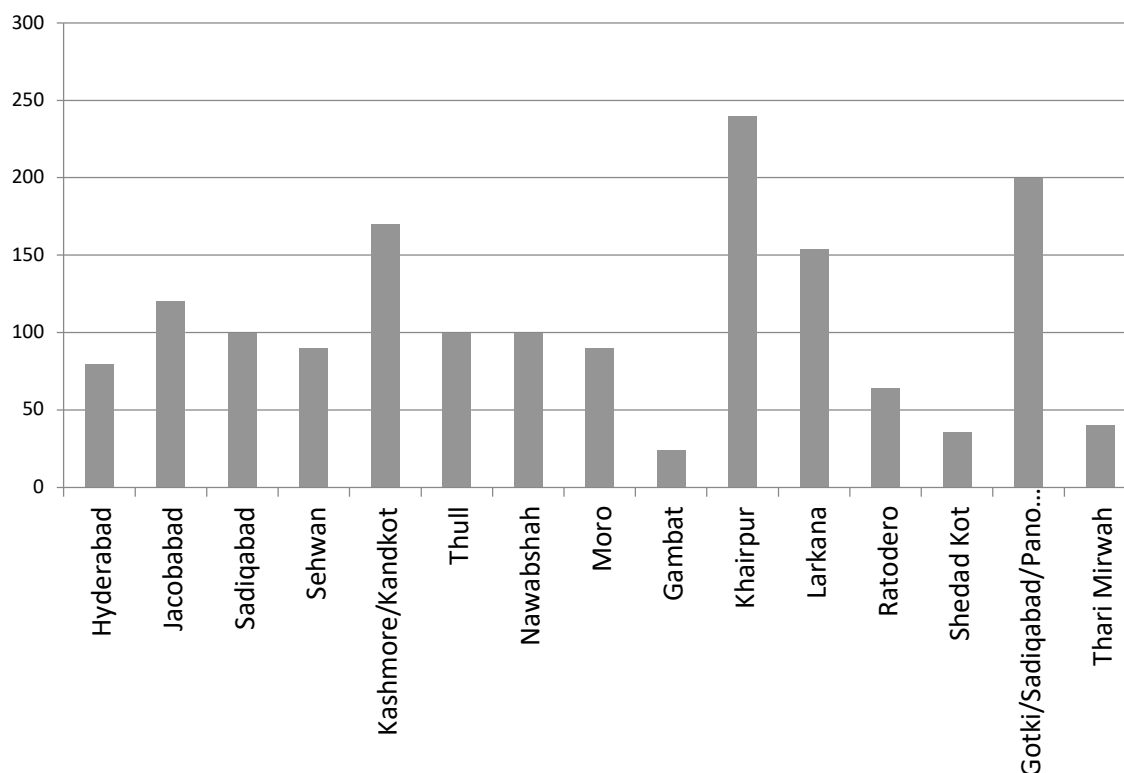


Figure 2-43: Daily Movement of Vans

Table 2-58: Daily Movement of Public Transport Vehicle (Vans) to and from Main Bus Terminal

	City (Origin/Destination)	Vans/Day
1	Hyderabad	80
2	Jacobabad	120
3	Sadiqabad	100
4	Sehwan	90
5	Kashmore/Kandh kot	170
6	Thull	100
7	Nawabshah	100
8	Moro	90
9	Gambat	24
10	Khairpur	240
11	Larkana	154
12	Ratodero	64
13	Shehdad Kot	36
14	Ghotki/Sadiqabad/Pano Akil/Mirpur Mathelo	200
15	Thari Mirwah	40
	<b>Total</b>	<b>1608</b>

Source: Consultant's Field data

### 2.4.3 RAILWAYS

Sukkur has been a gateway to Sindh, Punjab and Baluchistan on the rail-line; where railway lines proceed in three directions: northwards, up-country to Lahore, Rawalpindi & Peshawar via Rohri Junction; southwards, down the country, to Hyderabad and Karachi, and westward to Quetta. The railway station is located in the central city area and the historical Lansdowne Bridge linking to Rohri Junction is very famous and well known for its engineering design.

#### 2.4.4 AIR CONNECTIVITY

Sukkur being an important city of Pakistan has its airport located in the north-west of the Old City and caters for the needs of Sukkur, Khairpur and Rohri. Sukkur airport is the fifth busiest airport of Pakistan after Karachi, Lahore, Sialkot and Islamabad are connecting almost all commercially important destinations through 48 flights in a week. It is about 8 kilometers from the city center and connected through Airport Road, which provides connectivity to the most of the new and posh housing schemes of Sukkur.

#### 2.4.5 PARKING

Due to the increasing number of car ownership and overall increase in vehicular traffic, parking is becoming a sour issue in all emerging and developing urban centers in the country. In Sukkur, there are some designated parking areas/places (Curb / Open Space Parking), but these are not purpose built. On roads, curbside parking creates problems for smooth traffic flow during the peak hours. It is more evident at central city road and chowks.



Figure 2-44: Encroachments on the Space available for Parking



Figure 2-45: Encroachments and On-street Parking

Replacing the old 1-2 storey construction with 4-5 storeys' mixed-use plazas is common in the old city area and areas near the CBD. According to the prevailing standards, car and motorcycle parking has to be arranged within the commercial and mixed land use buildings, such as parking for a car for each 1000-1300 square feet of floor area, and for a motorcycle for each 300 square feet of the covered area. This provision is available in the Sindh Building Control & Town Planning Regulations, but its implementation seems somehow weak. Moreover, even the available space has been encroached, as evident from the photographs.

## 2.5 ECOLOGY AND ENVIRONMENTAL SETTING<sup>h</sup>

### 2.5.1 ECOLOGY

Indus River habitat is an ecologically important area in respect of fauna and flora. Indus River and its associated marshes on both banks, which are usually inundated during monsoon, are very important as staging and wintering habitat for migratory birds. The main river course is also important for migratory species as it plays an important role for their navigation. The abundance of different invertebrates, including insects and soil biodiversity coupled with different floral species, their grubs are the main source of food for resident and migratory birds.

Indus River, between the Guddu Barrage and the Sukkur Barrage is a very important reserve and habitat for Indus Dolphin. This part of the river contains almost 60% of the entire population of this river dolphin. Different plant species are observed from this habitat, at the river banks, Bukkur Island, which is land area surrounded with river water and inland area where natural vegetation is available. Species that grow on the island include *Alhagi maurorum*, *Desmostachya bipinnata*, *Saccharum spontaneum*, *Saccharum bengalensis*, *Salvadora oleoides*, *Salvadora persica*, *Tamarix indica*, *Tamarix aphylla* etc. Some of the submerged species are *Typha domingensis*, *Typha elephantina* and *Phragmites karka*.

The migratory species of birds can be observed along the Indus and marshes on both of its sides. However, their concentration remains variable, as the majority of the migratory birds return in early February. Mainly, wader species are commonly observed throughout the year.

Thirty four (34) plant species belonging to 18 families are recently reported by the NSUSC EIA study in the vicinity of River Indus.

Table 2-59 provides a list of the floral species. The quantitative analysis of floral composition was also reported with relative cover, relative density, and relative frequency and IVI (importance value index) of species.

List of species found in the vicinity of River Indus at Sukkur along with the IVI values for the major critical habitat identified by botanist in the main habitat for quadrates measuring 20 x 20 m (Climax community: Trees/Tall shrubs) and 2 x 2 m (Underneath flora: tall herbs/sub-shrubs/herbs and grass). The species found in the project area, which are of importance in terms of medicinal and economical use, include *Desmostachya bipinnata* and *Typha elephantina*. No endemic or rare species are reported in the vicinity of the Indus River in Sukkur. All the reported species have a wide range of distribution.

Table 2-59: Floral Species in the Project Area

	Plant species	Local Name	Family	Habit
1	<i>Acacia nilotica</i> (Linn.) Delile.	Sindhi Babur	Mimosaceae	Tree
2	<i>Albizia lebbbeck</i> (Linn.) Bth.	Sarianh	Mimosaceae	Tree
3	<i>Albizia procera</i> (Roxb.) Benth	Sarianh	Mimosaceae	Tree
4	<i>Alhagi maurorum</i> Medic.	Kandero	Fabaceae	Herb
	<i>Azadirachta indica</i> Adr. Juss.	Neem	Meliaceae	Tree
6	<i>Bombax ceiba</i> L.	Sumbul	Malvaceae	Tree
7	<i>Calotropis procera</i> (Willd.) R. Br.	Ak	Asclepiadaceae	Shrub
8	<i>Cynodon dactylon</i> (Linn.) Pers.	Chhabar	Poaceae	Grass
9	<i>Dalbergia sisso</i> Roxb.	Taari	Fabaceae	Tree
	<i>Desmostachya bipinnata</i> (L.) Stapf.	Drabh	Poaceae	Grass

<sup>h</sup> Updated Ecology and Environmental sector of Sukkur is in the Addendum at page no. 39

	Plant species	Local Name	Family	Habit
11	<i>Eclipta prostrata</i> (Linn.) Mant.	Daryahi Buti	Asteraceae	Herb
12	<i>Eucalyptus spp.</i>	Sufeda	Myrtaceae	Tree
13	<i>Euphorbia hirta</i> Forsk.	Kherawal	Euphorbiaceae	Herb
14	<i>Ficus benghalensis</i> L.	Bar	Moraceae	Tree
	<i>Ficus religiosa</i> Linn.	Pepul	Moraceae	Tree
16	<i>Launaea procumbens</i> (Roxb.) Rammayya & Rajagopal.	Bhattar	Asteraceae	Herb
17	<i>Mukia maderaspatana</i> (Linn.) M.J. Roem.	Nandh Wal	Cucurbitaceae	Herb
18	<i>Phragmites karka</i> (Retz.) Trin	Naro	Poaceae	Grass
19	<i>Phoenix dactylifera</i> L.	Khaji	Arecaceae	Tree
	<i>Phyla nodiflora</i> (L.) Greene.	Bukkan	Verbenaceae	Herb
21	<i>Phyllanthus reticulatus</i> Poir.	Kamoooh	Euphorbiaceae	Shrub
22	<i>Prosopis juliflora</i> (Sw.) DC.	Davi	Mimosaceae	Shrub
23	<i>Saccharum bengalensis</i> Retz.	Kanh, Booro	Poaceae	Grass
24	<i>Saccharum griffithii</i> Munro ex Boiss.	Kahan	Poaceae	Grass
	<i>Salvadora persica</i> L.	Khabbar	Salvadoraceae	Tree
26	<i>Solanum nigrum</i> Linn.	Kanwal	Solanaceae	Herb
27	<i>Solanum surattense</i> Burm.f.	Kanderi	Solanaceae	Herb
28	<i>Syzygium cumini</i> (L.) Skeel	Jaman	Myrtaceae	Tree
29	<i>Tamarix aphylla</i> (Linn.) Karst.	Lao	Tamaricaceae	Tree
	<i>Tamarix indica</i> Willd.	Lao	Tamaricaceae	Shrub
31	<i>Typha domingensis</i> Pers.	Pan	Typhaceae	Sedge
32	<i>Typha elephantina</i> Roxb.	Pan	Typhaceae	Sedge
33	<i>Withania somnifera</i> (L.) Dunal	.....	Solanaceae	Herb
34	<i>Zizyphus nummularia mauritiana</i> Lam.	Ber	Rhamnaceae	Tree

Source: Environmental impact assessment report by M/S RCC Consultant, Feb 2012

The EIA Study of NSUSC reported 41 species of birds in the vicinity of the Indus River in Sukkur. Abundant species include bank myna, little green bee-eater, white-cheeked bulbul, crested lark, pied bush chat, common babbler, house crow, common myna and house sparrow. Along with resident species, a few winter visitors are also reported viz. black redstart, lesser whitethroat, Common Chiffchaff, Common Sandpiper and yellow wagtail.

Other than common mammals found in urban environments (cats and dogs), 08 species of mammals are reported in the EIA Study of NSUSC. Out of these eight, four are common; there are less common while one is rare. Out of these eight mammals, one specie Indus dolphin is of global significance, listed in IUCN Red List (2006) and protected under Sindh Wildlife Protection Ordinance. Small mammals, gerbils, birds, rats and mice are common as was noticed by their burrow system. Smaller mammals are a main source of food for raptors and carnivore species and have an important role in the food web.

Nine reptile species, including two species of freshwater turtles are reported in the NSUSC EIA Study. Out of which five are common, four are less common and none is rare. Comparatively uncommon species include Indian cobra, which is encountered in riverine and densely vegetated areas. Out of

nine recorded species, only one of them is protected under the Sindh Wildlife Protection Ordinance and four are listed in different Appendices of CITES in view of their international importance.

The NSUSC EIA Study reported nine important edible fish species in the River Indus nearby Sukkur. These species include *Notopterus chitata* (gandan), *Labeo rohita* (Dambra), *Catla* (Thaila), *Cirrhinus mrigala* (Morakhi), *Osteobrama cotio* (Dhambra), *Aorichthys aoe* (Singharee), *Rita* (Khagga), *Wallago Attu* (Malli) and *Bagarius* (Khagga).

The family Cyprinidae is the most common family represented by four species while the other 28 species are divided among four families in various combinations. Presently, over-fishing of species of economic importance, use of illegal mesh size, and pollution from industrial and domestic effluents are the major problems according to the perception survey of local anglers.

The inland fisheries of Pakistan consist of three sub-sectors: firstly, the traditional capture fisheries in rivers, lakes, reservoirs, barrages and other water bodies. Secondly, sport or recreational fisheries, (primarily in the KPK and the Northern Areas) and lastly the aquaculture in small and large ponds. Inland fisheries in Pakistan are primarily a provincial responsibility. The provinces have jurisdiction over all the water bodies located within the province with the exception of large reservoirs, which are managed by WAPDA. Fishing is subject to the Fisheries Ordinance/Acts of the provincial legislature with respect to conservation. Traditional inland fisheries are managed by an auction system and limited licensing of natural water bodies. For this purpose, the rivers, canals, barrage reservoirs and head works are compartmentalized arbitrarily and the fishing rights for each compartment are annually auctioned publicly by the concerned Fisheries Department.

The limited licensing is subject to various regulatory rules, such as closed seasons (May, June, July and August) which are aimed at sustaining the fish productivity and conservation of the species. Whereas the licensing system is well developed, the management of the water bodies under this system is not efficient, as the magnitude of the resource is not well quantified. There is a dearth of information on the maximum sustainable yield (MSY) and on fish production.

Fishing is practiced between Sukkur and Guddu Barrage. Fishing rights at the Barrage are licensed by fisheries department for PKR 100 every year. Fishing at the Sukkur Barrage has no national significance; fish catch from the area is minimal and is only enough for the local markets.

About 200 households are dependent on fishing activity between Sukkur and Guddu barrage. Most of these people belong to the *Mirbahar/Mallah* community. Their average earning ranges between PKR 700 to 800 per day.

## 2.5.2 ENVIRONMENTAL SETTINGS

### 2.5.2.1 AIR QUALITY AND NOISE

Sukkur is located adjacent to the River Indus with some industrial units in Rohri and a few in Sukkur Area including a cement factory. Two stroke Rickshaws in Sukkur area and Vehicular traffic on the sandy roads cause dust emissions with fairly localized effect. Traffic on the roads within the city is spatially variable, therefore; the effects are also variably significant due to ambient air quality concerns exist for communities living close to the roads. It is reported that strong winds and high temperature during summer lead to high levels of airborne dust and occasionally give rise to short- duration dust storms in the area.

Major sources of noise in Sukkur City are roadway traffic, railway traffic, construction, and industry. Heavy traffic, including buses and truck, 2 stroke rickshaws and *Qinquis* (6 seat, 2 stroke rickshaw) are the main cause of roadway noise in Sukkur City emitting noise up to 80 dB (A). A recent NSUSC EIA

study (2012) has reported the noise levels (24 hours monitored) in the close vicinity of the Indus River. The locations monitored were Lansdowne Bridge, inside the existing water Intake Jetty, outside the existing intake jetty, near Sadhu Bella, at and away from Bukkur Island, at Sukkur Barrage and at Lansdowne Bridge when the train crossed.

## 2.5.2.2 HYDROLOGY AND WATER QUALITY

### 2.5.2.2.1 SURFACE HYDROLOGY

The major surface water feature in the area is the Indus River. Indus drains an area of about 950,000 km<sup>2</sup>, which generates a mean annual discharge of 6,682 m<sup>3</sup>/s (236,000 cusecs). The mean annual flood at the Sukkur Barrage is 18,100 m<sup>3</sup>/s (640,000 cusecs). The hydrograph of the Indus River is strongly seasonal with a long, low water season between October to March and a high water season between April to September, driven primarily by snowmelt in the upper catchment and monsoon rainfall. The river usually peaks in mid-August or early September. The river carries large sediment loads due to widespread and rapid erosion in its upper catchment. It is estimated that about 1 billion m<sup>3</sup> of sediment is deposited in its floodplain each year. Because of this continuing deposition, the river has developed natural levees along its length.

Sukkur is one of the five fixed points of the river's course, and its gauge readings are reported on Bukkur Island. The gauge was fixed there in 1848. Water quality in the Indus has been continuously monitored since 1973 at Sukkur, Kotri and other locations. Water quality data at Sukkur Barrage from 1973 to 1991 has shown yearly averages of TDS to vary from 165 to 290 mg/l, with relatively higher TDS in the months of January to May (200 -300 mg/l) and lower from June to December (100 -200 mg/l). Indus River water quality has also been studied at the Dadu Moro Bridge and Kotri Barrage, with nitrate levels at 1.1 and 7.5 mg/l, phosphate at 0.02 and 0.3 mg/l, BOD of 2.4 and 4.1 mg/l, and fecal Coliforms at 50 and 400 per ml.

**Sukkur Barrage:** Sukkur barrage is constructed across the Indus River near the City of Sukkur. It was built under British control from 1923 to 1932 as Lloyd Barrage to help with the problems of famines caused by lack of rains. Another main component of the Sukkur Barrage irrigation development scheme is the construction of vast canal networks in eight districts of the Sindh Province. The canal network includes seven main canals and numerous subsidiary canals that convey irrigation water to 8.6 million acres of arable land.

The barrage enables the water to flow through a 6,166-mile network of canals enabling a large area of farms of an arid country to be cultivated. This countrywide canal system provides the largest irrigation system in the world, with more than 5 million acres (20,000 km<sup>2</sup>) of irrigated land in Sindh. Six canals take off from Sukkur Barrage for irrigation. These include Dadu Canal, Nara Canal, Rohri Canal, Rice Canal, N.W Canal and Kirthar Canal. Their discharge volumes from 1961 to 2010 recorded at Sukkur Barrage are in Table 2-60.

Table 2-60: Discharge Levels at Sukkur Barrage (Cusecs)

S. NO	Date	River Left Bank gauge (ft.)	Sadhu Bela gauge R.L (ft.)	Discharge (Cusecs)
1	10/8/1961	200	200.48	828160
2	26-08-1962	197.85	198.33	439687
3	20-08-1963	198.1	198.58	522552
4	29-08-1964	200.7	201.18	710010
5	7/9/1965	198.4	198.88	989991
6	18-08-1966	200	200.48	665029

S. NO	Date	River Left Bank gauge (ft.)	Sadhu Bela gauge R.L (ft.)	Discharge (Cusecs)
7	15-08-1967	198.6	199.08	656945
8	23-08-1968	198.4	198.88	585896
9	22-08-1969	199.9	200.38	652781
10	22-08-1970	198.6	199.08	329275
11	19-08-1971	198.7	199.18	581600
12	17-08-1972	200.4	200.88	374971
13	21-08-1973	202.9	203.38	1117246
14	11/6/1974	199.2	199.68	1177700
15	2/9/1975	202.5	202.98	1051316
16	17-08-1976	204.4	204.88	1200574
17	28-09-1977	199.55	200.03	1166336
18	20-08-1978	202.5	202.98	1116430
19	11/8/1979	199.1	199.58	501334
20	17-08-1980	198.1	198.58	615778
21	8/8/1981	199.15	199.63	631359
22	20-08-1982	198.5	198.98	465000
23	16-08-1983	201.3	201.78	763421
24	7/9/1984	199	199.48	607398
25	16-08-1985	198.8	199.28	390380
26	15-08-1986	199.3	199.78	1166574
27	4/9/1987	198.8	199.28	316245
28	31-07-1988	200.3	200.78	1118856
29	10/8/1989	198.8	199.28	910295
30	9/7/1990	199.3	199.78	551867
31	27-06-1991	199.3	199.78	567165
32	20-09-1992	199.3	199.78	1064200
33	25-07-1993	199.6	200.08	569160
34	2/8/1994	200.05	200.53	757350
35	7/8/1995	200.3	200.78	985929
36	24-08-1996	200.1	200.58	757190
37	8/9/1997	199.6	200.08	801170
38	24-07-1998	199.7	200.18	628755
39	1/10/1999	200	200.48	91818
40	9/8/2000	199.3	199.78	170775
41	1/8/2001	199.2	199.68	217848
42	23-08-2002	199	199.48	237549
43	7/8/2003	199.8	200.28	335933
44	24-07-2004	198.8	199.28	126130
45	26-07-2005	198.8	199.28	508837
46	16-08-2006	199.6	200.08	554088
47	24-08-2007	199.6	200.08	297840

S. NO	Date	River Left Bank gauge (ft.)	Sadhu Bela gauge R.L (ft.)	Discharge (Cusecs)
48	15-08-2008	199.7	200.18	250085
49	26-08-2009	199.7	200.18	195717
50	10/8/2010	203.8	204.28	1130995

Source: NSUSC Water Intake Project EIA Report, Feb 2012

When the barrage gates are fully opened and the canal gates are fully closed the pond level drops. Analysis of last 50 years data indicates that during closure period average pond level drops to 184.0 ft. Table 2-61 below reports the closure periods from 1961 to 2011. It is concluded that the total closure days from 1961 to 2011 are 784 averaging 15.86 days closure per year.

Table 2-61: Closure Periods (1961 to 2011)

Year	Closure Days	Gauge Level	Year	Closure Days	Gauge Level
1961-1962	16	185.56	1986-1987	16	183.58
1962-1963	15	184.22	1987-1988	16	184.48
1963-1964	17	185.57	1988-1989	15	184.28
1964-1965	20	184.88	1989-1990	16	186.53
1965-1966	17	183.94	1990-1991	16	184.08
1966-1967	15	183.33	1991-1992	15	184.28
1967-1968	11	187.2	1992-1993	15	185.98
1968-1969	13	184.96	1993-1994	16	187.08
1969-1970	14	184.72	1994-1995	18	182.28
1970-1971	13	193.43	1995-1996	15	187.28
1971-1972	7	185.11	1996-1997	13	183.78
1972-1973	15	185.86	1997-1998	16	184.68
1973-1974	15	185.23	1998-1999	16	185.98
1974-1975	15	185.23	1999-2000	14	184.38
1975-1976	15	184.61	2000-2001	13	182.48
1976-1977	15	185.23	2001-2002	16	180.62
1977-1978	15	184.18	2002-2003	19	181.48
1978-1979	15	185.22	2003-2004	17	180.98
1979-1980	14	185.9	2004-2005	24	182.88
1980-1981	25	185.8	2005-2006	21	182.08
1981-1982	14	185.39	2006-2007	15	184.78
1982-1983	18	185.2	2007-2008	16	184.28
1983-1984	15	187.46	2008-2009	15	183.48
1984-1985	16	185.28	2009-2010	16	185.68
1985-1986	16	186.58	2010-2011	14	184.48

Source: NSUSC Water Intake Project EIA Report, Feb 2012

#### 2.5.2.2.2 GROUNDWATER

In Sukkur, groundwater at some locations is saline. Drawing of a large quantity of water makes groundwater more saline. The water table in the area along canals and Indus ranges from 12 ft. to 20 ft. with a gradient oriented southward. Groundwater for domestic consumption is extracted through

shallow hand pumps (with motors installed at few). These hand pumps are usually dug to a depth of 20 to 30 ft. Water quality is generally sweet, but at a few places, brackish groundwater was also found during the field survey. Tube wells installed for supplementing canal irrigation are dug to depths of 75 ft. to 100 ft. The groundwater at these depths is also sweet. The discharge from these tube wells was judged around 0.5 cusecs. The locals reported that these tube wells could be operated for up to 8-10 hours continuously without any drop in discharge or water pressure. The water supply for Sukkur and Rohri cities is extracted directly from the Indus.

Sweet groundwater is found in ample quantity in areas along the canal network and River Indus. However, the communities reported a relative decline from previous years. This has mainly been due to over extraction through deep tube wells installed for supplementing canal irrigation. Groundwater remains an important source of water as it is used to supplement canal irrigation and water supply for domestic consumption.

#### 2.5.2.2.3 WATER QUALITY

Water quality analysis was carried out in the year 2012 as part of the EIA study of “Sukkur Water Intake from Indus River” by NSM’s RCC Consultant through M/s RCC Consultant. For the analysis, 24 water samples were taken from various sources including groundwater. Different parameters were analyzed in each sample and thereafter compared with National Standards for Drinking Water Quality (NSDWQ). All these parameters of water play an important role, especially in determining its quality and suitability for intended use. The value of fluoride in seven samples was found to be exceeding the limits specified in NSDWQ.

Coliforms and E. coli were also reported in the water indicating fecal/sewerage contamination in drinking water. According to WHO, there should be any E. coli in 100 ml of water. It is to be highlighted that all results of collected samples were found to be unfit for drinking purposes. At present, the sources of water contamination observed are open defecation, disposal of domestic and livestock waste by the community; however, no quantitative figures for the extent of this contamination are available.

## 2.6 HAZARDS AND DISASTER RISKS<sup>1</sup>

### 2.6.1 REGIONAL CONTEXT

The October 2005 earthquake highlighted the risk exposure and vulnerability of Pakistan. The decision makers, politicians, media, development workers, international donors and the general populace have become aware of the major catastrophic risks facing Pakistan. Pakistan's exposure to natural hazards and disasters could be ranked between moderate to severe. A range of natural hazards, including earthquakes, droughts, floods, landslides, avalanches, cyclones/storms, tsunamis, glacial lake outbursts, and river erosion threaten Pakistan. In addition, a variety of human induced hazards also threatens the society, economy and environment in the country. They include industrial, nuclear and transport accidents, oil spills, urban fires and civil conflicts. The high priority hazards from the perspective of disaster risk reduction include earthquakes, droughts, flooding and transport accidents that cause widespread damage and losses when they occur.

The province of Sindh has historically suffered from both natural and human induced disasters. Nevertheless, the high level of risk is mainly from floods / heavy rains, cyclones in coastal area, sea intrusion, droughts, earthquakes, epidemics etc.

#### 2.6.1.1 INDUS RIVER FLOODING

The topography of Sindh Province is almost flat and located at the bottom of the Indus basin. The surplus water of the Indus River and its tributaries, including monsoon has to pass through Sindh. Hill torrents, which emanate from Baluchistan, are also adding up to the pressure on both accounts, until its outfall in the Arabian Sea. The River Indus in Sindh is dangerous, because it flows at the ridge. In case of breach, the out flowing water cannot be drained back into the river at any point.

Since the creation of a modern irrigation network in 1932, high floods are being monitored. The river Indus is contained by flood protection embankments, which are 1400 miles, to protect the irrigation network emanating from three barrages having 12.8 million acres' of the command area. Besides, there is a large network of surface drainage and 6000 public tube wells, roads, railway network, cities / towns, rural settlements etc. The high floods occurred during the years 1942, 1956, 1957, 1958, 1973, 1975, 1976, 1979, 1992, 1994, 1995, 2003, 2005, 2007, 2010, 2011, 2012 and 2013.

The Tarbela flood peak of 2010 (835,000 cusecs) was the highest value in its history (682,159 cusecs), but lower than its design flood (1,500,000 cusecs). The flood peak at Chashma (1,036,673 cusecs) was also the highest on record (1,028,723 cusecs) and higher than the design capacity of the barrage (950,000 cusecs; 9% higher). The flood peak at Kotri was also very high (964,897 cusecs) and higher than its design capacity (875,000 cusecs); but the year 2010 flood peak was lower than the historical flood peak (981,000 cusecs; 10% higher). In the year 2010, flood peak was at Kalabagh, whereas Guddu and Sukkur were lower than their historical peaks, as well as lower than their design capacity.

<sup>1</sup> Updated Hazards and Disaster Risks sector of Sukkur is in the Addendum at page no. 39

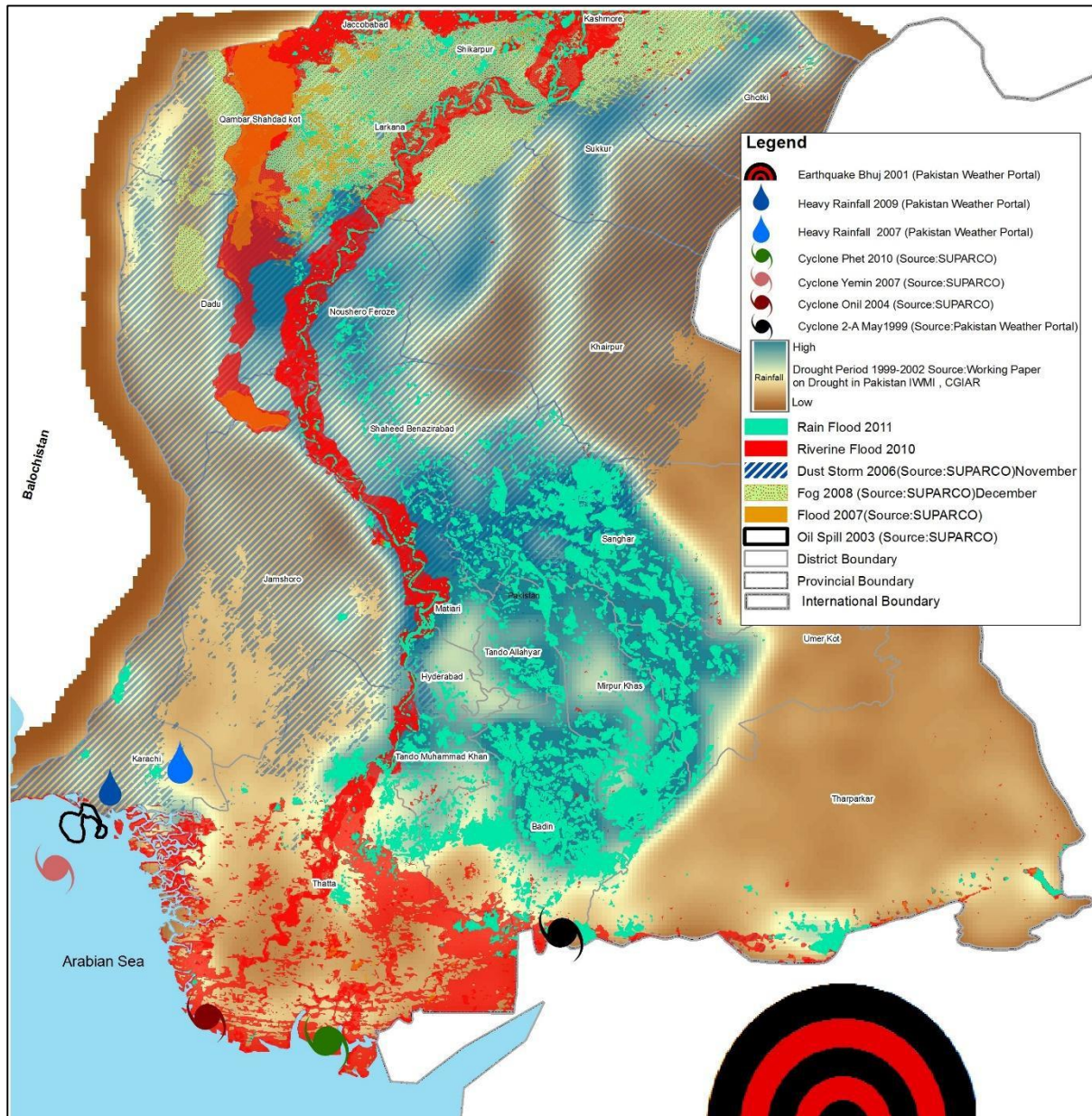


Figure 2-46: Hazard Map of Sindh

Source: iMMAP, Pakistan, 2011

### 2.6.1.2 SEISMIC HAZARDS AND DRAINAGE INFRASTRUCTURE

Within Sindh and Baluchistan, the Makran coast, including Gwadar and Pasni are located in high or very high-risk areas. Karachi is located on the edges of high-risk areas and the left bank of the Indus is located in low risk seismic and hazard zone (see

Figure 2-47). The potential for extremely strong seismic shaking and damage from earthquakes in Sindh is very high. Much of the literature on the seismicity of Pakistan concentrates on the damage caused by historical earthquakes in the past century (from 1900 to the present) in the northern part of the country as shown in Figure 2-48. However, the largest modern earthquake ever recorded was in Pakistan on the Makran Coast in 1945 with an intensity measured in Richter scale –  $M = 8.1$  when 4,000 fatalities were recorded. Figure 2-48 indicates the historical earthquake events recorded in Pakistan and adjoining areas.

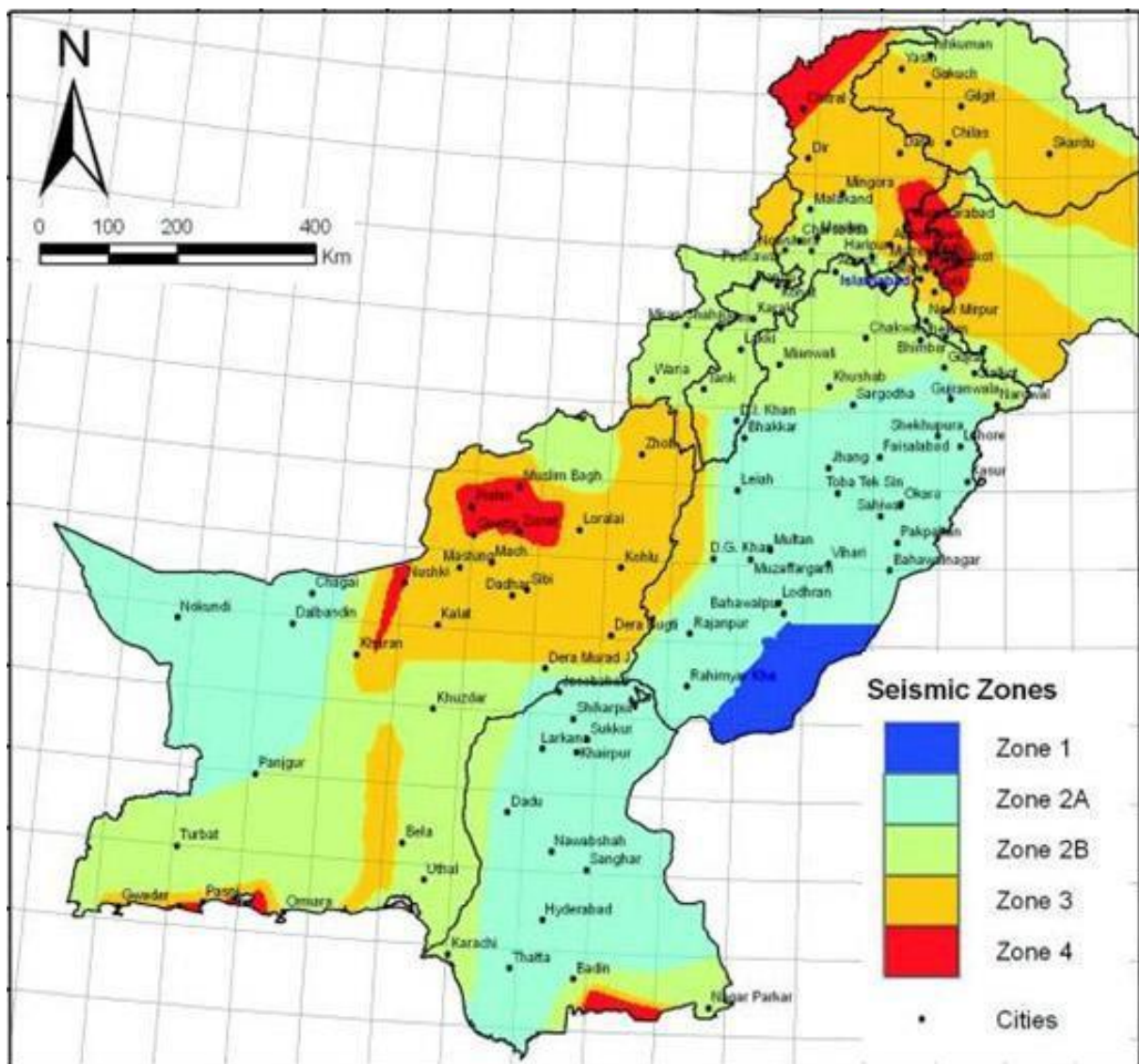


Figure 2-47: Seismic Zones of Pakistan

Source: Geological Survey of Pakistan

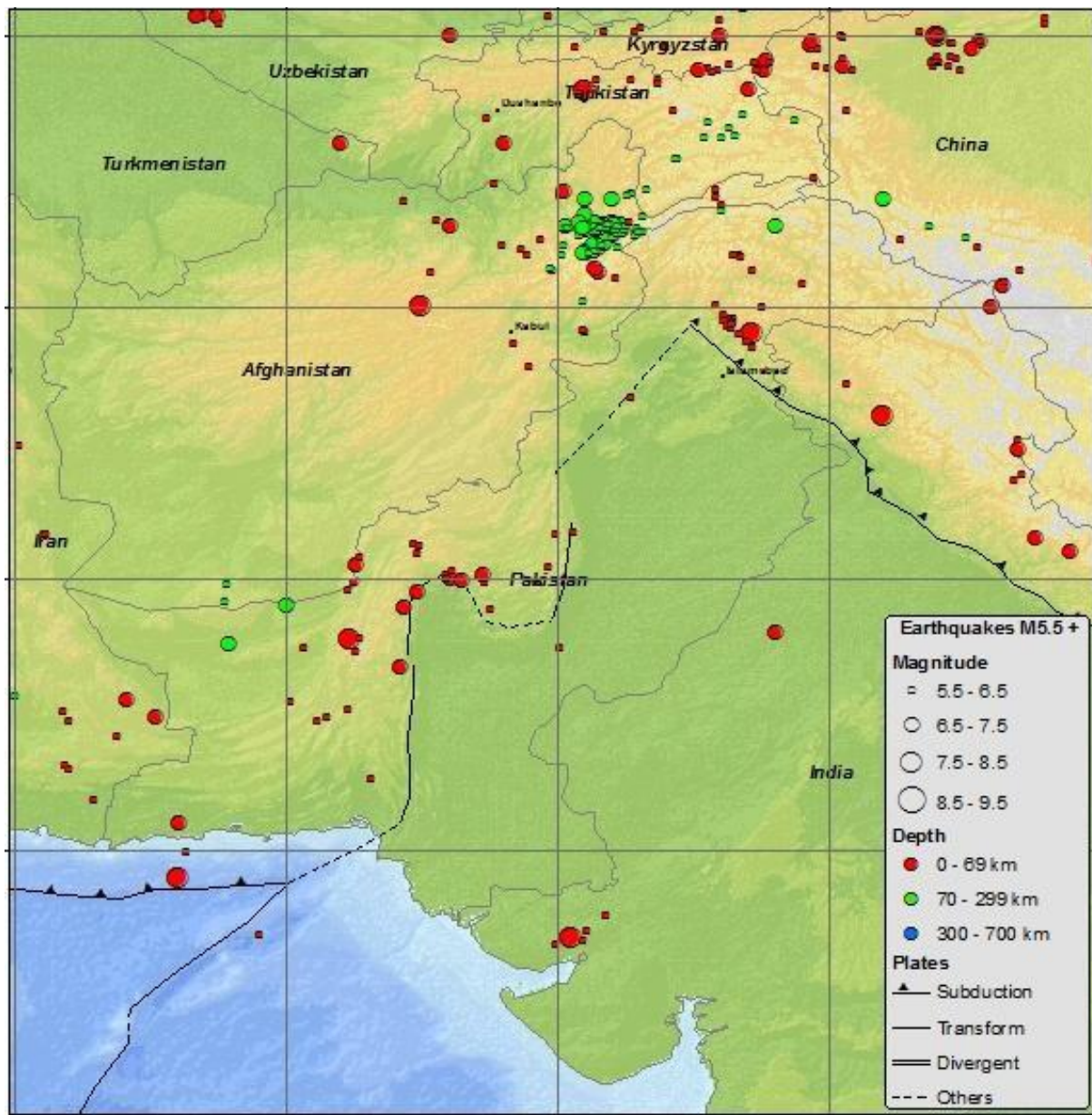


Figure 2-48: Major Seismic Activity in Pakistan (1900 to date)

Source: <http://earthquake.usgs.gov/earthquakes/world/pakistan/seismicity.php>

### 2.6.1.3 DROUGHT

Sindh's 60% area is arid receiving rainfall on average of 5 inches during monsoon and very little in December and January. The arid area people depend upon the scanty rainfall raising livestock and millet crops. The failure of rainfall and global climatic effects, reduce the water supplies in the Indus River System (IRS). Sindh is at the far end of the system, usually takes the brink. Besides, two-third of ground water is brackish and water logging and salinity affect 80% agricultural land. Arid area people usually move to the canal commanded area, but low flow in the river Indus from 1998-2002 created havoc in the entire province.

Historically, Sindh faced the worst drought situation during the years 1871, 1881, 1899, 1931, 1942 and 1999. The last one persisted until the year 2002. Around 1.4 million people, 5.6 million cattle heads and 12.5 million acres cropped area was affected. The ground water depleted to 30-40 feet, and the quality became poor. Because of malnutrition, disease erupted. The cultivated area reduced in 1998 from 3.415 million acres to 2.611 million acres. The most affected was wheat area 22% and rice almost 35%. Besides, cultivated area grew poor crops, which created food scarcity all over Sindh, except for a couple of districts. There was tremendous drop out (about 27%) in schools, due to drought situation.

## 2.6.2 LOCAL CONTEXT

Emphasizing and reinforcing the environmental concerns of disaster management has become a critical priority, requiring the sound management of natural resources as a tool to prevent disasters or reduce their impacts on people, their homes and livelihoods.

### 2.6.2.1 HAZARDS AND VULNERABILITY

Due to its close proximity to India, it is always at a threat of coming under attack or firing at the border resulting in internal displacement. Moreover, the region experience harsh climate rains in the summer and monsoon causing heavy flooding, while dry winters often witness mild to severe droughts. Another problem faced by the district is of water logging and salinity. A large, potentially cultivable area of Sukkur is either saline or water logged. Moreover, the cultivated crops are subject to pest attacks quite frequent. There is little awareness regarding natural hazards. People are living in vulnerable areas, in rural settlements. Harsh climate, poor communication and transport infrastructure making the district very much vulnerable in case of any disaster.

### 2.6.2.2 POTENTIAL RISKS AND PAST IMPACT

Sukkur is vulnerable to a number of natural disasters, including frequent floods, heavy rainfall, droughts and earthquake. A chronology of disasters over the last five decades reveals that the area has remained in the grip of an uninterrupted cycle of disasters in one form or the other. Heavy rainfalls, droughts and floods follow each other with short intervals. However, earthquake seems to be a rare phenomenon in the project area. Information collected through the historical archives is as under:

Table 2-62: History of Disaster

Disasters	Frequency	Area affected	Severity	Year(s)
<b>Riverine floods</b>	Monsoon	North western part especially Pano Aqil Taluka	High	1840, 1856, 1874, 1942, 1946, 1948, 1956, 1973, 1974, 1976, 1978, 1988, 1989, 1992, 1994, 1995, 1996, 1999, 2003, 2006, 2007, 2010, 2012
<b>Heavy rains</b>	Monsoon	Entire district	Medium	1973, 1994, 2003, 2011, 2012
<b>Epidemics</b>	Seasonal	Entire district	Low	Every year
<b>Droughts</b>	Rare	Eastern parts of District	Low	1894, 1906, 1932, 1965-69, 1984-87, 1997-2000, 2003-2007
<b>Earthquakes</b>	Rare	Entire District	Low	2001, 2013
<b>Transport accident</b>	Frequent	Entire District	Low	-
<b>Urban Fire</b>	Frequent	Entire District	Low	-

Source: Revenue Department, Sukkur 2013

#### **2.6.2.2.1 HEAVY RAINFALL AND FLOODS**

In recent flooding years 2010, 2011 and 2012, Sukkur City and its neighborhoods were also affected. Comparatively, the flood in 2010 was most severe among all. River Indus, after receiving water from five of its tributary rivers, caused floods in the northern and southern parts of Sindh province. The districts, on the right and left banks of River Indus, are prone to severe threat when River Indus is in high flood. The districts in the lower Sindh are prone to riverine flooding (Dadu, Jamshoro and Thatta) on the right bank of River Indus and Tando Muhammad Khan, Matiari and Hyderabad on the left bank. The length of River Indus along the province is 750 Kms.

Areas affected, in district Sukkur, in 2011 floods include Baiji, Hingoro, Junas, Mubarakpur, Nauraja, Nindapur, Sadhuja, Sangi, Sultanpur, Ali Waha, Arore, Dhandhi, Loung Bhatti, Panhwar, Lal Juryo Khan Shambani, Salehpat, Tarai, Bagerji, Arain, Loung Bhatti and Tamachani.

#### **2.6.2.2.2 URBAN FLOODING**

Urban flooding in each heavy rainfall season is the main disaster of the City. It completely paralyzes the city for many days till drained mostly through pumping. Figure 2-49 is showing areas, which were inundated in floods 2012. This inundation was in high and medium density areas of city with a depth up to 6 feet. It occurred for hours to several days and caused significant impacts on humans and properties. Few perpetual ponds also exist in the city due to rains at prime locations. These ponds cover more than 100 acres of land, mostly filled by storm water and sewage.

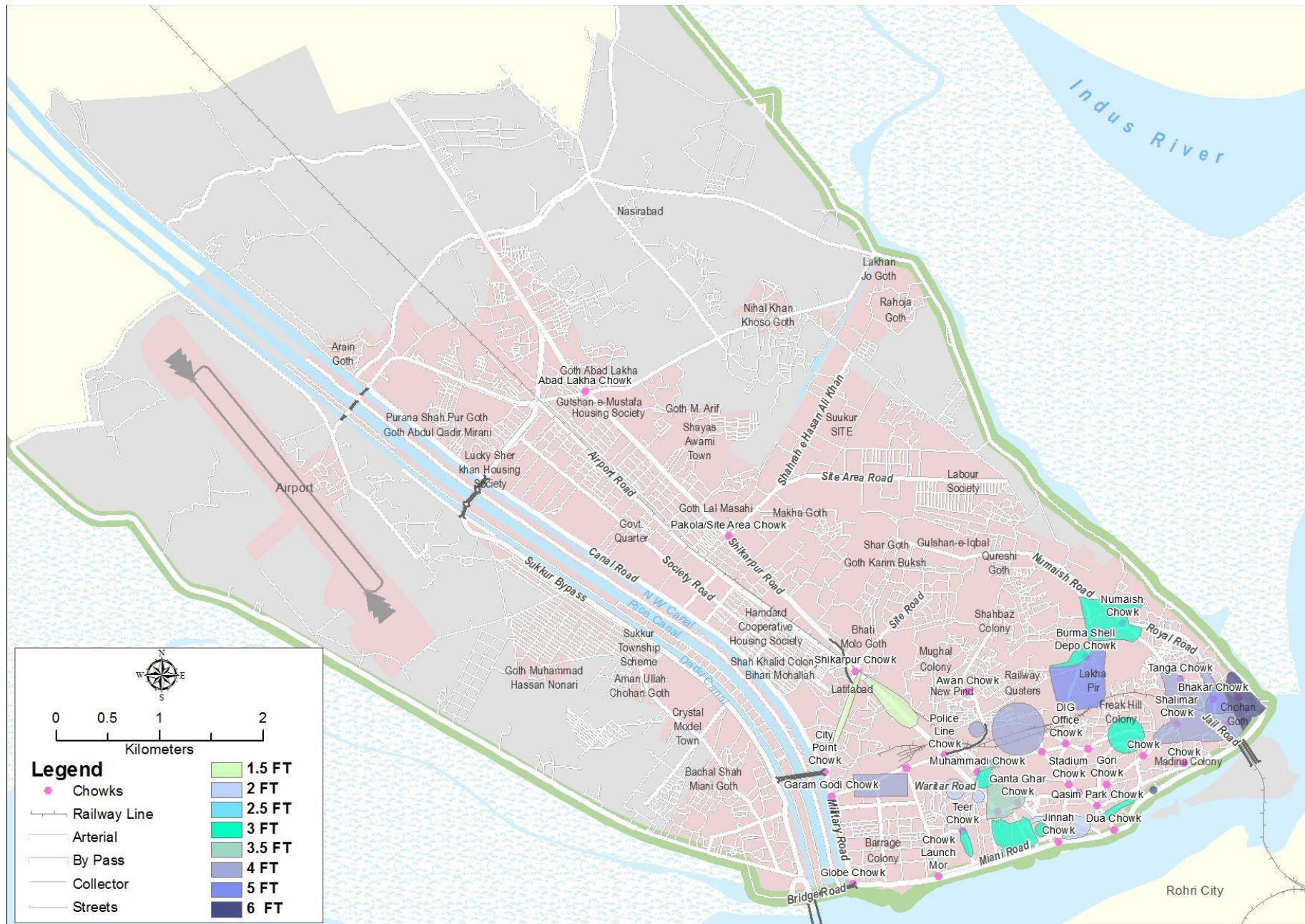


Figure 2-49: Flood affected areas in Sukkur (2012)

#### 2.6.2.2.3 URBAN FIRE

A fire service is essential public service for a community. Fortunately, Sukkur City has not experienced any major urban fire incidents so far. However, considering the pace and type of urbanization, density of households, coupled with industrialization, the risk of urban fire is higher in the City, particularly in the CBD/congested part of the city. There is a mixed land use with narrow streets and no hydrants. It was told that earlier a network of hydrants existed, but with the new developments, it is gone. The current development trend is resulting in high density with vertical development, rising encroachments on narrow streets, and without any care for any unforeseen incident of fire. Escape routes and fire-fighting arrangements in newly constructed apartment buildings are non-existent.

The CNG gas and petrol filling stations located in congested areas are the potential source for any unfortunate incident. Similarly, the sale of petroleum products in bottles and cans at small shops located within residential areas is also common. These practices combined with mass culture of smoking cigarettes and electricity short-circuiting could pose a major fire risk.

Another important aspect regarding build environment of the old city of Sukkur is the self-driven urban regeneration. Old houses (1-2 storeys) are being converted to multi-storey buildings with mixed land uses, commercial at ground floor and apartments in upper floor without following any spatial standards and building byelaws. Moreover, construction quality and utility services installation are of poor quality. As the CBD is dominated by commercial wholesale and retail activities, old houses in narrow streets are being used as storage space. Sometimes highly combustible material like petroleum products and chemicals are stored there. This whole situation has added to a highly vulnerable situation for fire incidents and other types of disasters. The access to these areas is extremely difficult, particularly in the first hour (the golden hour) for response to fire or any building collapse situation.

The data provided by the SMC Fire Department shows that there were 275 recorded fire incidents in the year 2009-10, and 305 in year 2011-12. There was no causality, but keeping in view the ground realities as narrated above, there is a high risk of huge fire incident with potential risk of casualties.

Assessment of the existing firefighting capacity revealed an awful situation. There are only two fire stations in Sukkur. One of them is an operational hydrant (near Islamia College). According to national standards, there must be a fire station for 100,000 populations with an area of 2025 square meters. Most of the available fire tenders are not in working condition mainly due to non-availability of funds. Being part of the SMC, financial crunch has resulted non-payments of salaries to the fire staff for several months.

#### 2.6.2.2.4 ROAD ACCIDENTS

Road Accidents are a regular occurrence in the District. Every year roads / railway accidents lead to deaths, injuries (temporary & permanent disability) and loss of property. Due to the accidental deaths and injuries and, temporary road closures, may happen anytime of the day. Existing police network, available government hospitals and ambulance services are available but need to be upgraded with the required staff and facilities.

#### 2.6.2.2.5 TERRORISM AND SUICIDE BOMBING

Due to the current scenario of the country, security situations may arise any time in the district. To meet such a situation, contingency plan by different district departments has been prepared. It needs significant updating with strong coordination mechanisms in place.

### 2.6.3 DYNAMIC PRESSURE AND VULNERABILITY

There are several causes of increasing vulnerability of various hazards in the area that are:

- Lack of institutional capacity to deal with the disaster management initiatives
- Lack of structure and resources
- Lack of training, appropriate skills and awareness on disaster risk management both to the community and public servants
- Environmental degradation, industrialization, air pollution increases risk for diseases
- Poor social protection mechanism
- Inadequate early warning systems
- Lack of preparedness and contingency measures for disaster risk management
- Poor construction materials for settlements (houses, structures, buildings, schools, hospital bridges, etc.)
- Settlements on hazards prone locations
- Construction of high rise buildings without any risk management precautions especially in the highly dense area
- Non-implementation of SBCA bylaws in building construction (without traffic impact assessment, parking, utility services provision, internal and external firefighting arrangements etc.)

## 2.7 ECONOMIC ENGINES OF THE CITY

The study shows that the economic base of Sukkur encompasses of agriculture, industry, trade and service sectors and individually they have their own significance in Sukkur economy. Sukkur district as its strategic and geographical location to serve as a conduit for business and trade for inter and intra provincial regional trade. The importance of various sectors in the Sukkur economy is discussed and elaborated as given in the following sections.

### 2.7.1 AGRICULTURE<sup>j</sup>

Agriculture plays a vital role in the national economy given its 21% share in the gross domestic product (GDP). It engages 41 percent of the labor force that sustains above 60 percent of the population. The contribution of agriculture sector in the Sindh economy is also above 25 percent with significant backward and forward linkages to the urban economy. Sukkur climate is ideally suited for the cultivation of various crops given its appreciably higher share in Sindh agriculture. Its large agricultural production and distribution base plays an important role in regional trade and manufacturing activities.

Agriculture Census of Sindh (2010) publishes district level information on agriculture sector indicators, including size and pattern of land/farm ownership, land/farm area cultivated and uncultivated, area irrigated by source of irrigation and on cropping pattern and production.

The published census (2010) shows that a large majority of Sukkur agriculturist (88%) having small land holdings up to 12.5 acres and nearly 59% of them possesses landholdings up to 5 acres (categorized as subsistence farmers), These small farmers occupies 17% of the total farm area (see Table 2-63). On the contrary 1% large farmers (having land above 50 acres) owned 16 % of the total farm areas indicating non-egalitarian character and significant disparity in agricultural land holdings.

Table 2-64 provides tenure status of farmers (owned farms, owner cum tenant/share cropper farms and farms under tenancy) by size of farm. The data reveal the high incidence of tenancy among small farmers having farm size below 5 acres (12 % of total farmers in this category). Contrarily, share cropping is more prevalent among farmers having land holdings between 5-12.5 Acres (28% of the

<sup>j</sup> Updated Agriculture sector of Sukkur District is in the Addendum - page nos. 42-43

total farms in this category). The incidence of share cropping found to be higher (24%) among farmers having large land holding (above 50 acres) who cultivate their land using share cropping practices.

The cultivated and uncultivated area with respect to total farm size is reported in table 16-11. The pattern shows that cultivated in the total farm area is an inverted U shaped. As cultivated in the total farm area is as high as 95.1% for the small farmers, which reduces to 82.9% for the medium size farmers (having land 12.5 to 25 acres) and rises again to above 95 % for the large farmers (having land above 50 acres). The table also indicates the extent of uncultivated area and its utilization into the forest area.

Table 2-66 displays statistics by source of irrigation in the cultivated area by size of farms. It is interesting to note that the cultivated area under Orchard/Tree crops as a proportion of total cropped area for the small farmers (having a farm area up to 5 Acres) is higher as compared to other large size farms. As 38% of the cropped area have been utilized to grow orchard which provides a stable source of earnings for these farmers (see Table 2-67).

Table 2-68 provides the area under various crops that grew in Sukkur. The agriculture census (2010) shows that wheat, cotton, rice, sugar cane and orchards/tree crops (dates, Mangoes and Bananas) are the main produce of Sukkur district. Wheat is the major crop as a predominant area of Sukkur is allocated for its cultivation (33%-54% of the total cropped area), followed by cotton (17% to 39%) and rice (11% to 23%).

Table 2-69 and Table 2-70 respectively are shown crops and fruits production of Sukkur district. The important crops of Sukkur in terms of total production are cotton, sugarcane and wheat, all having annual production of above 100,000 tons. Dates production was about 28,753 tons, followed by production of mangoes 3044 tons and of bananas 487 tons in the year 2008-09. There exists a significant scope of development of agro based industries related to fruit processing given its high domestic and export demand.

A baseline study to understand the dynamics of agriculture economy of Sukkur was recently undertaken by the Sukkur Institute of Business Administration (IBA) in order to enhance understanding and outreach of the banking and financial institutions to the potential users. The study was financed by the State Bank of Pakistan and was conducted in 4 out of the 5 Talukas of district Sukkur, viz . i) Sukkur (Rural) ii) Rohri, iii) Pano Aqil iv) Saleh Pat. The fifth Taluka comprising Sukkur city was excluded from the survey, as no farms and farmers' fields exist there. A gist of the issues identified by the farming community during the survey is presented below.

- High energy cost and frequent power outage increase the farmers' reliance on the high cost usage of diesel engines. This negatively affects their per acre farm yield and farmers' income.
- The shortage of canal irrigation water is also highlighted by the farmer as a major problem which negatively influences their crop yield and earnings.
- Inferior quality of seed from the market also reported by farmers, which negatively impacted farm productivity.
- The value added potential of the livestock sector (Dairy and dairy products) is not being able to harness by the farming community due to non availability of appropriate marketing channels and receipts of the fair prices of milk and other raw products.
- Non dissemination of latest agriculture research and latest farming techniques along with difficulties in marketing and selling of their product at the right price is also disappointing farming community of Sukkur.

- Lack of capital and financial resources and delay in processing and sanctioning of agriculture loans causes delays in purchasing of necessary inputs that discourages farmers' reliance to apply for the credit.
- Lack of farm to market roads makes it difficult for the farmers to fetch the right prices of their agriculture produce which causes reduction in their earnings.

Table 2-63: Number and Area of Farms by Farm Size

Size of Farm (Acres)	Number of Farms		Farm Area		Cultivated Area		Cultivated as % of Farm Area	Average Size of Farm	
	Total	Percent	Total	Percent	Total	Percent		Farm Area	Cultivated Area
<b>District</b>	2	3	4	5	6	7	8	9	10
<b>Private Farms – Total</b>	37195	100	295150	100	274174	100	93	7.9	7.4
<b>Under 5</b>	21793	59	49130	16	46701	17	95.06	2.25	2.14
<b>5 to Under 12.5</b>	4947	29	88695	30	79896	29	90.01	18	16.15
<b>12.5 to Under 25</b>	2524	7	40796	14	33821	12	83	16.2	13.4
<b>25 to Under 50</b>	1215	3	36766	12	35473	13	96	30.3	29.2
<b>50 to Under 100</b>	416	1	29197	10	28910	11	99	70.2	69.5
<b>100 to Under 150</b>	177	0	18915	6	18865	7	100	106.9	106.6
<b>150 and Above</b>	123	0	31649	11	30510	11	96	257.3	248

Source: Agricultural Census 2010, Pakistan Report, Sindh Province Tabulation-Sukkur District

Table 2-64: Tenure Classification of Farms and Farm Area by Farm Size

Size of Farm (Acres)	Number of Farms				Farms Area			
	Total	Owner	Owner-cum-Tenant	Tenant	Total	Owner	Owner-cum-Tenant	Tenant
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>
<b>Private Farms – Total</b>	37195	29215	4137	3545	295150	223406	51300	20444
<b>Under 5</b>	21793	18718	431	2645	49130	41740	1466	5928
<b>5 to Under 12.5</b>	10947	6976	3058	915	88695	53632	28536	6529
<b>12.5 to Under 25</b>	2524	1787	520	218	40796	29287	7737	3772
<b>25 to Under 50</b>	1215	1123	43	49	36766	33891	1374	1499
<b>50 to Under 100</b>	416	395	21	0	29197	28058	1139	0
<b>100 to Under 150</b>	177	133	43	2	18915	13261	5454	200
<b>150 and Above</b>	123	85	21	17	31649	23539	5591	2519
<b>Percentage Distribution</b>								
<b>Private Farms – Total</b>	100	79	11	10	100	76	17	7
<b>Under 5</b>	100	86	2	12	100	85	3	12
<b>5 to Under 12.5</b>	100	64	28	8	100	60	32	7
<b>12.5 to Under 25</b>	100	71	21	9	100	72	19	9

Size of Farm (Acres)	Number of Farms				Farms Area			
	Total	Owner	Owner-cum-Tenant	Tenant	Total	Owner	Owner-cum-Tenant	Tenant
<b>Percentage Distribution</b>								
<b>25 to Under 50</b>	100	92	4	4	100	92	4	4
<b>50 to Under 100</b>	100	95	5	0	100	96	4	0
<b>100 to Under 150</b>	100	75	24	1	100	70	29	1
<b>150 and Above</b>	100	69	17	14	100	74	18	8

Source: Agricultural Census 2010, Pakistan Report, Sindh Province Tabulation-Sukkur District

Table 2-65: Land Utilization by Farm Size

Size of Farm	Total Farm Area	Farm Area Cultivated	Total Uncultivated	In percentages %		Farm Area Uncultivated		In percentages %	
(Acres)			Area	Cultivated to Total Farm Area	Uncultivated to Total Farm Area	Cultivable Waste Area	Un-Cultivable Including Forest Area	Cultivable Waste To Total Uncultivated Area	Un-Cultivable Waste to Total Uncultivated Area
1	2	3	4			5	6		
<b>Private Farms – Total</b>	295150	274174	20976	92.9	7.1	19970	1005	95.2	4.8
<b>Under 5</b>	49130	46700	2430	95.1	4.9	2110	322	86.8	13.3
<b>5 to Under 12.5</b>	88695	79896	8799	90.1	9.9	8612	188	97.9	2.1
<b>12.5 to Under 25</b>	40796	33821	6975	82.9	17.1	6976	0	100.0	0.0
<b>25 to Under 50</b>	36766	35473	1293	96.5	3.5	1097	196	84.8	15.2
<b>50 to Under 100</b>	29197	28910	287	99.0	1.0	287	0	100.0	0.0
<b>100 to Under 150</b>	18915	18865	50	99.7	0.3	50	0	100.0	0.0
<b>150 and Above</b>	31649	30510	1139	96.4	3.6	840	300	73.7	26.3

Source: Agricultural Census 2010, Sindh Report, Agricultural Census Organization statistics division Govt. of Pakistan

Table 2-66: Cultivated Area Classified by Mode of Irrigation and by Farm Size

Size of Farm (Acres)	Total Cultivated Area	Cultivated Area with Irrigation Facilities				Barani Cultivated W/O irrigation
1	2	Total	Canal Only	Canal and Tube-Well Only	Tube-Well Only	7
Private Farms – Total	274174	271698	193533	74242	3925	2476
Under 5	46700	46659	40423	4328	1909	40
5 to Under 12.5	79896	77467	69182	6286	2001	2431
12.5 to Under 25	33821	33816	29011	4790	15	5
25 to Under 50	35473	35473	27322	8151	0	0
50 to Under 100	28910	28910	24788	4123	0	0
100 to Under 150	18865	18865	250	18615	0	0
150 and Above	30510	30510	2560	27950	0	0
Size of Farm (Acres)	Total Cultivated Area	Cultivated Area with Irrigation Facilities (In Percentages%)				Barani Cultivated W/O irrigation
1	2	Total	Canal Only	Canal and Tube-Well Only	Tube-Well Only	7
Private Farms – Total	274174	271698	70.6	27.1	1.4	0.9
Under 5	46700	46659	86.6	9.3	4.1	0.1
5 to Under 12.5	79896	77467	86.6	7.9	2.5	3.0
12.5 to Under 25	33821	33816	85.8	14.2	0.0	0.0
25 to Under 50	35473	35473	77.0	23.0	0.0	0.0
50 to Under 100	28910	28910	85.7	14.3	0.0	0.0
100 to Under 150	18865	18865	1.3	98.7	0.0	0.0
150 and Above	30510	30510	8.4	91.6	0.0	0.0

Source: Agricultural Census 2010, Sindh Report, Agricultural Census Organization statistics division Govt. of Pakistan

Table 2-67: Farms Reporting Orchard and Orchard Area by Tenure and by Farm Size

Size of Farm (Acres)	Total Farms		Farms Reporting Orchard			
	Number	Cropped Area	Number	Cropped Area	Area under Orchard	Orchard Area as % of Cropped Area (Col. 5)
1	2	3	4	5	6	7
<b>Private Farms – Total</b>	37195	484710	2904	24173	5545	23
<b>Under 5</b>	21793	78032	1655	4266	1623	38
<b>5 to Under 12.5</b>	8247	125648	882	10145	1724	10
<b>12.5 to Under 25</b>	2524	60734	236	5573	896	16
<b>25 to Under 50</b>	1215	60653	118	3705	1276	34
<b>50 to Under 100</b>	416	54327	13	484	26	5
<b>100 to Under 150</b>	177	35195	0	0	0	0
<b>150 and Above</b>	123	61019	0	0	0	0

Source: Agricultural Census 2010, Pakistan Report, Sindh Province Tabulation-Sukkur District

Table 2-68: Share of Different Crops Area in Total Cropped Area by Farm Size

Size of Farm (Acres)	Total Cropped Area	Crop Area as Percent of Total Cropped Area													
		Wheat	Rice	Maize for Grain	Jawar/Bajra for	Barley	Cotton	Sugarcane	Tobacco	Oil-Seeds	Pulses	Fodders	Vegetables	Orchards	Other Crops
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
<b>Private Farms – Total</b>	484710	49	19	*	*	*	27	1	*	*	*	*	*	1	2
<b>Under 1.0</b>	327	33	11	0	0	0	17	8	0	0	2	0	0	20	8
<b>1 to Under 2.5</b>	28122	46	18	1	0	0	27	2	0	0	0	*	*	3	2
<b>2.5 to Under 5</b>	49583	48	23	1	0	0	19	2	0	*	2	*	*	1	3
<b>5 to Under 7.5</b>	39265	49	23	0	0	0	20	0	0	2	1	*	0	2	3
<b>7.5 to Under 12.5</b>	96383	49	21	0	0	0	26	1	0	*	*	*	*	1	2
<b>12.5 to Under 25</b>	60734	48	23	0	0	1	23	*	0	1	0	1	1	1	*
<b>25 to Under 50</b>	60653	48	15	0	0	0	29	2	*	1	0	1	1	2	*
<b>50 to Under 100</b>	54327	49	18	0	0	0	28	0	0	0	*	0	0	*	5
<b>100 to Under 150</b>	35195	54	22	0	0	0	25	0	0	0	0	0	0	0	*
<b>150 and Above</b>	61019	49	10	0	0	1	39	*	0	0	0	0	1	0	0

\* Value less than 0.5

Source: Agricultural Census 2010, Pakistan Report, Sindh Province Tabulation-Sukkur District

Table 2-69: Crop Production in Sukkur District

Crops	Production in M. Tons(2008-09)
Rice	16248
Wheat	158271
Jowar	5279
Bajra	65
Maize	242
Gram	1398
Barley	25
Rapeseed and Mustard	315
Sesamum	2
Sugarcane	108547
Cotton	142826
Tobacco	6

Source: Development Statistics of Sindh 2010

Table 2-70: Fruits Production in Sukkur District

Crops	Production in Tons(2008-09)
Mango	3044
Banana	487
Dates	28753

Source: Crops Area and production, By District 2008-09

Table 2-71: Use of Fertilizer, Manures, Pesticides and Herbicides by Farm Size

Size of Farm (Acres)	Total Farms	Farms Reporting Use of									
		Fertilizer & Manure		Fertilizer s Only		Manures Only		Pesticides		Herbicides	
		#	% of Total	#	% of Total	#	% of Total	#	% of Total	#	% of Total
1	2	3	4	5	6	7	8	9	10	11	12
Private Farms – Total	37195	339	1	23530	63	22	*	9372	25	3031	8
Under 5	21793	155	3	11647	143	22	0	4961	50	1292	6
5 to Under 12.5	10947	96	2	8539	154	0	0	3438	60	1403	13
12.5 to Under 25	2524	23	1	2112	84	0	0	724	29	25	10
25 to Under 50	1215	42	3	669	55	0	0	207	17	80	7
50 to Under 100	416	0	0	415	100	0	0	21	5	0	0
100 to Under 150	177	22	12	70	40	0	0	1	1	0	0
150 and Above	123	0	0	81	66	0	0	19	15	1	1

\* Value less than 0.5

Source: Agricultural Census 2010, Pakistan Report, Sindh Province Tabulation-Sukkur District

Sectoral analysis of Sukkur economy clearly indicates a supporting regional growth phenomenon having significant backward and forward linkages. Its industry and trade sector have had strong linkages with the agriculture sector. It is therefore clear that growth and vibrancy of one sector would be critically impacted the growth and development of other sectors.

The industrial growth of Sukkur however, has been slow due to various reasons. First in the two industrial estates of Sukkur inadequate provision of infrastructure services (water supply, electricity, gas, and communication network) is reported by the businessman in the furthering of industrial activities. Its growth deteriorated also due to lack of professional and skilled workforce which largely came from other areas like Karachi and cities of Punjab at higher salaries and perks thus not cost effective. Moreover, mobility of professional and skilled workforce is also high which negatively influence the industrial production. Deteriorating law and order and security situation are also causing uncertainty which hampers business climate and growth besides causing closures of some of the important industrial units in Sukkur.

## 2.7.2 DATES SECTOR<sup>k</sup>

Dates are nutritious fruit consumed heavily in Ramadan by Muslims. Dates are consumed in fresh, dry and processed forms. Different varieties of dates are Fresh table dates, frozen dong (Rutab) dates, stuffed dates with roasted nuts such as almond or cashew nuts, dates with chocolate coatings, dates with sesame seeds.

Value added products may include; dates blocks, dates energy bars, dates syrup, date honey, date pickles, date paste, date spread, date dry powder, date sugar, date sparkling juice, date vinegar and date ethanol fuel.

Nearly 50% of dates in Pakistan are produced in province of Sindh and 80-85% of Sindh dates are produced in the two districts of Khairpur and Sukkur. It shows significant existing market of dates in Sukkur.

Following table shows the world dates production

Table 2-72: World Dates Production

	Country	Production (Tons)	Percentage
1	Egypt	1,120,000	15.9
2	Iran	920,000	13.0
3	Saudi Arabia	830,000	11.7
4	UAE	760,000	10.8
5	Pakistan*	622,000	8.8
6	Algeria	420,000	5.9
7	Iraq	400,000	5.7
8	Sudan	330,000	4.7
9	Oman	238,000	3.4
10	Libya	140,000	2.0
11	China	120,000	1.7
12	Tunisia	122,000	1.7
13	USA	17,000	0.2
14	Israel	11,700	0.2
15	Others	1,014,537	14.4

Source: COMTRADE-FAOSTAT-2008 & Pakistan Statistical Year Book 2008

Table 2-73: Dates Production in S i n d h

Year	Production (Tons)
2007-08	273,000
2008-09	257,936
2009-10	329,900

Source: Sindh Board of Investment, 2014

<sup>k</sup> Updated Dates sector is in the Addendum - page nos. 43-44

Pakistan is the second largest exporter of dates after Tunisia. It exports dates to Bangladesh, India, Germany, Canada, Japan, UAE, Denmark, South Africa, Australia, Saudi Arabia, USA and UK. Pakistan majorly exports fresh and dry dates. Due to higher demand of dates in Ramadan Pakistan imports dates from other countries as well.

Table 2-74: Pakistan's Export of Dates

Year	Exports (US\$ 000)	Imports (US\$ 000)
2006	37,655	3,124
2007	38,692	4,229
2008	39,800	3,307
2009	44,600	----

Source: Sindh Board of Investment, 2014

Dates are sensitive to the rain of monsoon season, which arrives at the time of date harvesting. It is estimated that about 60% of dates are generally lost due to rainwater causing big loss for small growers. In order to avoid these losses and to increase value added date production, drying and dehydration plants have a great potential for deriving benefits through exports in the form of foreign exchange earnings. Given its higher value added potential, Sindh Board of Investment offers several facilities to the date's growers and to private investors to help boost the sector.

### 2.7.3 LIVESTOCK<sup>1</sup>

Livestock in Pakistan contributes 11% of national GDP as the demand for meat is growing at a faster pace i.e. Beef at 2.8%, Mutton at 2.9%, and Poultry at 6.10%. Table 2-75 and 77 shows the livestock population and livestock value added products.

Table 2-75: Livestock Population<sup>4</sup>

(Million numbers)

Fiscal Year	Buffaloes	Cattle	Goats	Sheep	Poultry	Camels
2000-01	23.3	22.4	49.1	24.2	292.4	0.8
2001-02	24.0	22.8	50.9	24.4	330.0	0.8
2002-03	24.8	23.3	52.8	24.6	346.1	0.8
2003-04	25.5	23.8	54.7	24.7	352.6	0.7
2004-05	26.3	24.2	56.7	24.9	372.0	0.7
2005-06	27.3	29.6	53.8	26.5	433.8	0.9
2006-07	28.2	30.7	55.2	26.8	477.0	0.9
2007-08	29.0	31.8	56.7	27.1	518.0	1.0
2008-09	29.9	33.0	58.3	27.4	562.0	1.0
2009-10	30.8	34.3	59.9	27.8	610.0	1.0

<sup>4</sup> Livestock population is taken from the Economic Survey of Pakistan and source of data is Ministry of National Food Security and Research

<sup>1</sup> Updated Livestock sector of Sukkur District is in the Addendum - page nos. 44-49

Fiscal Year	Buffaloes	Cattle	Goats	Sheep	Poultry	Camels
2010-11	31.7	35.6	61.5	28.1	663.0	1.0
2011-12	32.7	36.9	63.1	28.4	721.0	1.0
2012-13	33.7	38.3	64.9	28.8	785.0	1.0

Table 2-76: Livestock Products<sup>5</sup>

(In 000 Tones)

Fiscal Year	Milk*	Beef	Mutton	Poultry Meat
2000-01	26284	1010	666	339
2001-02	27031	1034	683	355
2002-03	27811	1060	702	370
2003-04	28624	1087	720	378
2004-05	29438	1115	739	384
2005-06	31970	1449	554	512
2006-07	32996	1498	566	554
2007-08	34064	1549	578	601
2008-09	35160	1601	590	652
2009-10	36299	1655	603	707
2010-11	37475	1711	616	767
2011-12	38617	1769	629	834
2012-13	39855	1829	643	907

\* Human Consumption

The Table 2-77 reveals that the gap in demand and supply of meat in Pakistan is increasing at a rate of 4.1% per annum. Besides Table 2-74 shows an increase demand of meat in Middle East as well as in USA and UK for the "Halal Foods". The potential can be exploited by exporting out meat and allied products to Middle East as reflected by production and consumption gap.

Table 2-77: Demand and Spply of Meat

(000 tons)

Products	2003			2020		
	Supply	Demand	Gap	Supply	Demand	Gap
Beef	1050	1210	160	1430	3740	2310
Mutton	700	800	100	1030	2500	1470

<sup>5</sup> Livestock population is taken from the Economic Survey of Pakistan and source of data is Ministry of National Food Security and Research

Table 2-78: Meat Production and Consumption in Middle East

(In tones)			
Country	Production	Consumption	Gap
KSA	25630	75630	50000
Egypt	440000	533000	93000
Bahrain	1440	4600	3220
Oman	4148	18000	13852
UAE	9500	43185	33685

As Sindh and Sukkur also have significant livestock population immense investment potential exists for financing meat and allied products including wool, skins, eggs etc.

#### 2.7.4 FISHERIES<sup>m</sup>

Sukkur district is gifted with natural fisheries resources in the form of River Indus, river compartments, canals, dhands, lakes, abundant canals and small khads. It has also number of private fish forms, fish hatcheries, fish nurseries, fish markets and sale points. Having a central position in the provinces, rail and road facilities, it has important position for fish marketing to and from main cities of Pakistan. To manage this activity a well-organized administrative setup exists at District level. District Office leads it for administration management, development and other fisheries related activities, delegated by virtue of Sindh fisheries ordinance 1980. Other administrative facilities includes Deputy District Office, Upper Sind Fish Hatchery-Sukkur, Fisheries Tanning Center Sukkur, and Carp Fry Scheme-Sukkur. Sukkur district has 28 district category waters, 29 provincial category waters, 22 fish markets and sale points. Table 2-79 is showing the growth of fishery sector in form of fish production, fishermen involved boats in use and number of fish farms in the district. There are number of fish species, which are promoted locally for producing fish meet.

Table 2-79: Fisheries Statistics of District Sukkur

Year	Fish Production (Million Tonnes)	No. of Fishermen	No. of Boats	No. of Fish Farms
2001-02	2600	1900	59	136
2002-03	1800	1590	58	
2003-04	1770	1560	49	
2004-05	2100	1400	44	
2005-06	1740	1800	59	
2006-07	1742	1730	61	
2007-08	3750	2640	267	
2008-09	3870	2740	304	
2009-10	4230	3410	352	
2010-11	4550	3499	346	

Source: Fisheries Department District Govt. Sukkur

<sup>m</sup> Updated Fisheries sector of Sukkur District is in the Addendum at page no. 49

Table 2-80: Fish Species in District Sukkur

S.No	Local Name	Scientific name	STATUS
1	Dambhro, Kuriro, Rahu	Labeo rohita	Local
2	Dahee, Calbans	Laeo calbsu	Local
3	Sarih	Labeo gonius	Local
4	Thelhee, Thela, Theree	Catla catla	Local
5	Morakhi, Mori	Cirrhinus mrigala	Local
6	Suni, Sohni	Cirrhinus reba	Local
7	Gandan, Chetal	Notopterus chitala	Local
8	Gandni	Notopterus notopterus	Local
9	Gulfam	Cyprinus capio	Exotic
10	Grass carp	Ctenopharyngodon idela	Exotic
11	Silver carp	Hypophthalmichthys molitrix	Exotic
12	Tilapia, Dend	Oreochromis mosambica (Tilapia mosambica)	Exotic
13	Faugi khaga, Gonch	Bagarius bagarius	Local
14	Malee, Poikee, Jerka	Wallago attu	Local
15	Seengaree	Mystus seenghala/ (Aorichthys seenghalo)	Local
16	Sol, Mukur, Shakur	Channa	Local
17	Khaga	Rita rita	Local
18	Goj, Garoja	Mastacembelus pancalus	Local
19	Bam, Lorh	Mastacembelus armatus	Local
20	Shalli		Local
21	Dhungno		Local
22	Phabno		Local

Source: Fisheries Department District Govt. Sukkur

## 2.7.5 DAIRY SECTOR<sup>n</sup>

The dairy sector has huge potential for investment because of the ever-rising domestic and international demand of dairy and milk products. The Sindh Board of Investment estimated that an additional potential of three billion liters of milk production existed in the country that grow faster than many other sectors<sup>6</sup>. However, it is expected that milk production in Pakistan is likely to increase at an annual growth rate of 3.2 %, less than its increase demand of 5.0% during the next five years<sup>7</sup>. Pakistan is the third largest milk producing country globally with a production of 39.855 million tons from an estimated livestock population of 957.2 million in 2013<sup>8</sup>. Over 90% of milk is collected and

<sup>6</sup> Pre-feasibility study on dairy farms in Sindh, Board of Investment, Sindh.

<sup>7</sup> Brief on Dairy Sector, Board of Investment, Sindh

<sup>8</sup> Economic survey of Pakistan 2013-14

<sup>n</sup> Updated Dairy sector of Sukkur District is in the Addendum - page nos. 49-50

marketed unprocessed through informal channels. Only 3-5% of milk goes into processing industry for value added production. There is a gradual and continuous increase in the gap between demand and supply of milk domestically and to fill the gap powdered milk is imported every year<sup>9</sup>.

The targeted markets for the milk are milk collection companies, contractors, milk processors, dairy companies, domestic consumers

Table 2-81: Top 20 milk production and processing countries

Rank	Country	Production (billion kg/year) ECM <sup>10</sup>
1	India	137.5
2	United States	84.3
3	Pakistan	41.6
4	China	33.9
5	Brazil	32.0
6	Germany	31.1
7	Russia	30.1
8	France	25.2
9	New Zealand	21.3
10	United Kingdom	14.1
11	Netherlands	12.7
12	Turkey	12.2
13	Poland	12.0
14	Argentina	11.4
15	Italy	11.3
16	Mexico	11.1
17	Ukraine	10.2
18	Australia	9.8
19	Iran	9.8
20	Canada	8.9

Source: IFCN Dairy Report 2012, IFCN Dairy Research Center

New Zealand is the largest exporter of milk however it is the 9<sup>th</sup> largest producer of milk. On the contrary, Pakistan rank third in milk production but with a lower volume of export. This shows that huge potential exist for investment in the dairy sector for domestic and global market consumption.

<sup>9</sup> During July 2006 to November 2007, dairy products worth Rs. 2320.42 million (\$38.6 million) were imported in Pakistan (Sindh Board of Investment)

<sup>10</sup> ECM correction: As the dairy farms operate with very different fat/protein contents of the milk the IFCN is using the energy correct milk (ECM) approach to standardized milk volumes to 4% fat and 3,3 % protein. The use formula is the following one: ECM milk = (milk production \* (0.383 \* % fat + 0.242 \* % protein + 0.7832) / 3.1138)

Milk processing company - Engro Foods Limited (Olpers)<sup>11</sup>:

Several milk-processing companies are working in Pakistan including Engro Foods Limited (EFL) who collects milk from less than one million small farmers from all over Pakistan including Sindh. EFL network is very large who collects milk from more than 300 cities and through more than 2000 milk collection points in Pakistan. The milk are collected from three sources;

- Milk Collection Centers (MCCs) run by a contractor. It has facility of chilling and testing of milk. These centers are typically located within two kilometers of farmers' homes. Each center collects around 400 liters of milk per day.
- Village Milk Collectors (VMCs) collect milk from farmers who are far from MCCs. The company has hired over 1,700 VMCs including Female Village Milk Collectors (FVMCs). Engro Foods trains them and provide necessary equipment. They collect milk regularly from dairy farmers in their villages at the company-set price and after conducting the required tests. They receive commissions based on volumes collected.
- Contractors and dodhis purchase milk from farmers and transport it to an MCC where it is tested. Dodhis are village-level door-to-door milk collectors who purchase and sell milk to a number of buyers.

The above discussion points to the immense potential for investment in the dairy sector and its derived benefits in the form of increase employment opportunities and economic multiplier impact. The local government of Sukkur can encourage small farmers and investors to reap the benefit from dairy sector by encouraging them to invest in milk and dairy production. Sectoral analysis of Sukkur economy also indicates a supporting regional growth structure having significant backward and forward linkages between industry, trade and agriculture that accelerate economic vibrancy.

## 2.7.6 TOURISM SECTOR<sup>o</sup>

Tourism is a growing sector worldwide as the international tourist arrivals have registered and increased 4.6% in 2011. Pakistan has experienced a growth of 3.9% in international tourism<sup>12</sup> in 2010.

The number of international Tourists arrival is expected to increase annually by 3.3% during the period 2010-2030. The rate of increase in tourist arrival in South Asia is projected to grow even higher (5%). According to the estimates, the South Asia will receive around 36 million tourists by 2030<sup>13</sup>. Significant potential exists for Pakistan to attract tourists by developing magnetism for tourist.

More than 2,000 years ago, the town was at Aror, nine km east of the present site of Sukkur. It was relocated in 962 A.D. when owing to an earthquake; the Indus diverted its course to its present channel. By 13th century, the twin cities of Sukkur and Rohri were bustling river ports that reached their zenith in 17th century.

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<sup>11</sup> This information is gathered from the "Inclusive Business Case Study: Engro Foods Limited" IFC Inclusive Business Model Case Study, May 2014 and Engro Annual Report, 2013

<sup>12</sup> It is taken from the presentation of "Regional Tourism Potential in South Asia" in South Asian Economic Summit

<sup>13</sup> Source: UNWTO

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<sup>o</sup> Updated Tourism sector of Sukkur District is in the Addendum - page nos. 51-52

Sukkur and Rohri are blessed with the eminent natural beauty of Mighty River Indus with full of aquatic scenic attractiveness and world-renowned protected habitat of endangered Indus blind dolphin. Universally, this beauty is recognized at very high level of praise whereas, such a blessed site is still untapped for tourism development in the region.

The most worth visiting site is the Minaret of Masoom Shah. Mir Muhammad Masoom built this lighthouse shaped brick minaret, a local soldiers appointed Nawab of Sukkur by the Mughal Emperor, Akbar the Great. The tower is slightly tilted and is 25.5 m in height and 25.5 m in circumference (at its base) with an equivalent number of steps leading up to its top. Masoom Shah, along with other family members, is buried in the pavilion near the minaret. Nearby is the Faiz Mahai, an octagonal brick dome structure with arched windows and stone-carved balconies. Another tomb of interest is that of Shah Khair-ur-Din Jilani, a saint and religious scholar. Some other prominent landmarks of the city includes Lansdowne Bridge, Bukkur Island, Indus Waterfront, Lab-e-Mehran Park, Sadhu Bello, Pir Illahi Bux Tower, Victoria Clock Tower, Tomb of Adam Shah Kalhoro, Tomb of Shah Saddarudin, Lloyd Barrage Sukkur and Lakhueen-jo-Daro.

The ancient city of Aror is few kilometers to the east from the Rohri town. Its ruins lay on the edges of a low limestone range. Of its historic past, not much remains. Places to visit at Rohri are the shrine of War Mubarak (1545) built by Mir Muhammad Kalhoro. A gold and jewel encrusted casket enshrines the hair of the Holy Prophet (P.B.U.H). It is displayed to the faithful for general viewing annually on 2 March. On the outskirts of Rohri, is the Sattian-jo-Astano, the tomb of the Seven Virgin Sisters. One legend has it, that the sisters in securing their chastity, were swallowed up by the earth in a minor earthquake. Close to the War Mubarak, is the Akbari Mosque, built by an officer of Emperor Akbar.

As such, the tourism in Sukkur can be encourage by investing in development and maintenance of these tourist sites which comprises of historical, cultural, religious places along with the provision of adequate facilities for hoteling and rest houses and other supporting infrastructure. As such, significant opportunities exist for private sector investment, public private partnership, as well as Government maintenance of historical sites and monuments to attract tourist through provision of adequate safety and security measures for the tourists.

### 2.7.7 INDUSTRIES<sup>P</sup>

Presently there are more than two hundred registered and unregistered industries of all kinds in Sukkur which provides employment to nearly 8000 workers. This industrial base of Sukkur has had strong linkages with its agriculture sector as reflected by the development and agglomeration of range of agro based industries over the years. These industries comprises of sugar, edible oil/ghee, leather, tobacco, rice, cotton ginning, oil mills, flour mills, biscuit factories etc. . According to published data from Census of Manufacturing Industries, 54 large scale industries were functional in Sukkur in 2006. These units provide employment to about 2,911 persons.

Altogether two industrial estates were established in the early sixties in district Sukkur. First, Sindh Industrial Trading Estate (SITE) was set up for establishing large and medium scale industries; and the other Small Industrial Estate (SIE) caters development of small scale industries and enterprises.

First, SITE industrial estate, Sukkur was established in 1963 over an area of about 1060 acres. Since its establishment, number of large and medium scale manufacturing units were set up. These industrial units belong to the sub-sectors of oil and ghee industries, biscuits, soap, beverages, flour, straw paper board, poultry farm, dates, sulfuric acid, ice, cold storage etc. The physical features and various characteristics of working units in SITE Ltd. Sukkur are given in Table 2-81 and Table 2-82.

<sup>P</sup> Updated industries sector of Sukkur District is in the Addendum - page nos. 53-67

Table 2-82: Salient Characteristics of SITE Ltd. Sukkur

Industrial estate establish in		1963
Transfer of site Ltd, in the year		1975
Total area of estate (SITE Ltd. Sukkur)		1060 acres
Number of units in production	61	171.33 acres
Trade	Vegetable ghee, cooking oil, flour, beverages, ice & cold storage, dal mills, chemicals, re-rolling, dates & food processing, oil & soap, straw paper board, ice cream, biscuits, rice, poultry farms, ara machines,	
Total investment	Rs. 20,42,00,000	
Total number of employees	3190	
Number of sick units	38	102.31 acres
Number of non-utilized (open) new allotment	36	76.07 acres
Number of unit under construction	11	25.35 acres
Plot allotted but the full requirement not completed by the allottees	50	115 acres
Sindh small industries corporation	01	50 acres
Sindh welfare workers board	01	39 acres

Source: Sukkur Chamber of Commerce and Industry (SCI), 2013

The rate of colonization of SITE in Sukkur has been slow, as only 99 manufacturing units were so far established in an area of 274 acres (out of a total area of 1060 acres). Moreover 36 plots which have been allocated for setting up various industries are yet not being utilized. There are multiple reasons for this slow rate of colonization. Important among these are: lack of any important infrastructure facilities (access to water, gas, electricity and roads), shortage of professional and skilled workers and unsatisfactory law and order situation at industrial locations and its surroundings. These factors have a negative impact on furthering of industrial growth and investment besides causing closures of a number of industrial units there. At present 61 units are in operation, whereas 38 units were declared as sick and have been closed.

The information obtained from the SCCI provides a summary on the selected number of established and functional units along with the level of investment and employment (see Table 2 82). According to this table vegetable ghee and cooking oil manufacturing unit caters major share of industrial investment and employment as 3 of these units absorbs 1580 employees. The other important sub-sectors in the provision of industrial investment and employment are biscuits factories, flour mills, cotton seed oil, beverages and rice industries.

Given the slow rate of colonization of industrial estate and closures of various industries, there is a need to devise an appropriate strategy focussing on improving the overall industrial climate, critical deficiencies in infrastructure and overall law and order and security situation in the area. The law and order and area security situation can be addressed by establishing police check posts in the vicinity of SITE and at various locations and through regular patrolling and vigilance of law enforcing agencies in the area Further, infrastructure deficiencies could be bridged through adequate provision of water supply, electricity, gas facilities as well as development and improvement in communication and road network.

Table 2-83: Summary of Industrial Unit in Production of SITE

Name of Industry	Number of Units	Total Investment Capital	Number of Employees
Flour	6	3,05,00,000	192
Ice & Cold Storage	4	97,00,000	54
Beverages	2	1,30,00,000	95
Pulses	2	60,00,000	45
Vegetable Ghee & Cooking Oil	3	3,70,00,000	1580
Chemical	2	80,00,000	60
Re-Rolling	1	25,00,000	20
Dates & Food Processing	1	40,00,000	50
Cotton Seed Oil	5	1,90,00,000	111
Straw Paper Board	3	55,00,000	42
Cold Storage	2	97,00,000	52
Ice Cream	1	20,00,000	15
Food Industry	1	40,00,000	35
Biscuits	3	1,95,00,000	285
Rice	3	1,10,00,000	78
Poultry Farm	1	50,00,000	10
Soap Factory	3	28,00,000	31
Gata Factory	1	10,00,000	20
Saw Machine	3	20,00,000	15

Source: Sukkur Chamber of Commerce and Industry, 2013

#### 2.7.7.1 SMALL INDUSTRIAL ESTATE (SIE)

The Small Industrial Estate (SIE) Sukkur was set up in 1963-64 over an area of 110 acres (see table 16-4). The Sindh Small Industries Corporation is managing the estate. The rate of colonization of small industrial estate has also been slow. So far, 306 plots have been developed, on which 99 manufacturing units and 12 artisan workshops are currently functional. Our consultation with the members of the Sukkur Chamber of Commerce and Industries revealed that about 60 units have been closed and are declared as sick. It was due to lack of profitability and other demand and supply related issues. Presently, construction of six new manufacturing units is in progress.

The industries developed in the Small Industrial Estate are more diversified. It include sub-sectors of paints, cotton waste, agriculture implements, rice, RCC pipes, flour mills, furniture, pulses, cotton seed oil & cakes, spices grinding, herbal liberties, confectioneries, soap, tin manufacturing, salt grinding, saw mill, cotton thread, ice, printing press, poultry feed manufacturing, biscuits manufacturing, food products, marbles tiles, auto rubber, steel closet, room coolers, newspaper, mirror manufacturing, oil expellers, metal container, liquor works, plastic manufacturing and chemicals. These small-scale manufacturing and service units have been developed with relatively lower capital costs ranging between PKR 0.1 million to PKR 1.7 million. These 99 units are providing employment to about 1249 persons (average 12 persons per unit).

Table 2-84: Salient Characteristics of Sindh Small Industry Estate, Sukkur

Year of establishment	1964-65
Total area of estate	110 acres
Total plots developed	306
Units in production	99
Artisan workshops	12
Total investment	Rs. 62.216 million
Total number of employees	1249
Trade	Paint & colors, cotton waste, agriculture implements, rice, RCC pipe, flour, furniture, pluses, cotton seed oil & cakes, spices grinding, herbal laboratories, confectioneries, soap, tin manufacturing, salt grinding, saw mill, cotton thread, ice, printing press, poultry feed manufacturing, biscuits manufacturing, food products, marbles & tiles, auto rubber, steel closet, room coolers, newspaper, mirror manufacturing, oil expellers, metal container, liquor works, plastic manufacturing, chemicals
Number of sick units	60
Units under establishment	06
Number of plots un-utilized	16
Plots in balance	08

Source: Sukkur Chamber of Commerce and Industry, 2013

Table 2-85: Industrial Units in Production of Sindh Small Industry Estate, Sukkur

Name of Industry	Number of Units	Total Investment Capital (Million)	Number of Employees
Paints & Color	1	0.32	8
Cotton Waste	11	4.802	135
Agriculture Implements	2	0.768	36
RCC Pipe	4	1.64	68
Flour Mills	8	8.261	115
Furniture	1	0.566	22
Pulses	7	4.39	123
Rice Mills	3	4.418	56
Oil Mills	7	3.028	92
Spices Grinding	10	5.134	104
Plastic Bags	1	0.2	8
Printing Press	2	0.2	7
Iron Chain Manufacturers	1	0.162	6
Confectionery	2	1.784	20
Biscuits & Bakery	3	2.269	28
Soap Manufacturers	2	0.988	22
Tin Manufacturers	1	0.251	11

Name of Industry	Number of Units	Total Investment Capital (Million)	Number of Employees
Salt Grinding	1	0.288	11
Poultry Farm	2	0.945	20
Poultry Feed	3	1.817	13
Herbal Laboratory	1	0.5	10
Saw Mill	1	0.8	8
Cotton Thread	1	0.168	13
Wood Work	1	0.575	10
Food Products	2	1.035	11
Air Coolers	3	1.284	33
Marble & Tiles	3	2.61	28
Ice Factory	2	0.816	22
Auto Rubber	1	0.481	8
Steel Furniture (Almari)	1	0.685	4
Auto Parts	1	1.348	10
Tin Container Manufacturers	1	0.87	5
Metal Container Manufacturers	1	0.59	10
Chemical Manufacturers	1	0.257	6
Plastic Manufacturing	1	0.345	6
Liquor Works	1	1.168	8

Source: Sukkur Chamber of Commerce and Industry, 2013

#### 2.7.7.2 SUMMARY OF FINDINGS

Institute of Business Administration (IBA), Sukkur) recently conducted a study for the State Bank of Pakistan (SBP) to determine the role of Small and Medium Scale Enterprises (SME's) in the economic growth of Sukkur. The survey besides procuring information on the SME's characteristics also identifies issues and constraints, which are hampering SME's growth. The findings were based on the survey of 300 SME's enterprises in rural Sukkur.

A large majority (84%) of these SME's owned and run under sole proprietorship, about 11% under partnership, and a mere 5% comprises of corporations. The bulk of these businesses is either inherited and/or self-starter. In addition, the majority of these SME's (75%) is of small scale having provided employment up to 10 persons.

Most of these entrepreneurs (89%) did not acquire any apprenticeship (formal training) nor did they participated in any educational programs. These trainings/educational lack complement incompetency and non-professionalism and lead a major bottleneck in their business development and growth. This gap can be bridged through creating opportunities of relevant corporate training and educational programs.

Logistically, most SME's are procuring raw materials either from Sukkur region and/or from the rest of Sindh Province thus operating efficiency due to lower input costs. This also suggests that small-scale enterprises have had significant backward and forward linkages to its rural and urban economy. Thus, its growth not only helps accelerate the pace of regional economic development, but also enhances

the potential of provincial and local revenue generation besides uplifting the quality of life of the resident population.

The study findings also indicate that the bulk of the Sukkur SME's (63%) have had experienced a high growth in their annual turnover ranging between 25%-50%. The remaining units however are facing difficulties in coping with the economic and business fluctuations, thus either incur little or no growth and/or registered a decline in their sales volume.

Shortages of operating finances mentioned as a critical bottleneck to improve business operation by nearly half of the manufacturing concerns, but only 20% of them have actually reached out for institutional borrowing. This was partly due to lack of knowledge of institutional borrowing procedures and partly due to high interest costs. The lack of knowledge regarding accessing institutional borrowing can be bridged through development of appropriate finance and loan schemes/ programs.

Special government initiatives and commercial lending's can play a vital role here. In addition, youth loan scheme of business development of the present federal government can be utilized to increase the levels of economic activities through development of SME's sector.

Microfinance is a crucial financing source for the small and medium enterprises. Several studies have highlighted the importance of microfinance in the development of SMEs.

Xitian Wang (2013), The John Hopkins University, Baltimore, MD USA, states, "The impact of Microfinance on the development of small and medium enterprises: the case of Taizhou, China" concludes that "suggests that firms who participate in micro financing will see a significant rise in their revenues and net profits".

Another well-known example is of Dr. Muhammad Yunus of Grameen Bank who is pioneer of microfinance and microcredit to SMEs sector. These loans were given to the poor entrepreneurs at higher interest rates than the formal sector, where the risk is also high. However, small and medium scale enterprises are generally encourage in Pakistan by the formal banking sector to acquire loan at market rate of interest subject to appropriate collateral against it.

#### 2.7.8 TRADE AND COMMERCE

Sindh and Sukkur enjoyed extensive commercial and industrial prosperity since the seventeenth century. In particular, Sukkur also started to gain importance in the late seventeenth century due to its river port which was the main source of contact with the world at that time. Gradually land cultivation and setting up of various cotton manufacturing units brought some prosperity in the Sukkur region besides communications by road and river was fitting. Sukkur had, over a considerable period, developed into a center of commerce, with goods been brought in there from neighboring villages and from many parts of upper Sindh. During the British Raj, trade was being carried out with some important sub-continent cities as well as with other countries and Europe. This town grew as one of the great food markets, especially grain. Foreign traders from many countries of the East, including Russia used to come here to buy wheat. Sukkur was known for producing the best quality of wheat, dates, oil, fish, and sugarcane. It was also rich in cattle farming therefore ghee was also exported. The entire eastern side of Wallis Ganj, from what is now the fire brigade station, to Chipri Bunder, was the center of the ghee trade, and the area is still known as Ghee Gudam (Godown).

Presently Sukkur is an important center of trade and commerce, fulfilling the demand of the upper Sindh region as well as the adjoining province of Baluchistan and Punjab. It absorbs trade to a degree unparalleled by any other town in Sindh except Karachi. It still has a huge market for the wholesale trade of grain, fruits, vegetables and products of textiles, biscuits, confectionery, kitchen utensils, medicines, cigarettes, tiles, and hosiery, as well as the more traditional items such as oil, locks, iron

safes, trunks, leather bags, soap-powder, ink, boot polish, durries, and carpets. Moreover Sukkur also categorized as the biggest dates and dry dates market of Asia. Dates and dry dates and timber also exported out to various countries including India, Australia and United States. The considerable export potential exists if the value added date processing units are also established in Sukkur. The estimated earnings of Sukkur date exports were about Rupees 2 billion in 2006. Beside exports, a sizeable inflow of imports finds it to be used either as a final consumer goods and/or as a raw material and/or intermediate input. The main imported products are dye and chemicals, industrial raw materials and second hand clothing.

Further, vegetables, iron-steel products and knitted-ware are important commodities produced and traded in Sukkur. The information on produced and traded volume is given in Table 2-86, Table 2-87 and Table 2-88.

Table 2-86: Export and Local Consumption of Dates & Dry Dates

Exports during 2006	Rs. 2 billion
<b>Rate</b>	Rs. 35,000 per ton
<b>Weight</b>	57,143 tons
<b>Local consumption</b>	50,000 tons

Source: Sukkur Chamber of Commerce and Industry, 2013

Table 2-87: Trading of Major Fruit and Vegetables during Peak Season in Sukkur

<b>Potato</b>	<b>500 Tons Daily</b>
<b>Onion</b>	500 Tons Daily
<b>Vegetables</b>	800 Tons Daily
<b>Fresh Fruits</b>	60 Tons Daily
<b>Banana</b>	84 Tons Daily

Source: Sukkur Chamber of Commerce and Industry, 2013

Table 2-88: Iron and Steel Products of Sukkur

<b>Gardens</b>	<b>20,000 tons per annum</b>
<b>Iron Bars</b>	24,000 tons per annum
<b>Angle Patti</b>	6000 tons per annum
<b>Iron Teers</b>	12,000 tons per annum
<b>Iron Sheets</b>	12,000 tons per annum

Source: Sukkur Chamber of Commerce and Industry, 2013

## 2.7.9 EMPLOYMENT, INCOME LEVELS AND EXPENDITURE

According to the socioeconomic survey, more than 53% of the households have one earning member, while around 24% have two. Households having three earning members are 11.5% and more than three earning members are about 10%. In total employed persons, 89% are male and 11% are female (see Table 2-89). The average number of earning members per household is 1.7. Since the average household size is 6.23, the dependency ratio is 3.6; i.e. on average, 3.6 household members are dependent per earning member. The working population is 25.35 percent of the total population, of which more than 32% are associated with wholesale and related trade, 23.1% are associated with social and personal services and 16.7% are employed at manufacturing units. The overall non-working population is about 74.64%.

Table 2-89: Employed Persons by Level of Education

LEVEL OF EDUCATION	TOTAL (10 YEARS & ABOVE)	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65 & ABOVE
<b>BOTH SEX</b>	100	1.55	8.08	15.38	16.53	12.96	10.8	10.12	8.72	5.57	5.26	2.68	2.35
<b>MALE</b>	89.16	1.24	6.79	13.13	14.86	12.07	9.74	9.1	7.41	5.01	5.02	2.62	2.17
<b>FEMALE</b>	10.84	0.31	1.29	2.25	1.57	0.88	1.06	1.01	1.31	0.57	0.24	0.06	0.19
<b>LITERATE</b>													
<b>BOTH SEX</b>	81.11	0.78	5.98	12.59	14.65	11.19	9.02	8.18	6.93	4.17	4.15	1.97	1.52
<b>MALE</b>	74.6	0.07	5.08	10.82	13.35	10.68	8.53	7.67	6.3	4.06	3.97	1.93	1.52
<b>FEMALE</b>	6.51	0.08	0.9	1.78	1.3	0.51	0.48	0.49	0.63	0.11	0.18	0.04	0
<b>ILLITERATE</b>													
<b>BOTH SEX</b>	18.89	0.77	2.09	2.79	1.88	1.77	1.78	1.95	1.79	1.41	1.11	0.71	0.83
<b>MALE</b>	14.56	0.55	1.71	2.31	1.51	1.39	1.21	1.43	1.11	0.95	1.05	0.69	0.65
<b>FEMALE</b>	4.33	0.23	0.39	0.48	0.37	0.38	0.57	0.52	0.68	0.45	0.06	0.02	0.19
<b>LEVEL OF EDUCATION</b>													
<b>NO FORMAL EDUCATION</b>													
<b>BOTH SEX</b>	0.26	0	0	0	0	0.03	0	0.16	0	0	0.01	0.05	0
<b>MALE</b>	0.26	0	0	0	0	0.03	0	0.16	0	0	0.01	0.05	0
<b>FEMALE</b>	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>LOWER THAN PRIMARY</b>													
<b>BOTH SEX</b>	3	0.27	0.44	0.52	0.34	0.14	0.21	0.35	0.06	0.28	0.13	0.14	0.1
<b>MALE</b>	2.86	0.24	0.41	0.51	0.34	0.14	0.16	0.35	0.04	0.28	0.13	0.14	0.1
<b>FEMALE</b>	0.14	0.03	0.03	0.01	0	0	0	0	0.02	0	0	0	0
<b>PRIMARY</b>													
<b>BOTH SEX</b>	12.98	0.38	1.88	2.5	1.89	1.57	1.23	0.82	0.86	0.67	0.68	0.18	0.32
<b>MALE</b>	12.06	0.35	1.73	2.26	1.79	1.51	1.16	0.72	0.73	0.63	0.68	0.18	0.32
<b>FEMALE</b>	0.93	0.03	0.15	0.24	0.1	0.05	0.07	0.1	0.13	0.04	0	0	0
<b>MIDDLE</b>													
<b>BOTH SEX</b>	10.96	0.08	1.43	1.89	2.1	0.87	1.18	1.06	1.14	0.41	0.58	0.15	0.06

LEVEL OF EDUCATION	TOTAL (10 YEARS & ABOVE)	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65 & ABOVE
MALE	10.27	0.06	1.22	1.68	0.03	0.79	1.15	1.06	1.07	0.41	0.58	0.15	0.06
FEMALE	0.7	0.02	0.2	0.21	0.07	0.09	0.03	0	0.07	0	0	0	
<b>MATRIC</b>													
BOTH SEX	21.36	0.04	1.35	3.41	4.02	3.71	2.14	2.28	1.45	0.85	1.1	0.57	0.45
MALE	20.52	0.04	1.15	3.17	3.88	3.63	2.05	2.21	1.42	0.85	1.09	0.57	0.45
FEMALE	0.85	0	0.2	0.24	0.14	0.07	0.1	0.07	0.03	0	0.01	0	0
<b>INTERMEDIATE</b>													
BOTH SEX	13.12	0	0.74	2.51	2.68	2.16	1.83	0.8	1.22	0.56	0.24	0.25	0.13
MALE	11.94	0	0.46	2.08	2.38	2.06	1.8	0.79	1.18	0.56	0.24	0.25	0.13
FEMALE	1.19	0	0.28	0.43	0.3	0.1	0.03	0.01	0.03	0	0	0	0
<b>B.A / B.Sc. / MBBS / DEGREE IN ENG. / COMPUTER/AGRICULTURE</b>													
BOTH SEX	10.79	0	0.04	1.18	1.95	1.55	1.32	1.47	1.25	0.7	0.86	0.41	0.24
MALE	9.23	0	0.04	0.62	1.56	1.38	1.22	1.44	0.98	0.67	0.69	0.39	0.24
FEMALE	1.74	0	0	0.57	0.39	0.17	0.1	0.03	0.27	0.03	0.16	0.02	0
<b>M.A /MSc</b>													
BOTH SEX	6.89	0	0.04	0.43	1.38	0.9	0.98	1.11	0.82	0.51	0.33	0.16	0.21
MALE	6.07	0	0	0.39	1.13	0.87	0.87	0.9	0.75	0.47	0.32	0.16	0.21
FEMALE	0.81	0	0.04	0.04	0.25	0.02	0.11	0.22	0.08	0.04	0.01	0	0
<b>M.PHIL/Ph.D</b>													
BOTH SEX	0.09	0	0	0	0	0.04	0	0	0.01	0	0.01	0.04	0
MALE	0.09	0	0	0	0	0.04	0	0	0.01	0	0.01	0.04	0
FEMALE	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>OTHERS</b>													
BOTH SEX	0.96	0	0	0.05	0.11	0.27	0.07	0.21	0.07	0.06	0.09	0	0.01
MALE	0.96	0	0	0.05	0.11	0.27	0.07	0.21	0.07	0.06	0.09	0	0.01
FEMALE	0	0	0	0	0	0	0	0	0	0	0	0	0

Source: Consultant's Socioeconomic Survey of Sukkur, 2013

Table 2-90: Employed Persons by Industry and Employment Status

MAJOR INDUSTRY DIVISION	TOTAL	EMPLOYMENT STATUS				
		EMPLOYER	SELF EMPLOYED		UNPAID	EMPLOYEE
			AGRICULTURE	NON- AGRICULTURE		
Both sex	100	1.45	0.86	8.21	6.38	83.1
Agriculture, forestry, fishing	3	0.04	0.84	0.02	0.63	1.48
Mining & quarrying	0.18	0	0	0	0	0.18
Manufacturing	16.71	0.22	0	0	0	16.49
Electricity, gas, water	1.62	0	0	0.97	0	1.61
Construction	8.82	0.09	0	0.01	0.03	8.58
Wholesale & related trade	32.16	1.21	0.02	3.2	1.52	26.23
Transport & storage	6.94	0.09	0	4.75	0.24	5.67
Information & communication	4.2	0.03	0	0.94	0.03	4.14
Finance & real estate	3.26	0.13	0	0	0.12	2.44
Social & personal services etc.	23.12	0.09	0	0.57	0.69	21.51
Others (activities not defined)	0	0	0	0.83	0	0

Source: Consultant's Socioeconomic Survey of Sukkur, 2013

The average monthly household income is PKR. 33,266 however, there are 17.6% households which earn less than PKR. 7,000 per month Most of the income is generated in the form of wages and salaries (62.2%), followed by non-agricultural activities (15.7%) and owner occupied housing (15.1%) (See Table 2-91).

Table 2-91: Average Monthly Household Income

<b>Average Monthly Income (PKR.)</b>	<b>33,266</b>
<b>Percentage of Income by Source</b>	
TOTAL	<b>100</b>
WAGES & SALARIES	62.27
CROP PRODUCTION	0.36
LIVESTOCK	0.18
NON AGRI ACTIVITIES	15.72
PROPERTY (OWNER OCCUPIED HOUSES EXCLUDED)	2.43
OWNER OCCUPIED HOUSES	15.11
SOCIAL INSURANCE BENEFITS ( INCLUDING PENSION)	1.78
GIFT & ASSISTANCE	1.05
FOREIGN REMITTANCES	0.87
DOMESTIC REMITTANCES	0.23

Source: Consultant's Socioeconomic Survey of Sukkur, 2013

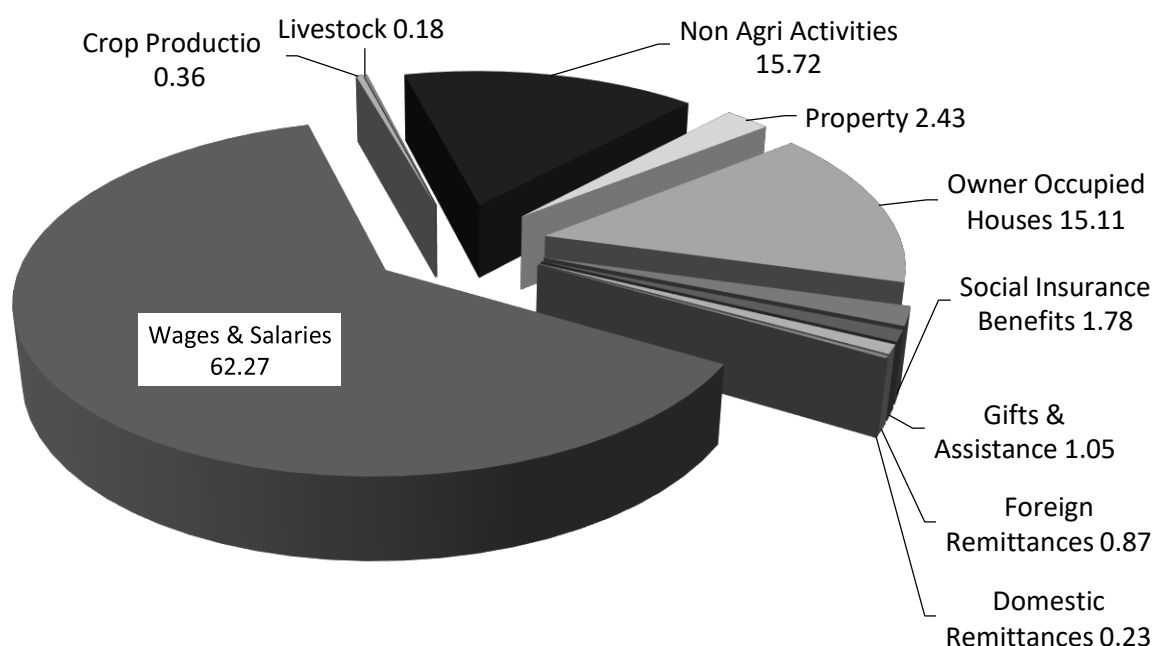


Figure 2-50: Percentage of Income by Source

According to the results of Socioeconomic survey of Sukkur, it has found that average household expenditure is low as i.e. PKR 29,746 compared with the average monthly household income. A Major chunk of expenditure is incurred for food followed by housing, transportation, education, and utilities. The average household saving in Sukkur City is PKR 3,520. (see Table 2-93).

Table 2-92: Average Household Expenditures

<b>Average Monthly Expenditure (PKR.)</b>	<b>29,746</b>
<b>Percentage of Expenditures</b>	
<b>Total</b>	<b>100</b>
Food, beverage & tobacco	40.08
Apparel, textile & foot ware	3.88
Transport & communication	7.68
Cleaning, laundry & personal appearance	3.74
Recreation & entertainment	1.1
Education	6.0
Housing	20.48
Fuel & lighting	5.67
Miscellaneous	11.37

Source: Consultant's Socioeconomic Survey of Sukkur, 2013

Table 2-93: Average Monthly Household Savings

Income Per Household (PKR.)	33,266
Household Expenditure (PKR.)	29,746
Household Saving (PKR.)	3,520

Source: Consultant's Socioeconomic Survey of Sukkur, 2013

## 2.7.10 GOVERNANCE

Availability of adequate resources and its efficient utilization on the functional assignments by levels of government is playing an important role for successful running of the government affairs. It is therefore important to assess the main sources of provincial and local government revenues and their expenditure pattern.

Provincial government revenues of Sindh primarily comprise of federal divisible pool transfer receipts, straight transfer receipts (on the basis of the National Finance Commission Award (NFC)), federal grants, and revenues from provincial own taxes, non-taxes and user charges. The local governments similarly derive its revenues from provincial government transfers receipts and grants (as well as from Federal Programs), and from local government own taxes, non-taxes and fees that fall under their domain.

It is important to mention that provincial government receipts following 2010 NFC award have received a quantum jump as combined provincial vertical transfer share had increased to 57.5% from an earlier share of 46.5%.

Table 2-94 provides the budgetary magnitude of Sindh government revenues and expenditures in the most recent years. A provincial resource position clearly reveals Sindh dependence on federal fiscal transfers given its share of 69% (Rs. 338 Billion) in revised provincial receipts of 2012-13. Provincial own tax revenues accounts for Rs. 41 billion (9.4%), provincial GST on service receipts Rs. 32 Billion (6.5%) and provincial non-tax receipts Rs. 27 Billion (5.5%). Moreover, capital receipts (income from loans and advances to provincial government employees and to local government and returns on their investment) in the total provincial receipts accounts for PKR 11 billion (3.4%).

On the expenditure side, the revised provincial revenue expenditure estimated at PKR 342 billion (68% of the provincial total expenditure) and provincial development expenditure (ADP allocations)

accounts for PKR 97 billion (19% of the total provincial expenditures) in the year 2012-13. Out of the total revised provincial expenditure of PKR 512 Billion, provincial own tax and non-tax revenues are able to self-finance 20% of their expenditures in 2012-13. Provincial heavy reliance on federal transfers highlights vulnerability of the provincial finances. To reduce federal dependence, it is vital to improve provincial resource mobilization through broad basing and automation of provincial fiscal base as well as by increasing fiscal efforts from provincial own source revenues.

#### **2.7.10.1 LEVELS OF LOCAL FINANCES AND TAX COLLECTION IN SUKKUR REGION**

Prior to 2008 before the declaration of local government as defunct, local governments used to receive mandatory transfers based on the provincial finance commission award (PFC). Following 2008-09, this mandatory PFC transfers to local governments partly are disrupted and it is now largely dependent upon provincial discretion. This had caused great confusion among local government employees (particularly those employees who are not absorbed in NSUSC) which causes demonstration at some places, including Sukkur Municipal Corporation, whose employees had not received their regular monthly salaries since last one year.

However, despite our efforts budgetary data of the Sukkur Municipal Corporations was not available. Data on tax revenues and expenditures of Sukkur region and district have been taken from Sindh provincial government sources (from the finance department and excise and taxation department).

The magnitude of tax revenues by type of tax for the last 5 years (2008-09 to 2012-13) is given in Table 2-94. According to this data, there are two major sources of regional tax revenues i.e. Provincial excise duties followed by motor vehicle tax. These taxes cumulatively account for PKR 496 million (82% of the total tax revenues from Sukkur region). Earnings from cotton fee were PKR 46 million and of property tax, PKR 32 million.

As a nutshell, it is quite clear that local own source revenues are inadequate due first, to their limited fiscal powers as well as the lower exploitation of their fiscal base. Further local governments are predominantly dependent upon provincial transfers to meet their expenditure needs. Moreover, recoveries of local user charges and fees for various services are very limited and dismally low.

Given the existing fiscal powers of local government, mandated tehsils / towns and the city/municipal government sources (see Appendix Table 2-95) are similar, with a few additions at the higher level. Increases in service fees, tolls, assessments on public events, and charges for building and construction approval are relatively easy to impose, but the desire to keep rates low normally prevents these sources from becoming significant contributions to the resource base. The sources that offer the greatest potential are property and motor vehicle taxes. However, various forms of tax evasion exist in most areas, and collections need to increase and services, improve before there are rises in taxes and charges

#### **2.7.10.2 EXISTING PROBLEMS WITH THE TAXATION AND USER CHARGE STRUCTURE AND ITS IMPROVEMENT**

Given the limited own source revenues and heavy dependence of sub-national governments (provincial and local) on fiscal transfers and grants there is a dire need that provincial and local governments would now focus on increasing own resource mobilization efforts to enlarge their revenue receipts.

This could be achieved by increasing fiscal efforts through exploiting existing provincial and local tax bases, including agriculture income tax base, which currently have a very low tax yield.

Our discussion with the local and provincial government excise and taxation and finance authorities indicates that considerable scope exists to enlarge provincial and local government revenues provided automation of various tax bases and collection including professional trade and calling tax, excise tax, motor vehicle tax. In addition, revenue yield from property tax may also considerably increase by updating the property records reflecting property values close to market rate. After valuation updating it would be appropriate to bring down the property tax rate (from existing 25% of Net Annual Rental Value to 5%-10%) as well as by broad basing of property tax through removal of exemptions on properties and by declaring new rating areas. This will significantly enhance the property tax yield through improved tax collection efforts. Moreover, present recoveries from provincial and local governments' user charges are dismally low and are not meeting full cost recoveries.

As such, sizeable scope exists to rationalize provincial user charges (irrigation services, agriculture extension services, education, health and law and order services and fees) local user charges of water supply, sewerage and sanitation, and solid waste management and other municipal services fall under the domain of the Municipal Corporation. The rate of user charges local services and provincial economic services should set up to cover at least operation and maintenance costs (O & M) of service if not full cost recovery.

#### **2.7.10.3 PUBLIC SECTOR DEVELOPMENT PROGRAM (PSDP) AND ANNUAL DEVELOPMENT PROGRAMME (ADP) OF DISTRICT SUKKUR<sup>Q</sup>**

The levels of PSDP and ADP allocations, releases, and expenditure of district Sukkur for the period 2008-09 to 2013-14 is given in Table 17-2. It is clear that annual PSDP allocations and expenditures show yearly fluctuation. As PSDP expenditures, which was PKR 871, millions in 2008-09 reduces to PKR 430 million in 2010-11. PSDP expenditure touches the peak at PKR 1654 million in 2011-12. The overall ADP expenditures, however, amount to a half a billion rupees annually as reflected in Table 2-94.

The detail ADP of district Sukkur provides sector wise allocations on a number of ongoing and new schemes/projects with approved and thorough forward costs along with the 2013-14 allocations. It is clear that road sector had received highest priority in the Sukkur ADP in both ongoing and new schemes. In this sector 358 are ongoing schemes with an estimated cost of PKR 707 million and 112 are new schemes with 2013-14 annual allocations of PKR 262 million (see Table 2-95).

In the current ADP ongoing schemes, social welfare sector had received highest priority, followed by schemes of physical planning and housing (PPH) and education sector. In the new ADP allocations, schemes of road sector had received higher priority in the annual plan allocations. As a whole ADP estimate of the newly approved schemes were PKR 6.3 billion, with a current approved allocation of PKR 1.6 billion (i.e. a through forward of PKR 4.4 billions). In addition, PKR 1.04 billion was approved for the ongoing schemes from the total ongoing allocations of PKR 2.6 billion in the year 2013-14.

<sup>Q</sup> Updated PSDP and ADP of Sukkur District is in the Addendum - page nos. 68-71

Table 2-94: Magnitude of Revenue of Province of Sindh by Source 2013-14

CLASSIFICATION	2012-13		PKR In Million 2013-14
	BUDGET ESTIMATES	REVISED ESTIMATES	BUDGET ESTIMATES
<b><u>I - RECEIPTS</u></b>			
<b><u>A. CURRENT REVENUE RECEIPTS</u></b>			
<b><u>Federal Transfers</u></b>			
1. Revenue Assignment	314,366.2	269,620.4	332,935.2
2. Straight Transfers	59,252.4	56,157.0	67,126.8
3. Grants to offset losses of abolition of OZT - * (0.66% of Provincial Share)- (incl. Others)	8,292.2	12,330.1	8,950.6
<b>Total ( 1 to 3 )</b>	<b>381,910.8</b>	<b>338,107.5</b>	<b>409,012.6</b>
4. Provincial Tax Receipts (excluding GST on Services)	41,189.3	41,296.1	49,370.1
5. Provincial Sales Tax on Services	32,000.0	32,000.0	42,000.0
6. Provincial Non-Tax Receipts	23,444.0	27,416.3	28,812.8
<b>Total ( 4 to 6 )</b>	<b>96,633.3</b>	<b>100,712.4</b>	<b>20,182.9</b>
<b>Grand Total - A</b>	<b>478,544.1</b>	<b>438,819.9</b>	<b>529,195.5</b>
<b><u>B. CURRENT CAPITAL RECEIPTS</u></b>			
1. Local Repayments/Loans	6,933.1	10,962.4	7,167.6
2. DPC/SWAP, World Bank	9,081.5	97.7	9,282.5
3. European Commission Grant	1,014.7	-	1,992.8
4. ADB Funding (SGRRP)	11,170.2	-	-
<b>Total - B</b>	<b>28,199.5</b>	<b>11,060.1</b>	<b>8,442.9</b>
<b><u>C. OTHER RECEIPTS</u></b>			
1. Foreign Project Assistance (FPA)	18,470.3	13,510.4	21,587.3
2. Flood Emergency Reconstruction Project (FERP)	17,187.0	18,876.8	7,970.6
3. Other Federal Grants	14,516.9	12,126.7	15,379.1
<b>Total (Other Receipts) - C</b>	<b>50,174.2</b>	<b>44,513.9</b>	<b>44,937.0</b>
<b>D. Carryover Cash Balance</b>	5,000.0	(12,129.7)	(5,000.0)
<b><u>E. PUBLIC ACCOUNTS OF THE PROVINCE</u></b>			
1. Receipts	700,442.0	1,145,212.5	1,146,673.5
2. Disbursements	691,542.0	1,139,265.5	1,138,673.5
Net Public Accounts - E	8,900.0	5,947.0	8,000.0
<b>Total Receipts of the Province [A+B+C+D+E] - F</b>	<b>570,817.8</b>	<b>488,211.2</b>	<b>595,575.4</b>

\*0.66% OZT Grant also includes PKR 5,081.630 million of other grants in RE 2012-13

CLASSIFICATION	2012-13		2013-14
	BUDGET ESTIMATES	REVISED ESTIMATES	BUDGET ESTIMATES
<b><u>I - RECEIPTS</u></b>			
<b><u>A. CURRENT REVENUE RECEIPTS</u></b>			
<b><u>Federal Transfers</u></b>			
1. Revenue Assignment	56.4%	54.5%	56.2%
2. Straight Transfers	10.6%	11.4%	11.3%
3. Grants to offset losses of abolition of OZT - * (0.66% of Provincial Share)- (incl. Others)	1.5%	2.5%	1.5%
<b>Total ( 1 to 3 )</b>	<b>68.6%</b>	<b>68.4%</b>	<b>69.0%</b>
4. Provincial Tax Receipts (excluding GST on Services)	7.4%	8.4%	8.3%
5. Provincial Sales Tax on Services	5.7%	6.5%	7.1%
6. Provincial Non-Tax Receipts	4.2%	5.5%	4.9%
<b>Total ( 4 to 6 )</b>	<b>17.4%</b>	<b>20.4%</b>	<b>20.3%</b>
<b>Grand Total - A</b>			
<b><u>B. CURRENT CAPITAL RECEIPTS</u></b>			
1. Local Repayments/Loans	1.2%	2.2%	1.2%
2. DPC/SWAP, World Bank	1.6%	0.0%	1.6%
3. European Commission Grant	0.2%	0.0%	0.3%
4. ADB Funding (SGRRP)	2.0%	0.0%	0.0%
<b>Total - B</b>	<b>5.1%</b>	<b>2.2%</b>	<b>3.1%</b>
<b><u>C. OTHER RECEIPTS</u></b>			
1. Foreign Project Assistance (FPA)	3.3%	2.7%	3.6%
2. Flood Emergency Reconstruction Project (FERP)	3.1%	3.8%	1.3%
3. Other Federal Grants	2.6%	2.5%	2.6%
<b>Total (Other Receipts) - C</b>	<b>9.0%</b>	<b>9.0%</b>	<b>7.6%</b>

Table 2-95: Budgetary Magnitude of Expenditure of Sindh by Source (2013-14)

		PKR In Million		
CLASSIFICATION		2012-13		2013-14
		BUDGET ESTIMATES	REVISED ESTIMATES	BUDGET ESTIMATES
<b>II - EXPENDITURE</b>				
<b>G. CURRENT REVENUE EXPENDITURE</b>				
Current Revenue Expenditure		315,301.3	342,110.5	355,973.8
<b>Total - G</b>		<b>315,301.3</b>	<b>342,110.5</b>	<b>355,973.8</b>
<b>H. CURRENT CAPITAL EXPENDITURE</b>				
Current Capital Expenditure		31,508.4	19,333.0	31,302.1
<b>Total - H</b>		<b>31,508.4</b>	<b>19,333.0</b>	<b>31,302.1</b>
<b>I. EXPENDITURE</b>				
1. Provincial ADP (excluding FPA and FERP)		181,000.0	97,500.0	185,000.0
2. Foreign Project Assistance (FPA and FERP)		35,657.3	32,387.2	29,557.9
3. Other Federal Grants		14,516.9	13,391.0	15,379.1
Provincial Development Expenditure ADP - I		231,174.2	143,278.2	229,937.0
<b>Total Expenditures of the Province [G+H+I] - J</b>		<b>577,983.9</b>	<b>504,721.7</b>	<b>617,212.9</b>
Surplus (+) / Deficit (-) (F-J)		(7,166.1)	(16,510.5)	(21,637.5)

Table 2-96: Collection Statement of Taxes Sukkur Region from July 2008 to June 2013

NO.	NAME OF TAX	COLLECTION	COLLECTION	COLLECTION	COLLECTION	COLLECTION
		2008-09	2009-10	2010-11	2011-12	2012-13
1	Motor Vehicle Tax	64.678	158.429	146.053	142.275	152.598
2	Excise Enactment	175.742	229.488	321.345	240.017	343.881
3	Cotton Fee	44.696	59.443	54.918	51.352	46.905
4	Professional Tax	16.110	16.124	17.172	18.591	19.804
5	Hotel Tax	0.982	1.019	1.226	1.317	1.366
6	Property Tax	32.661	31.438	31.086	30.722	32.179
7	Entertainment Duty	0.114	0.142	0.152	0.145	0.172
<b>Total</b>		<b>334.983</b>	<b>496.083</b>	<b>571.952</b>	<b>484.419</b>	<b>596.905</b>

Source: DG Excise & Taxation Govt. of Sindh, 2014

Table 2-97: Public Sector Development Program (PSDP) Allocation, Release & Expenditure

Years	Allocation	Release	Expenditure PKR Million
2008-09	1,405.507	1,405.507	871.414
2009-10	1,018.609	845.445	515.722
2010-11	1,098.453	538.242	430.594
2011-12	2,166.073	1,992.787	1,654.013
2012-13	2,741.700	1,453.101	1,177.012
2013-14	2,944.094	942.110	395.686
<b>Total</b>	<b>11,374.44</b>	<b>7,177.19</b>	<b>5,044.44</b>

**DISTRICT ADP (SUUKUR)**

2012-13	1,635.260	1,036.688	598.572
2013-14	1,061.000	591.428	456.694
<b>Total</b>	<b>2,696.260</b>	<b>1,628.116</b>	<b>1,055.266</b>

Table 2-5: District Sukkur Annual Development Program 2013-14 (On-Going/New)

S. No.	Executing Agency	Sector/ Sub-Sector	No. of Scheme	Approved Cost On-Going/New			Thorough Forward For 2013-14			Allocation for 2013-14 On-Going/New		
				Capital	Revenue	Total	Capital	Revenue	Total	Capital	Revenue	Total
	<b>ON-GOING ADP</b>											
1.	Public Health Engineering	PP&H Sector	75	299.397	0.000	299.397	168.655	0.000	168.655	75.000	0.000	75.000
2.	Highways	Road Sector	358	3025.949	0.000	3025.949	1644.196	0.000	1644.196	707.290	0.000	707.290
3.	Education works	Education	67	183.025	0.000	183.025	45.718	7.526	53.244	59.260	7.523	66.783
4.	Building	Health Sector	5	23.187	2.000	25.187	5.213	2.000	7.213	5.213	2.000	7.213
		PP&H Sector	10	50.000	0.000	50.000	35.000	0.000	35.000	35.000	0.000	35.000
		Social Welfare	34	314.514	0.000	314.514	151.986	0.000	151.956	153.836	3.000	156.836
	<b>TOTAL ON-GOING ADP</b>		<b>549</b>	<b>3896.072</b>	<b>2.000</b>	<b>3898,072</b>	<b>2050.738</b>	<b>9.526</b>	<b>2060.264</b>	<b>1035.599</b>	<b>12.523</b>	<b>1048.122</b>
	<b>NEW ADP</b>											
1.	Public Health Engineering	PP&H Sector	23	141.000	0.000	141.000	141.000	0.000	141.000	43.700	0.000	43.700
2.	Highways	Road Sector	112	1655.237	0.000	1655.237	1655.237	0.000	1655.237	262.491	0.000	262.491
3.	Education works	Education	5	310.376	0.000	310.376	310.376	0.000	310.376	50.723	0.000	50.723
4.	Building	Health Sector	1	10.000	0.000	10.000	10.000	0.000	10.000	5.232	0.000	5.232
		PP&H Sector	12	65.263	0.000	65.263	65.263	0.000	65.263	51.382	0.000	51.382
		Social Welfare	36	235.000	65.00	241.500	235.000	65.00	241.500	132.850	65.00	139.350
	<b>TOTAL NEW ADP</b>		<b>189</b>	<b>2416.876</b>	<b>65.00</b>	<b>2423.376</b>	<b>2416.876</b>	<b>65.00</b>	<b>2423.376</b>	<b>546.378</b>	<b>65.00</b>	<b>552.878</b>
	<b>GRAND TOTAL</b>		<b>738</b>	<b>6312.948</b>	<b>8.500</b>	<b>6321.448</b>	<b>4467.614</b>	<b>16.026</b>	<b>4483.640</b>	<b>1581.977</b>	<b>19.023</b>	<b>1601.000</b>

As a whole, it is clear that the local resources are inadequate to offer the level of infrastructure services needed to support a reasonable quality of life to its citizens. The current devolution plan also created confusion as the revenue and expenditure assignments at various levels of local governments are not yet clear. However, it is commonly perceived that the devolved fiscal powers of municipal corporations have weak bases. There remain deficiencies in the transfer system among levels of government such as lack of incentives for increasing local revenue performance at the city level. The existing local revenue base comprises of property taxes, land revenue, entertainment tax, as well as service charges, especially for water, sewerage, and solid waste collection. The significant scope exists to improve the property tax yield through (i) computerization of records, (ii) shifting the base from annual rental value of transaction value, and (iii) removal of tax exemptions on various properties iv) broad basing by declaring new rating areas. It is estimated that these measures would significantly enhance the property tax yield. User charges, especially for water, sewerage, and solid waste should be setup to recover at least O & M costs if not full cost recovery. Current tariffs are not only meager, but no serious efforts are being made to recover user charges. Water users are not metered and were generally charged based on the size of the plot/covered area and not on consumption. Currently NSUSC are not meeting its operating costs of provision of local services due primarily lack of their interest in service improvement and user cost recovery. Therefore present tariff/rate structures of local services need to be revised to cover at least O & M costs with service improvements. Alongside this poor fiscal management of provincial and local tax, authorities need to be strengthened through the designing of appropriate training program and tools and automation. Development of a system of rewards and penalties for the fiscal management by setting up appropriate revenue targets of taxes and non-taxes is also required. The reward would be due on the amount achieved over and above the targeted amount (on some percentage of amount achieve over and above the target). It is expected if the above-proposed measures were appropriately implemented it would significantly enhance the tax revenues and user charge yield.

Further, there are no effective financial management systems currently in place in SMC, which need to be integrated with the effective provincial financial management system. Further effective monitoring and evaluation and accounting system is needed which could be evolved by strengthening the Finance and Planning, Department of SMC and other city local governments by making it mandatory to furnish a regular accounting and financial information.

Inadequate financial management and revenues also affect the ability of the SMC to effectively utilize options for alternative financing such as outsourcing urban infrastructure development and management in the private sector. Private sector participation is partly hindered due to lack of implementation of clear policies and laws at all levels of government to promote public private partnerships (PPPs) which is required.

### 3 STRENGTHS, WEAKNESSES, OPPORTUNITIES AND THREATS FOR SUKKUR URBAN DEVELOPMENT

In a planning cycle, the first stage is always to know “where are we now?” Spatial assessment and SWOT analysis are a straightforward way to set a baseline situation with respect to almost all aspects of a city. Similarly, competitive advantages of a city could be determined through SWOT assessment since competitiveness is a factor of internal (strengths and weaknesses) and internal and external (opportunities and threats) forces. For a thorough understanding of these factors, an integrated SWOT assessment was made. It has provided an informed basis for the formulation of a development strategy. The SWOT key points against each of the sectors and sub-sectors have been done at the end of each sectoral situation analysis.

An integrated SWOT Assessment Matrix is providing a composite picture of the internal and external forces affecting the city’s spatial growth and its overall development process. The stakeholder consultation process conducted during the months of September, October and November 2013 used various techniques, collected SWOT points, which were prioritized based on the perception of respondents, (either individual or institutional), and expert observations of urban planners and other sectoral specialists during the field visits. Depending on that prioritization, the most pressing elements are presented in the below integrated SWOT assessment matrix:

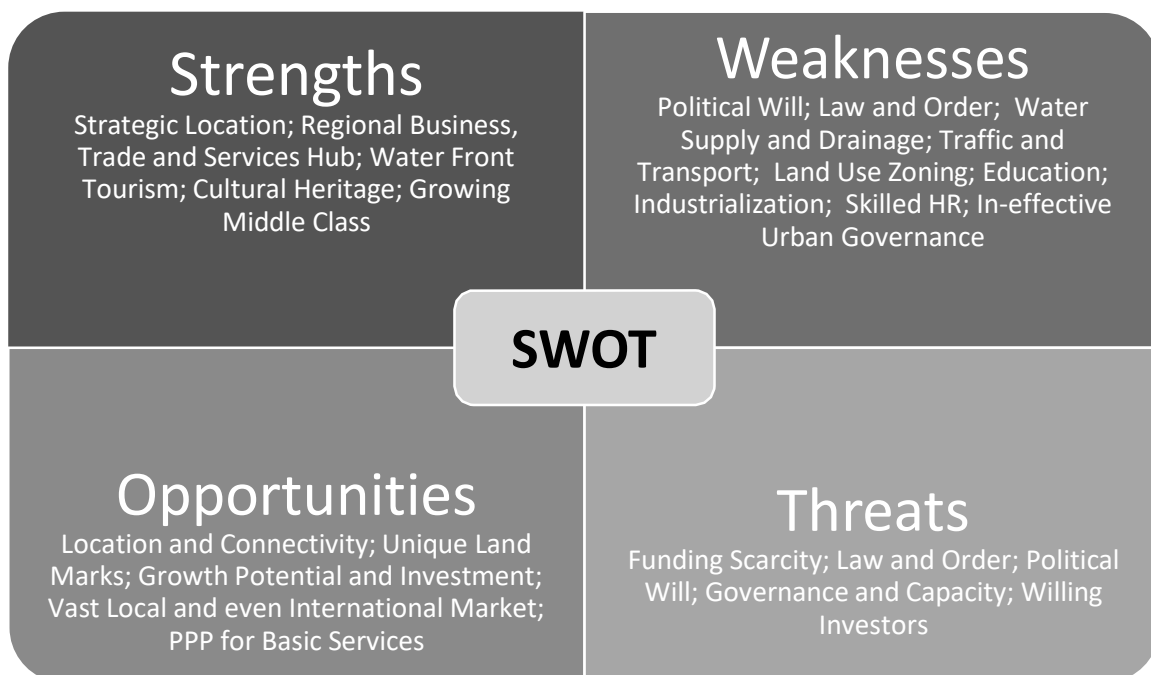


Figure 3-1: Integrated SWOT Assessment Matrix

Further sector wise elaboration of above summarized points emanating from the assessment of internal strengths and weaknesses; and external opportunities and threats of Sukkur and it’s environ is given in the following sections.

### 3.1 POPULATION COMPOSITION

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#### Strengths

- Young people are considerably high
- Male proportion is quite high as sex ratio is 113.7
- Multi-ethnic city
- Land and planned residential schemes are already developed on ground for accommodating growing population of the city
- Young blood comes from rural to urban for employment and better opportunities
- The household size has reduced to 6.23 person and which in turn will reduce the dependency ratio

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#### Weaknesses

- Dependent population is more than independent
- Around 70% population reside within 15% of the area
- Natural increase is high
- Population growth rate of Sukkur is 3.38% which increases the population to 1.1 million by 2035 that will exert significant pressure on resources and service levels in Sukkur
- Population census had not been conducted since 1998
- The female to male age-sex ratio is 84/100 that may be partly be the reason for intercity migration for marriages.

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#### Opportunities

- Youth development programs can be successful including formal and informal education and skills
- Urban renewal can satisfy the needs of deficit and dense areas
- Technical education can convert youth to a skilled workers
- Major factors resulting in incremental growth are the natural population growth, migration from rural hinterlands, emergence of new residential colonies / neighborhoods, and market area

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#### Threats

- Sensitive to sectarian and political conflicts
  - Law and order situation is restricting the urban expansion towards the developed residential societies
  - Skill development Institutions are lacking
- 

### 3.2 HOUSING

#### Strengths

- As per rarely documented data housing deficit is very low in the city
- Already developed schemes are present in the vicinity of the existing built-up area for fulfilling the housing needs
- Self-derived, without public investment
- Innovation for vertical development
- High demand

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#### Weaknesses

- Almost one third of population of the city lives in the slum areas (Katchi Abadis) in highly unhygienic and hostile environment

- Low income housing schemes are missing in the city therefore creating burden in form of slums
- Slum areas are mostly encroached public land, which have halted the functions of that particular land e.g. land of circular railway is totally occupied by encroachers and may not be restored for resuming the service
- In-adequate building control
- Mushroom growth
- Poor building typology and construction practices
- Land/estate speculations
- Land grabbing, particularly the public land in connivance with political power poles
- High rise development without parking provisions
- Residential area is 50% of the total earmarked urban area and 70% population Sukkur resides in 15% of the urban land, which makes it more congested
- Inadequate supply of affordable land and its skyrocketing prices
- Poor land administration with inadequate legal and regulatory systems
- An overemphasis on Katchi Abadis regularization has encouraged further encroachments
- Limited supply of housing finance, with weak mortgage collateral, discourage institutional credit based housing development.
- Lack of comprehensive planning at local level without any effective co-ordination with various Government departments, agencies and other bodies has impeded housing development.
- The gap in demand and supply of housing stock has increased, causing overcrowding in existing housing colonies besides increase formation of slums particularly in low-income households.
- Lack of implementation of building byelaws
- Non-implementation of SBCA bylaws in building constructions (without -traffic impact assessment, parking, utility services provision, internal and external firefighting arrangements etc.)

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#### Opportunities

- Low income housing is highly required that will control the growth of the slum areas and stop the further densification of existing slums
- Removal of encroachment is required to reform the urban land use in appropriate manner, which will create the space for scarce amenities such as land for recreation, education, health and other public services
- Specialized zoning and land use laws separately for CBD and rest of the city
- Parking Plazas
- Strict land use and building control with relevant technical professionals
- Housing sector has high potential of development as the housing backlog which was nearly 5000 units in the 1998 census is estimated to reach at 28,000 additional units by 2020, and 75,000 by the end of 2035

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#### Threats

- High resistance is expected not only from the direct encroachers and beneficiaries but also from the affiliated political leaders
- Political war of tug
- High land / property speculations
- Land mafia in action for land grabbing

- The housing backlog is generally filled through haphazard development of slum areas; this provides shelter to the middle, lower, middle and working class city residents and therefore causing undue congestion and deteriorating city environment.

### 3.3 HEALTHCARE SERVICES

#### Strengths

- Hierarchy of health system exists
- No significant epidemic history. Recently measles cause certain deaths
- Private health facilities available
- According to the Consultants survey, there are 44 private healthcare service providers involved in delivering health services in District Sukkur especially in urban areas

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#### Weaknesses

- Far below the requirements
- No specialized hospital
- Inadequate service level and service delivery
- Lacking resources and management capacity
- Lack of medical/para-medical staff and medical instruments besides deteriorated condition of buildings are the major issues of health sector. Apart from this it, also lack appropriate health centers, hospital beds.

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#### Opportunities

- Need big hospital catering need for Sukkur and its rural hinterland, even adjoining cities
- Public sector medical college
- PPP for primary health care

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#### Threats

- Political will and priority to health sector
- Overall public health care situation is alarming. In particular, the most vulnerable situation is related to the mother and child health care facilities.

### 3.4 EDUCATION AND LITERACY

#### Strengths

- Literacy rate at-par with provincial urban rate
- Hierarchy of education institution exist
- Good quality alternates available for primary and secondary education
- According to MTDF all primary schools will be converted into co-educational schools besides moving towards achieving the goal of 100 % female teachers as per the policy to increase girl's enrollment and retention in rural areas.
- Female students especially in rural areas will receive financial and nutritional incentives to reduce gender gap in enrollment and retention
- There exists a large network of schools in District Sukkur and private schools are also registered.
- There is a network of vocational institutions including polytechnic, mono technique and commercial institutions in all over the province

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#### Weaknesses

- No quality check and maintenance of infrastructure

- Public sector higher education institution are missing
- Institution to meet the demand of skilled labor are missing

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#### Opportunities

- Education city containing general, technical and medical facilities up to post-graduation level
- Vocational training center in coordination with chamber of commerce and industry
- PPP in education, like IBA
- Being a third largest city of the province and having linkages with more than 50 settlements within 100 km vicinity, it has high potential for higher education.

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#### Threats

- Political will and patronage (thirds largest city of Sindh and no university)
- Policy issues
- The survey reveals that bulk of the children from poorer households does not attend school / institution, as they have to work to meet their households financing requirements.

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### 3.5 SPORTS AND RECREATION

#### Strengths

- Picturistic location and ideal topography for sports and tourism
- World renowned icons (Sukkur Barrage and Sukkur Bridge)
- Project for sports complex has been conceived
- In New Sukkur, land for parks and playgrounds was reserved in all planned housing schemes.

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#### Weaknesses

- No plan for developing high standard recreation and sports facilities
- No maintenance of existing open spaces and facilities
- No family environment
- No public safety at recreation places
- Parks and play grounds have very minor area of the whole urban land, only 0.68%

---

#### Opportunities

- Developing theme park along the long river bank and near the Sukkur Barrage
- Attracting tourist within and out the country through efficient tourism management
- PPP for capital investment and even international investment for theme park/Disney land
- The Sukkur Sports Complex has recently been initiated. There will be indoor sports facilities, including badminton, table tennis, basketball, volleyball, weightlifting, boxing, judo, karate.
- Cricket stadium is planned to accommodate 20.000 spectators keeping in view the requirements of first-class and higher level cricket.

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#### Threats

- Political patronage
- Law & order

### 3.6 CULTURAL HERITAGE

#### Strengths

- Rich cultural heritage related to Muslims and Hindu regimes
- Unique cultural sites and activities in the surroundings

#### Weaknesses

- No attention to exploit them for tourism and recreation
- Lacking proper information and history

#### Opportunities

- Plan for restoration and exploitation of cultural heritage and assets within and outside the city
- Production of sufficient material in PPP for attraction of tourists

#### Threats

- Law & order and political will

### 3.7 PUBLIC SAFETY

#### Strengths

- Being divisional headquarter, strong institutional set-up available
- Crime rate is low in central and old Sukkur

#### Weaknesses

- Crime rate is high in peripheral areas/new society areas in the south-west
- Crime activities managed from surrounding rural areas, and thus affecting Sukkur
- Business community is high target for ransom and other form of money demands

#### Opportunities

- Strong law & order implementation
- Integrating livelihood programs in all developmental projects, thus eliminating one of the root causes

#### Threats

- Political influence and patronage
- Professional district administration and police officers
- Escape routes and fire-fighting arrangements in newly constructed apartment buildings are non-existent.
- The CNG gas and petrol filling stations located in congested areas are the potential source for any unfortunate incident.

### 3.8 LAND

#### Strengths

- Old Sukkur is built on old alluvial soil and hills of lime stones that have good load bearing strength
- Quite considerable area is already developed in form of cooperative housing societies and waiting for inhabitation
- Peripheral of the city are quite suitable for urban development
- The land use analysis indicates that almost 88% of the earmarks built-up area is in use of urban functions including residential, commercial, industrial, amenities, transportation, parks and playground; and areas allocated for residential schemes.

#### Weaknesses

- Law and order and political influences are the major hurdles for the urban development in peripheral areas
- The city can grow only in one direction as it is locked by river from three sides
- Due to undulated portion some areas are wasted by water ponds
- The incremental growth is putting pressure on existing resources

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#### Opportunities

- Wasted land can be converted into other planned land uses
- Density can be controlled by horizontal spreading of the city
- Transportation Management Techniques can be used at places where enough land / space is not available for new construction. It is comparatively low capital-intensive option, which emphasizes on the optimum usage of existing facilities by effective management.

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#### Threats

- Cost may be high due to large scale earthwork requirement
  - Prevailing law and order situation may harm the city growth
- 

### 3.9 ZONING

#### Strengths

- Overall land use proportions are quite acceptable except the amenities
- 

#### Weaknesses

- No zoning is defined and implemented in the city by any agency therefore only natural haphazard mushroom growth is taking place
- 

#### Opportunities

- Land use zoning can define the balanced future growth with rationalized distribution of economic activities and the desired amenities
- 

#### Threats

- Past experiences can demotivate the community to accept the change in form of planning
  - Extra efforts will be required to assure the success of zoning and its implementation
- 

### 3.10 BUILDINGS AND CONSTRUCTION

#### Strengths

- Due to very high occupation rate, most of the old building structures are rehabilitated and newly constructed even in the old city area
- 

#### Weaknesses

- Due to the high land value and worse law and order situation in newly developed areas, vertical building structures in the city are becoming popular even without any commercialization policy and implementation of building by-laws
-

#### Opportunities

- There is a need of preparing a detailed spatial plan that should narrate the commercialization of the major roads, prohibited areas for vertical structures and plan for urban renewal

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#### Threats

- Financial assistance for the urban renewal will be critical
- Extra efforts will be required to assure the success of building control and detailed spatial plan

### 3.11 AREAS SUITABLE FOR URBAN DEVELOPMENT

#### Strengths

- Third large city of Sindh Province
- Sukkur is built on old alluvial soil and hills of lime stones that have good load bearing strength
- Outskirts of the city are quite suitable for urban development

---

#### Weaknesses

- The city can grow only in one direction as it is locked by river from three sides
- Due to undulated portion some areas are wasted by water ponds
- Lacking amenities and quality municipal services
- Law and order and political influences are the major hurdles for the urban development in peripheral areas

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#### Opportunities

- Wasted land can be converted into other planned land uses
- Educational and Health facilities can be built which will not only overcome the deficit but also improve the urban quality of life
- Density can be controlled by horizontal spreading of the city

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#### Threats

- Cost may be high due to large scale earthwork requirement
  - Private sector may increase the cost of services
  - Prevailing law and order situation may harm the city growth
- 

### 3.12 WATER SUPPLY AND DISTRIBUTION NETWORK

#### Strengths

- Intake sources available
- Majority population is covered by Network
- Recent studies and sectoral master plans available
- NSUSC with technical capacity and funds
- On-going and pipeline projects
- Tube wells are operated for up to 8-10 hours continuously without any drop in discharge or water pressure
- Sweet groundwater is found in ample quantity in areas along the canal network and River Indus.

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#### Weaknesses

- People highly dissatisfied
- Improper intake location
- Inadequate / no treatment resulting huge water quality issues

- No quantitative management
- Low charges / No metering
- No plan for conservation and reduction of wastage
- Outage network
- No fire hydrants
- Lacking maintenance
- The inside piped water connections are available only to 43.68% of the housing units, whereas 33.51% have motor pump installed in their housing units which seems low
- In the transitional period, Sukkur Municipal Corporation lacks required skills to effectively manage and maintain the urban growth and basic utility and infrastructure services particularly in low-income areas.
- The problem of shortage of water aggravates during periods when the gates of the Sukkur barrage are opened for maintenance.
- The existing intake at River Indus is located on the bank of the River Indus and in extreme flooding conditions it is at risk
- The raw water quality of River Indus is highly turbid throughout of the year, which causes major problems and expenses in its treatment.
- It is expected that in near future the low water level of Indus will frequently fall below at the location of the intake pipes, which will result in failure of the municipal water supply
- No regular testing and analysis of groundwater is conducted and quality and mitigation measures are not disclosed to the consumers.
- The water loss in Sukkur is due to leakages, line losses, and illegal connections.
- Due to high operation cost, the expenses on water supply system are quite high while tariff fixed is quite low.
- NSUSC does not have any records of water supply, consumption and wastewaters discharged.
- None of the capacities of the pumps is known and there are no flow meters at the disposal stations.

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#### Opportunities

- Attain trust of people by quality water supply services
- Quantitative management and metering
- Water use reduction through conservation strategies
- Utilization of paying capacity for financial sustainability
- PPP in service delivery

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#### Threats

- Heavy dependency on provincial and donor funding
  - Political influence in service delivery and financial sustainability
  - Un-due delays in implementation of planned projects
  - Scarcity of drinking water is badly felt by the community during dry season.
  - The water demand for the existing population in 2013 comes out as 22.1 MGDs with the 50% water supply gap
  - High levels of arsenic, E-Coli and Fecal Coliforms are reported in the drinking water due to sewage water contamination in some areas.
  - Groundwater at some locations found saline.
  - At present, the sources of water contamination observed are open defecation, disposal of domestic and livestock waste by the community
-

### 3.13 SEWAGE COLLECTION AND DISPOSAL

#### Strengths

- Mix system (open channel and sewer)
- Serving most of the city area
- NSUSC has recent studies and future development plans
- Funding for ongoing and future projects
- Disposal sources available
- The wastewater 'Mega Project' that has been developed under PHED is to convey all the Sukkur/New Sukkur wastewater to the treatment plant and to extend it to provide the necessary capacity
- The sewerage system was developed based on the design criteria and a proper maintenance system was devised under municipal laws and regulations.
- If all the installed pumps operate, about 7 hours /day will be sufficient to dispose the whole wastewater

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#### Weaknesses

- People highly dissatisfied
- Outage and disconnected network
- No treatment before disposal
- No policy for re-cycling, and reduction in generation of sewerage
- Mixing of solid waste into Sewerage
- Un-due number of disposal station
- Pounding in city center
- Lacking maintenance
- Encroachment
- It is located downstream of untreated wastewater outfalls which dispose of about one third of the total wastewater discharge of the city.
- Drains are un-covered and there is yet no solid waste service, refuse gets dumped or is blown into the open channels causing blockage
- The operating pumps require frequent maintenance to clear blockages and repairs, as there is a high risk of failures.

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#### Opportunities

- Development of well-designed trunk sewerage network with less number of disposal station
- Planning for well-connected gravity based open drainage system covering pounds in the north-east
- Skilled staff for proper maintenance
- Charging of services
- PPP in service delivery
- Use of pounding land for civic and institutional services

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#### Threats

- Political interventions in staff hiring and service delivery
- Funding
- Policies
- Removal of encroachment
- Land grabbers
- Wastewater is discharged untreated to the River Indus

- Infiltration or leakage of open drains may cause migration of fine materials from the soils causing voids in the backfill and sometimes road collapse

### 3.14 DRAINAGE AND FLOOD CONTROL

#### Strengths

- No riverine flood owing to overall topography and embankment
- Institutional setup with strong horizontal and vertical linkages

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#### Weaknesses

- Depression areas causing permanent ponding
- Seldom surface drainage network
- Reliance on sewer for flood/storm water
- Encroachments

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#### Opportunities

- Development of surface drainage network with easy disposal to river/canals
- Completely remove or reduce ponds in main city
- Conversion to gravitational flow, less dependency on forced flow or sewer

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#### Threats

- Political will to tackle encroachers and land grabbers
  - Funding
  - Involvement of local pressure groups
- 

### 3.15 SOLID WASTE MANAGEMENT

#### Strengths

- System in place with improving efficiency
- Toxic/hazardous waste is not a significant issue at the moment
- Visible arrangements for secondary collection and disposal
- Recycling by scavengers
- The discussion with local people during field visits revealed the perception that the solid waste collection facilities in the city of Sukkur have improved considerably.

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#### Weaknesses

- No primary collection
- No recycling policy or incentives
- No scientific landsite at the moment
- 30% is left over
- No plan for civic sense and public awareness
- No involvement of NGOs and CBOs
- Currently, there is no mechanical sweeping equipment in SMC and NSUSC
- Segregation at source or at primary, secondary collection points, or at the disposal is not available resulting into inadequate recycling;
- There is lack of arrangement for separate collection, handling and disposal of hospital wastes, chemical & hazardous waste, and industrial wastes;
- Non-availability of scientific and actual data on SWM;
- Available vehicles and other machinery for SWM operation is not sufficient;
- Shortage of skilled staff to carry out SWM operation efficient;
- Existing practices of waste disposal in the landfill site are not scientific, thus creating environmental issues;

- There is no policy or incentive package to attract informal sector for waste recycling;
- Stringent policy for SWM and then its enforcement is not in place;

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#### Opportunities

- Establishing a primary collection system, resulting a source of income
- Development of scientific land fill site
- Recycling and reuse of solid waste, such as RDF, biogas etc.
- PPP in service delivery
- Currently there are no user charges for sewerage and solid waste management services provided by the NSUSC.

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#### Threats

- Political interventions
- Trust building with people
- Waste from hospitals and healthcare facilities in the towns are currently co-disposed with other waste

### 3.16 POWER SUPPLY AND DISTRIBUTION

#### Strengths

- Well-connected to national grid
- 100% coverage
- Good recovery figures as business community want quality services
- Local power generation potential (Barrage /canal head-works, and refuse burnt)

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#### Weaknesses

- Power shortage
- Line losses and power theft
- Outage network in old Sukkur
- Demand exceeding existing capacity of network
- No power generation facility exist in vicinity of Sukkur MC
- Power shortage has become acute and noticeable due to extensive use of Kunda system

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#### Opportunities

- Utilization of local renewable power generation potential
- For un-interrupted power, people ready to invest and pay
- Revival of outage network following existing and future demand
- PPP in service delivery
- Sukkur Region has a great potential of Hydro and Solar energy.
- Altogether, eighteen potential sites of an estimated total capacity of 193 MW with medium and low head at different canals have been identified
- The utilization of solar power as an energy fuel would overcome the problems of energy crisis in the region and facilitate the process of considerable reduction of CO2 emissions

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#### Threats

- Political will and policies at work
- Licensing and legal issues
- Investment protection, law & order

- Small & large scale industries are highly affected due to Gas and Electricity load shedding

### 3.17 INFORMATION AND COMMUNICATION TECHNOLOGY

#### Strengths

- Well-served
- Presence of all service providers
- Important employment and business sector
- Conducive policy without any local influence
- All types of telecommunication means are more or less present in Sukkur

#### Weaknesses

- No city-specific issue
- Need reform at national level
- Use of ICT for crimes / ransom / terrorism etc.

#### Opportunities

- Use of ICT in automation of urban service delivery
- Use of ICT in revenue management and crime control
- Use of ICT in EWS
- The communication linkages of Sukkur with other parts of the country are imperative for overall economic progress of the region and boosting services industry itself in Sukkur and its surroundings.

#### Threats

- Local technical capacity
- Policy and legal issues
- Non-availability of high-tech equipment, etc.

### 3.18 ROADS AND TERMINALS

#### Strengths

- Being a connected city, Sukkur is having good road infrastructure for inter-city as well as intra-city traffic mobility
- Main bus terminal is a newly built structure outside the built-up city on Shikarpur Road having all required facilities
- Recently accomplished Sukkur mega project and other special packages governed by main political representatives of the area emphasized on the rehabilitation of the roads therefore overall condition of the network is good
- Sukkur is serving as a socioeconomic crossroad to the developing cities in Sindh, Punjab and Baluchistan as the gateway to three provinces.
- The City holds an important transportation link, be it air, land, water or rail.

#### Weaknesses

- Due to lack of zoning laws and building control, many areas are facing traffic congestion, high rate of accidents and need traffic re-modelling. Special attention is required in old city area, commercial streets and Sukkur bypass.
- Encroachment has worsened the traffic congestion and created many bottlenecks within the City

- Sukkur is facing transportation problems like encroachments, haphazard on-street parking, improper design of roads and intersections, poor pavement conditions and non-uniform right of way.
- Secondary and Tertiary roads network in Sukkur is below the acceptable standards, especially in the Old City area. It is generally due to lack of planning and un-controlled growth of the City.
- Road users experience a number of traffic problems such as wrong parking, encroachments, delays, poor management at intersections and the unsatisfactory geometric design of roads.
- Operational capacity of roads is reduced due to poor quality of pavement surface, inadequate pedestrian walkways, inadequate lighting and lack of designing intersections.
- Roadway lighting are not well illuminated.
- In Sukkur, there is strength of above 50 Traffic Policemen in the City, which seems low
- There is no mechanism for regular inspection, inventorying the network, pavement and allied infrastructure/road or street furniture for evaluation and maintenance requirements.
- Organizational inefficiencies, lack of training, and political influences have not allowed the municipality staff to deliver the O&M function on modern lines.
- Authorities are unaware of latest tools / systems of database collection and management, developing interfaces with respect to GIS, timely assessment of maintenance requirements, etc.
- The road users do not necessarily register vehicles in Sukkur.

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#### Opportunities

- Sukkur bypass should be developed as dual carriageway.
- Remodeling study of traffic should be undertaken on urgent basis.
- Encroachment should be removed from the roads to make better flow of traffic

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#### Threats

- High resistance is expected not only from the direct encroachers and beneficiaries but also from the affiliated political leaders
- Large housing project get approval without consideration of traffic and environmental impact assessments

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### 3.19 RAILWAY AND STATION

#### Strengths

- Sukkur is linked with the national rail link for any kind of transportation including passenger and goods.
- Historically Sukkur was developed as a main railway junction with all required facilities including railway station, godowns, resident colonies, special amenities required such as hospital, schools and parks etc. Some of such facilities are still present in the city.
- Almost 14 trains' daily pass through and stop over the Sukkur station and one dedicated night coach train (Sukkur Express) provides services for the transportation between Sukkur and Karachi.
- A railway sleeper factory is still working

#### Weaknesses

- Most of the railway land is encroached by land grabbers and halted the functions of railway within city
- Sukkur express is lacking facilities demanded by the residents of Sukkur such as Upper Class and AC coaches missing, extra ordinary late arrival and departure disappointing the passengers

#### Opportunities

- Clearance of encroachment can provide the land for Railway where any good quality relevant economic activity can be planned. Such activity may generate the revenue for the Sukkur and provide the employment opportunities for the residents of Sukkur

#### Threats

- High resistance is expected not only from the direct encroachers and beneficiaries but also from the affiliated political leaders

### 3.10 AIR TRAFFIC AND AIRPORT

#### Strengths

- Sukkur is having a good quality national airport (Begum Nusrat Bhutto Airport) that provide transportation services from Sukkur to Karachi and Islamabad
- PIA and Shaheen Air are running their services from this Airport with 48 flights weekly.
- Sukkur airport is the fifth busiest airport of Pakistan after Karachi, Lahore, Sialkot and Islamabad are connecting almost all commercially important destinations through 48 flights in a week.

#### Weaknesses

- Due to monopoly of national airline the fares between Karachi and Sukkur are very high
- Airport has a small terminal that is sufficient only for local traffic.
- No international flight is running through this airport

#### Opportunities

- Airport should be upgraded from national to international by expanding its infrastructure
- All local airlines should be licensed to provide services on all desired routes to overcome very high fare rates through open competition.

#### Threats

- PIA is already in loss

### 3.11 ENVIRONMENT AND ECOLOGY

#### Strengths

- Most of the built city is elevated on lime stone hills and excluded from riverine flooding
- Sukkur is a riverine city having perennial water for domestic, irrigation, and recreational use
- Have four seasons

- Most of the area is air pollution free
- Well defined protected zone for Indus Blind Dolphin in River
- In Zone 2A having low risk of earthquake
- Elevated topography and protected through River Embankments
- Indus River habitat is an ecologically important area in respect of fauna and flora.
- Indus River and its associated marshes on both banks are very important as staging and wintering habitat for migratory birds during monsoon
- The species found in the project area, which are of importance in terms of medicinal and economical use, include *Desmostachya bipinnat* and *Typha elephantina*.
- The probability of earthquake and drought in Sukkur is rare

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#### Weaknesses

- Severe rainfall always affect the city and due to lack of appropriate planning, it creates flooding especially in low lying areas of old city and peripheral outskirts
- Sewerage and storm water drainage is less effective and costly
- Due large size flood embankments hydrology is disturbed
- Due to arid climatic conditions summer is extremely hot
- Traffic on congested roads within old city area and few industrial activities are generating pollution
- Water pollution and insincere behavior of fishermen are still affecting the endangered species
- Storm water drain is disturbed
- Old city area is highly congested
- Two stroke Rickshaws in Sukkur area and Vehicular traffic on the sandy roads cause dust emissions with fairly localized effect.
- Lack of institutional capacity to deal with the disaster risk management initiatives
- Lack of structure and resources
- Lack of training, appropriate skills and awareness on disaster risk management both to the community and public servants
- Environmental degradation, industrialization, air pollution increases hazards risk for diseases
- Inadequate early warning systems
- Lack of preparedness and contingency measures for disaster risk management
- Poor construction materials for settlements (houses, structures, buildings, schools, hospital bridges, etc.)
- Settlements on hazards prone locations
- Construction of high rise buildings without any risk management precautions especially in the highly dense area

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#### Opportunities

- Feasible storm water drainage network should be planned and developed after detailed study
- Tourism can be promoted to generate economic activities
- Small to medium scale hydro power projects can be initiated as renewable energy source
- Suitable for various crops including cotton, sugarcane, rice and wheat
- In future can City can be planned as Green City
- A nature gift can be protected and keep alive with sincere efforts
- Multi-storey High-rises can be built with appropriate planning and provision of proper services

- Indus River, between the Guddu Barrage and the Sukkur Barrage is a very important reserve and habitat for Indus Dolphin, which has a global significance. This part of the river contains almost 60% of the entire population of this river dolphin.

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#### Threats

- Pumping cost may be very high
- Water pollution is the major threat to the river environment from various sources including domestic sewage and industrial waste
- Climate change may bring more extremeness, which may lead towards desertification
- Cost of living may be high
- Acceptance of community may be difficult due to major economic activities within congested old city area
- Indus Dolphin may be lost
- Any major fire or building collapse event is difficult to avoid losses within old city area
- The region experience harsh climate rains in the summer and monsoon causing heavy flooding, while dry winters often witness mild to severe droughts.
- The River Indus in Sindh is dangerous, because it flows at the ridge. In case of breach, the out flowing water cannot be drained back into the river at any point.
- The failure of rainfall and global climatic effects, reduce the water supplies in the Indus River System

### 3.12 COMMERCE

#### Strengths

- Regional Trading Hub
- Established market linkages
- Engaging about one-fourth of the population
- Financial services
- Benazir Bhutto Shaheed Youth Development Program, which was initiated in 2008, has so far trained about 162,000 youths in 386 trades of 89 employable sectors with an objective to facilitate them for employment and to curtail poverty.

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#### Weaknesses

- Supporting facilities
- Law & Order
- Non-documented
- Being an urban service area, the city attracts people from the whole region for health, education, employment and business opportunities.

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#### Opportunities

- Re-location
- Providing support facilities
- Further expansion
- Specialization and modernization

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#### Threats

- Law & order
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### 3.13 INDUSTRY

#### Strengths

- Two industrial estates
- Labor force
- Internal and external markets

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#### Weaknesses

- Law & order
- No incentives
- Mainly fulfilling local needs
- Un-skilled labor force
- Support infrastructure

---

#### Opportunities

- Support facilities
- Political will & incentives (like special economic zone)
- Modernization and export oriented
- Employment to skilled labor
- Expansion of cottage industry

---

#### Threats

- Law & order
  - Non- availability of skilled labor
  - Non-availability of financial services / resources
  - Policy hindrances
  - Relocation for better incentives
- 

### 3.14 TOURISM

#### Strengths

- Unique location
- World renowned icons
- Cultural heritage
- High national / international connectivity

---

#### Weaknesses

- No development plan
  - Encroachments
  - Lacking capital investment
  - No land use planning or zoning
- 

#### Opportunities

- Modern tourism activities at par with international standards
- PPP possible
- Variety of activities in and around the city

---

#### Threats

- Law & order
- Intuition capacity
- Top political and administrative will and patronage

### 3.15 AGRICULTURE

#### Strengths

- World best irrigation system
- Suitable climatic conditions
- Rich agro base
- Well-linked agro-market
- Road connectivity
- Labor force
- Catering for majority of employment
- The canal network includes seven main canals and numerous subsidiary canals that carry irrigation water to 8.6 million acres of arable land.

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#### Weaknesses

- Low productivity
- Flooding
- Low credit facilities
- In-adequate storage and processing facilities
- Technical assistance and facilities

---

#### Opportunities

- Innovations and introducing horticulture crops
- Timely provision of inputs
- Enhanced credit facilities and competitiveness
- Produce skilled labor
- Flood resilient agriculture

---

#### Threats

- Land-lords and land holding policies
  - Aggregated market benefits to producer
  - Un-precedent floods or climatic condition, like drought
- 

### 3.16 LIVESTOCK AND FISHERIES

#### Strengths

- Suitable climatic conditions
- Fodder availability
- Market support and linkages

---

#### Weaknesses

- In-adequate veterinary facilities
- No credit facility
- Not aware about opportunities

---

#### Opportunities

- Adequate policy incentives
  - Skill development
  - Better facilities for storage, processing and marketing of bye-products
  - Skill development
-

#### Threats

- Law & order
  - Non-conductive policy instruments
- 

### 3.17 FORESTRY

#### Strengths

- Huge potential
- 

#### Weaknesses

- No plan or market incentives
  - Neglected sector
- 

#### Opportunities

- Policy to harness the potential
  - Market linkages development
- 

#### Threats

- Law & order
  - Low and slow return
- 

### 3.18 INFORMAL SECTOR

#### Strengths

- Labor force on cheap wages
  - Less burden on formal civic services
  - Innovative and resilient
  - Contributing more and sharing less in local economy
  - Vibrant and risk takers
- 

#### Weaknesses

- Un-skilled
  - Causing unplanned spontaneous and illegal development in the form of Katchi Abadis
  - Destination of urban criminal
  - unhygienic condition
  - Likely to cause epidemic
  - High population density
- 

#### Opportunities

- Policy measure to manage the existing sector and control the future expansion
  - Readily available cheap labor
  - Potential middle class
- 

#### Threats

- Political exploitation
  - Further expansion
  - Missing policy and enforcement capacity
-

### 3.19 INTEGRATED SWOT SUMMARY

The SWOT analysis has identified a number of strengths and opportunities. One of the strongest conclusions is that Sukkur and Rohri must be treated as one for all macro development decisions, as these two are inter-reliant cities. Both offer a viable and well-suited regional economic growth center and may provide significant employment opportunities, owing to best physical connectivity, significant commerce and trade outreach to Baluchistan, Sindh and Punjab.

There are, however a number of weaknesses and threats attached to Sukkur as well. The city does not exhibit the characteristics of a modern and vibrant urban center yet. Improvements are needed to both the public streetscape as well as to the character of private lands in terms of building typology, landscaping, pedestrian safety and comfort, and provision of parking spaces. However, strong incentives are required for upgrading or enhancement of existing social, economic and physical infrastructure. The consolidated Strengths, Weaknesses, Opportunities and Threats to the city is as under:

#### STRENGTHS

- Well-connected city. Located at the cross roads of three provinces and gateway to Sindh from the north. Sukkur is ranked at 4 (where 5 represents the best accessibility and 1 represents the worst accessibility scenario)<sup>14</sup>
- Close to mainline rail link and national highway (N-5), resulting into close proximity and strong linkages with surrounding cities and hinterland in the region
- Regional business, trade and services hub
- Historic buildings and cultural heritage
- Enormous tourism potential (active and passive) by virtue of unique location, and long riverbank / waterfront with beautiful views and iconic bridges. Great fishing and recreation opportunities
- Mixed community without any significant conflict history (friendly people)
- A corporate organization, NSUSC has been established with a clear cut mandate and provision of resources
- Vivid potential for economic and physical growth and expansion
- Presence of almost all financial institutions
- Significant middle and high middle classes
- Low earthquake risk (located in Zone 2A<sup>15</sup>)
- No riverine flooding evidences in Sukkur city
- Availability of ample human resources

#### WEAKNESSES

- No master plan / development plan is in place at the moment, thus issues and response driven development pattern being followed

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<sup>14</sup> Physical Accessibility Mapping – Pakistan (2010), UN-WFP, Pakistan

<sup>15</sup> Seismic Zoning of Pakistan (2010), Geological Survey of Pakistan

- Sporadic urban development, mix and non-compatible land uses due to non-availability of zoning and land use regulations (poor building control)
- Conversion of low-density residential into high density mixed-use without any impact assessment or mitigation measures
- Law & order and security issues in and around Sukkur
- Ineffective urban governance and municipal services management
- About 70% of the population are living in about 15% of the city's built-up area, thus very high density in CBD/down town area
- Congested street / road network in majority of the city area
- Missing links in arterial road network, e.g. ring road is missing or incomplete
- Prevalent poor construction quality and building typology
- Market driven estate / property business, having significant political patronage for land grabbers
- Encroachments (movable and immovable), creating huge problems for traffic and parking
- Poor traffic management
- Poor pedestrian facilities and environment
- Inadequate public transport
- Inadequate urban drainage causing urban flooding
- Lacking political ownership and will for city development
- The strong caste system is hindering community harmony and sometimes equitable development
- Seems that NSUSC is not accepted by other parallel authorities like SMC (resistance to upcoming corporate culture in municipal service delivery)
- Haphazard densification in CBD (high rise buildings) exerting severe pressure on existing utility services
- Lacking local taxation / resource base, resulting towards heavy reliance on provincial and external grants and packages
- Unsuitable water supply intake locations
- Lacking overall civic sense in public
- Non-documented economy
- Lacking sports facilities
- Lacking social infrastructure (health and education facilities)
- Lacking economic incentives such as tax free industry or trade zone or special economic zone as in Khairpur or other cities of Sindh
- Available human resources lacking technical skills (mostly unskilled labor)
- Low employment rate and / or under employment

## **OPPORTUNITIES**

- A connected city - High level connectivity with national / provincial transportation network (road, rail and air)
- Unique and wonderful opportunities for local and regional tourism (both active and passive);
- Great potential to become regional services and corporate center
- Sizeable middle and high middle income classes
- Easy availability of publicly owned land for public amenities (as indicated by city authorities)
- Best options available for urban regeneration and renewal, particularly for old Sukkur and CBD areas

- A corporate organization available for basic utility services i.e. NSUSC
- Comprehensive recent studies available on water supply, sewerage & drainage, and SWM through NSUSC
- Recycling options for wastewater and solid waste; owing to simple waste composition (possible re-cycling and reuse as fuel)
- Availability of paying capacity (municipal services may be charged for full recovery in gradual manner)
- Sukkur Barrage / Canal head works (best irrigation system, which could also be used for power generation)
- Investment opportunities in Human Resource development (vocational to higher skills)
- PPP opportunities in urban service provision
- Resilient City - Incorporation of DRR elements into all on-going and future developments, and safety measure for existing infrastructure to reach at the concept of a *resilient city*

## THREATS

- Law & order and security issues in and around Sukkur may hamper the implementation of development projects
- Non-availability of political will and patronage
- Lack of willing investors (in spite of available local investment capacity)
- Lack of vision and buying-in of ideas of community and politicians
- Lack of trust, cooperation among the stakeholders
- Lack of coordination and cooperation among various organizations working for the city
- Non-existence of Sukkur-specific building bylaws and regulations, particularly for CBD/down town

Some residents or authorities who may avoid locating them in the area could interpret the introduction of smart and mixed land uses in the CBD / Old Sukkur as a threat. On the other side, the current image of the CBD could be a threat to the ability of the CBD to accommodate a broader range of residential and mixed uses. The investment efforts and benefits for these two areas need not be mutually exclusive. The reinvigoration of one can act as catalyst for the reinvigoration of the other. A revived employment area can act as a vehicle for improvement of the CBD through an improved image, mitigation of incompatibilities and an increased employment, population, while a reinvigorated CBD could attract a broader range of employment using a location with the amenities that a CBD offers.

The key issues that need to be considered are:

- Unattractive first impression of the city
- Lacking the institutional capacity for law & order and implementation of other local regulations
- Tourism potential not capitalized upon
- Parks, open spaces and leisure precincts are not sufficient even following the land use standards provided by government
- Drainage is a big issue due to topography and un-planned organic urban development
- Small landholdings and continued further sub-division
- Poor building control
- A huge chunk of land owned by the railway, a hot cake for land grabbers

- Lack of appropriate directional signage around the city
- Attractions in and around the city are not highlighted
- Lack of pedestrian paths / foot paths and no pedestrian crossings at main roads
- Non-availability of public stand posts (drinking water) and public toilets
- Lack of parking space in CBD
- Lack of employment and non-availability of skilled human resources

## 4 SUKKUR URBAN DEVELOPMENT STRATEGY FRAMEWORK

Development is a process of change, which always continues. It takes its natural or market driven course, if not intentionally influenced. To realize the concept of sustainable development, the process of change has to be influenced through policies and strategies devised carefully based on the available opportunities and strengths. In the due course of time, some other factors induced to make it happen to fast or slow pace, and in the desired directions. However, the contextualization of these policies or strategic drivers with regional, national and even international levels, which makes it more feasible to achieve the designed local vision, and set goals with easy to approach the funding sources.

Contextualizing the local development efforts at international and national levels, provide a confident way of thinking and suggest exploiting the available opportunities. The Millennium Development Goals (MDGs) are the benchmarks devised in the Millennium Summit of the United Nations in 2000. All member states, including Pakistan are committed to achieve the MDGs by 2015. The prime focus is to achieve an enhanced quality of life within its eight goals. Similarly, the country made another commitment to reduce the disaster losses through Hyogo Framework for Action (HFA 2005-15), wherein one of the prominent campaigns include “making Cities Resilient”.

At national and provincial levels, Pakistan has formulated its development instruments to provide a vision for sectoral development like Mid Term Development Framework (MTDF), which will be replaced with Vision 2025 and 11<sup>th</sup> Five Year Development Plan in early 2014. These all have been contextualized with MDGs, HFA and other protocols providing a long-term perspective within which the strategies to achieve the social and human development objectives are formulated. Priority has been given for the eradication of extreme poverty and hunger, making universal primary education, housing for all, among several others to achieve a visible change in the society.

As a policy decision, Government of Sindh has initiated Sindh Cities Improvement and Investment Program (SCIP) aimed at promoting institutional reforms and human resources development for improved service delivery and financial management in secondary cities. The program costs USD 400 million of which USD 300 million is provided by the Asian Development Bank (ADB) through its Multi-tranche Financing Facility (MFF). The Government of Sindh will provide the remaining USD 100 million.

Past efforts of strategic planning and development largely failed in Sukkur mainly due to the neglect and priority factors and the local ability to adopt and implement the available opportunities. Development plans for Sukkur were prepared in 1986 and 2000, but the evidence shows that even they could not be adopted. Building blocks for an effective planning process were in place, but lacking the framework within which they were able to effectively integrate into a planning system.

Without this initial development-planning framework, it is feared that development will accelerate and respond purely to market forces, exacerbating and compounding the negative urban impacts that are already apparent in Sukkur particularly in the CBD. The UDS-Sukkur aims to initiate the next stages of the plan - making process that will guide and control future development to shift it onto a trajectory that will incrementally achieve the desired short and long-term goals following the defined ‘vision’ for Sukkur.

## 4.1 FUTURE VISION

The Urban Growth Strategy has to evaluate where and how the potential urban obesity may be accommodated, through examining existing growth patterns, committed land developments in public and private sectors, urban land requirements, and capacity of existing development to absorb future growth etc. This strategy identifies those areas, which are most suitable for urban growth based on the principles of efficiency and sustainability coupled with the concept of a smart city. Generally, smart city refers to a developed urban area that creates sustainable economic development and high quality of life by excelling in multiple key areas of economy, mobility, environment, people, living, and government. Excelling in these areas can be done through strong human capital, social capital, and information and communication infrastructure. At the same time, the timing, environmental, servicing, land use and other issues relevant to facilitating urban development will also be important determinants in identifying expansion areas.

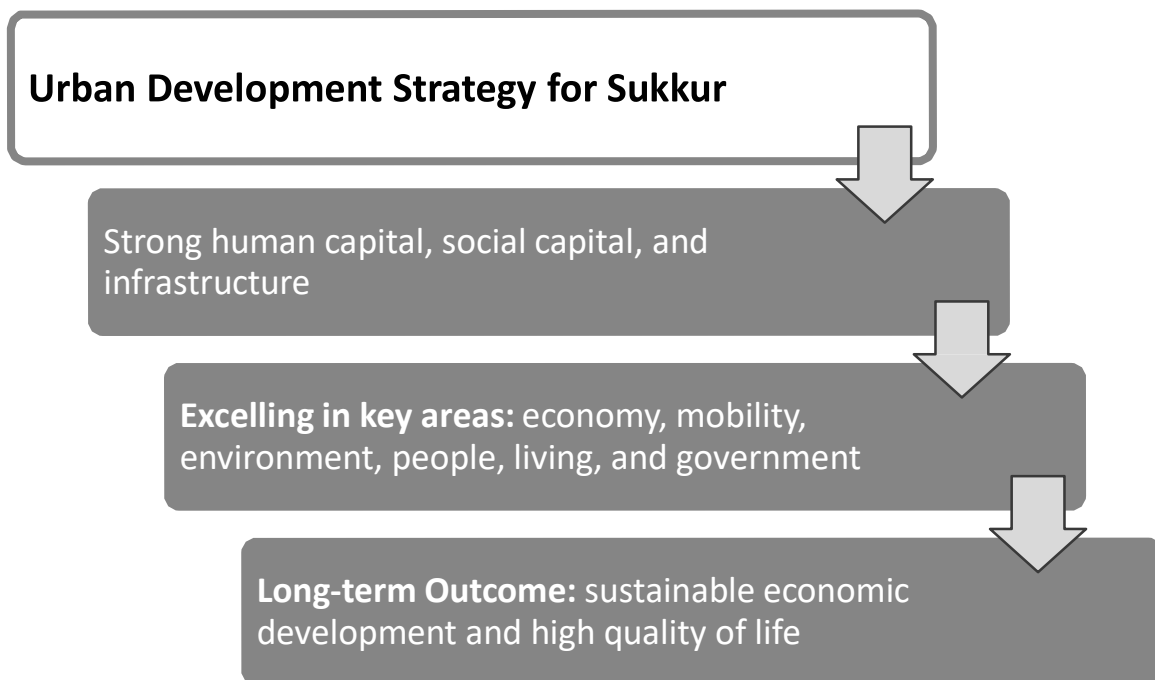


Figure 4-1: Outcomes Sequence of UDS-Sukkur

Cities behave like organic metabolisms as internal forces and external pressures always affect them. Sukkur City is no exception where, over the years, a town of some thousands of persons in the early 1900s has emerged to a present *Trade & Commerce City* of over half million. It is not only the demography that gets changed, but also all other sectors related to the socioeconomic life of the city. Some of the foundations strengths include the following:

- A well-connected city at a junction of roadways, railways, airway and historically at waterways and with this status, it has a vibrant economy, employment and business opportunities for all
- Third largest city of Sindh having a great potential of wholesale and retail business
- Situated at the gateway to Sindh from the north connected with Punjab and Baluchistan Provinces at the junctions of roads and rails for goods transportation
- Being a wholesale market, it has a strong economic, functional hinterland for more than 50 small and medium size settlements

- Established trade center with developed industrial infrastructure and manufacturing units, fully supported by regulatory bodies and financial institutions
- Beautifully sitting at mighty River Indus with historical and cultural heritage, having immense potential for tourism and associated industry
- A multi-ethnic city of a hardworking and skilled human resource with average purchasing power
- A blessed city having low earthquake risk and less affected by riverine flooding due to elevated topography
- Already in the limelight of political governments and administrations due to its inherited potentials and future prospects

#### 4.1.1 OBJECTIVES OF THE URBAN GROWTH STRATEGY

The basic objective is to provide a framework for sustainable Socioeconomic and infrastructure development of the city. However, the extended objectives of the UDS-Sukkur are:

- To provide a framework for Socioeconomic and infrastructure development of the city and environs (particularly Rohri)
- To provide guidelines for a sound local economy, increased city revenues and a well-employed human resource
- To chalk out a way to support the city's efforts in addressing its economic development and employment concerns with the overall aim of improving the quality of life
- To propose the optimum utilization of land through land use zoning proposal for streamlining the existing and future developments in the right directions and locations
- To suggest the short and the long term extent and direction of the city based on a vivid strategic vision
- To suggest options for inclusive and disaster resilient physical and social development aiming at enhanced quality of life
- To recommend potential land for future development of Sukkur by recognizing the existing growth trends and strengthening the most needed infrastructure links
- To suggest for enhanced mobility by proposing an efficient transportation network, compatible land uses with respect to work, living, shopping and recreation
- To advise for possibility of utilizing the inherited local economic potential for attaining the status of a prosperous city
- To propose an acceptable implementation framework, with appropriate horizontal and vertical linkages
- To suggest preservation and conservation of cultural and ecological heritage

#### 4.1.2 FUTURE VISION, STRATEGIC GOALS AND OBJECTIVES

Based on the SWOT assessment, the strategic development vision for Sukkur has been chalked-out as given below:

**A Sustainable, Safe and Sound Trading Hub with Healthy Environment,  
Comfortable Living and Economic Opportunities for its Residents, Visitors  
and Tourists**

A vision for future of Sukkur shall provide an aspiration to its residents. It can be further decomposed to focus into extended vision, which is:

- Sukkur is a safe, inclusive, resilient and sustainable city
- Sukkur is a vibrant, connected and welcoming city
- Sukkur is a city of trade and commerce
- Sukkur is a city of design
- Sukkur is a recreation city
- Sukkur is a city of diversity
- Sukkur is a city for people with disability (PWD)
- Sukkur derives a regional economy

A strategic goal is a generalized ideal, which provides a sense of direction for future actions. It represents an aspiration, which may or may not be achievable. An objective is a more tightly defined, often quantified, target the achievement of a step toward fulfillment of the goal. Following are the goals and objectives envisioned for UDS-Sukkur:

#### **GOAL 1: A SOUND LOCAL ECONOMY**

A sound local economy, which attracts investment, increases the tax base, creates employment opportunities for Sukkur residents and eventually generates public revenues.

##### **Objectives:**

- Revitalization of declining commercial areas in Sukkur CBD and Sukkur SITE Industrial area; and obsolete facilities through CBD and Sukkur SITE redevelopment, rehabilitation and other available means
- Zonation and potential sites identification for expansion of existing wholesale markets and industrial area and attraction of new establishments and projects
- Expanded visitors and tourism activities by introducing Indus River Green Zone Development, rehabilitation of existing monuments and visitor attractors
- Increased cooperation and coordination between public and private sectors in the formulation of economic development plans and programs; and their implementation thereafter; especially close coordination with Sukkur Chamber of Commerce and Industries and Industrial and Trade Associations
- Adequate infrastructure to support existing and new development, including closer coordination between economic development and capital improvement programming; especially strengthening of institutions and databases that are involved in local revenue collection and monitoring in Sukkur
- Establishment of higher education infrastructure, education city and technology learning centers of attraction of high technology industry, which will enhance the local economy, support Sukkur's image as a research and development center consistent with structural changes occurring in the national economy
- The retention and expansion of small businesses, especially which are established wholesale markets in Sukkur within or outside CBD

## **GOAL 2: A BALANCED DEVELOPMENT STRATEGY**

An economic strategy, which balances the need for development with other cities goals and objectives

### **Objectives:**

- Preservation and enhancement of Sukkur's assets and trading city character which make it attractive both as a quality residential community and as an economic investment
- Adaptive reuse of older commercial structures with complementary and compatible new developments of superior quality
- Development opportunities which result in minimal adverse impacts of the city's environment and housing supply
- An economic environment conducive to attract investment for new developments which yield net social and economic benefits
- Improvement in municipal services and sanitation to avoid deteriorating health conditions of the dwellers and visitors
- An equitable sharing between the public and private sectors of the full costs of public improvements and services specifically and uniquely attributable to individual new developments
- Improved law and order control through corruption free city administration and secure the businesses of investors and industrialists
- Investment in social sector and promotion of community development activities, especially in healthcare, education and recreation sectors

## **GOAL 3: AN INCREASED FLOW OF PUBLIC REVENUES**

An increased flow of public revenues accruing from economic development

### **Objectives:**

- Economic investment, especially in trade and manufacturing activities in Sukkur, which will result in maximum public revenues and minimum public service costs
- Increased revenues through expansion of the municipal tax base and increase in the quality of municipal services provided by Sukkur Municipal Corporation and North Sindh Urban Services Corporation; and full recovery of at least O&M cost

## **GOAL 4: INCREASED AND INCLUSIVE OPPORTUNITIES FOR GROWTH**

Increased opportunities for personal growth through productive and satisfying employment

### **Objectives:**

- A wide range of diversified employment opportunities by promoting tourism, healthcare, education, recreation, manufacturing, wholesale trading and government sectors
- Removal of impediments to gainful employment such as lack of transportation, deteriorated road conditions, training, job information and child care facilities in Sukkur
- Greater coordination between existing and future employment needs, educational curricula and job training programs, especially for industrial sector which is currently dependent on skill import
- A trained labor pool designed around the needs of an information and service-based economy

Based on the available strengths and opportunities by minimizing weaknesses and strengths, a future vision for the city has been derived (see Figure 4-2). However to achieve the derived vision, strategic goals and objectives an integrated approach is required that ensure the satisfaction. A detailed strategy is envisaged that is identifying the measures, timelines, potential development programs, and financial requirements with potential funding sources. It is based on current development programs and budgets with the district and funding by the Provincial Government from the annual development program and public special development program. The strategy is converted into short-term and long-term development plans based on stakeholder priorities, SWOT analysis, and ultimately converted into identified projects. Every project is described with its salient requirements, features, and organizational involvement. The benefits of the project describe that: who will be affected, who will be benefited, what would be the outcomes of such improvements and what would be the consequences and their timeline based phasing.



Figure 4-2: Foundation of Future Vision for Sukkur

## 4.2 LAND USE POLICY AND ZONING

Land use planning refers to the process by which land is allocated between competing and sometimes conflicting uses in order to secure the rational and orderly development of land in an environmentally sound manner to ensure the creation of sustainable development of human settlements<sup>16</sup>. Whereas, land use zoning classifies the type of development / uses allowed on a defined portion of land.

Land use profile of a city depicts the relationship of human activities and spatial uses. This is vital for better urban planning in general and land use zoning in particular. Land use pattern in Sukkur, like elsewhere in Pakistan, is mostly controlled by the market forces, mobility of residents and changes / adjustments that occur in the dynamic urban scene. Similarly, land use pattern in Sukkur is also a reflection of two elements

i) Nature of land uses and their location

ii) Level of spatial accumulation, which indicates their intensity and concentration. The CBD / Central areas have a high level of spatial accumulation and corresponding intensity of land uses, while peripheral urban areas have lower levels of accumulation. Land uses are interrelated. For example, commercial land use involves relationships with its supplier and customers. Thus, a level of accessibility to both systems of circulation must be present. Since each type of land, use has its own specific mobility requirements and transportation is a factor of activity location that is why it is associated intimately with land uses.

### 4.2.1 LAND USE ZONES AND THEIR DESCRIPTION

Planned urban expansion and segregation of incompatible land uses can be accomplished by implementing a *Master Plan* and through zoning regulations for land use conversions and subdivisions. Zoning is the most widely used form of land use regulation. It regulates the overall structure of a city. For UDS-Sukkur, zoning exercise has been conducted in two perspectives, administrative or urban space management zoning, and functional zoning. The basic principle followed for the proposed zoning was the existing urban morphology and the physical typology of the city, which is normally not the case in the delineation of UC boundaries or other politically influenced boundaries.

#### 4.2.1.1 ADMINISTRATIVE / URBAN SPACE MANAGEMENT ZONES

From management perspectives, following seven zones have been suggested for Sukkur City and its environs following the new urban limit of 2013 (possessing 26 UCs) of Sukkur SMC. This zoning may be used for UDS-Sukkur implementation and monitoring of developmental activities. For airport zone, the role of CAA must be adhered to as per Airspace and Aerodrome Regulations (CAA Pakistan 1994). To manage the CBD or the recreation zone, different management techniques need to be adopted. The proposed administrative zones and respective area are listed in Table 4-1.

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<sup>16</sup> Thomas, D; (2001), The Importance of Development Plans / Land Use Policy for Development Control, USA

Table 4-1: Proposed Administrative Zones of Sukkur

	Administrative Zone	Area (Acres)
1	Sukkur North	4834
2	Airport Zone	2234
3	Central Business District	249
4	Sukkur West	5966
5	Sukkur East	1270
6	Recreation Zone	1444
7	Rohri City	5274

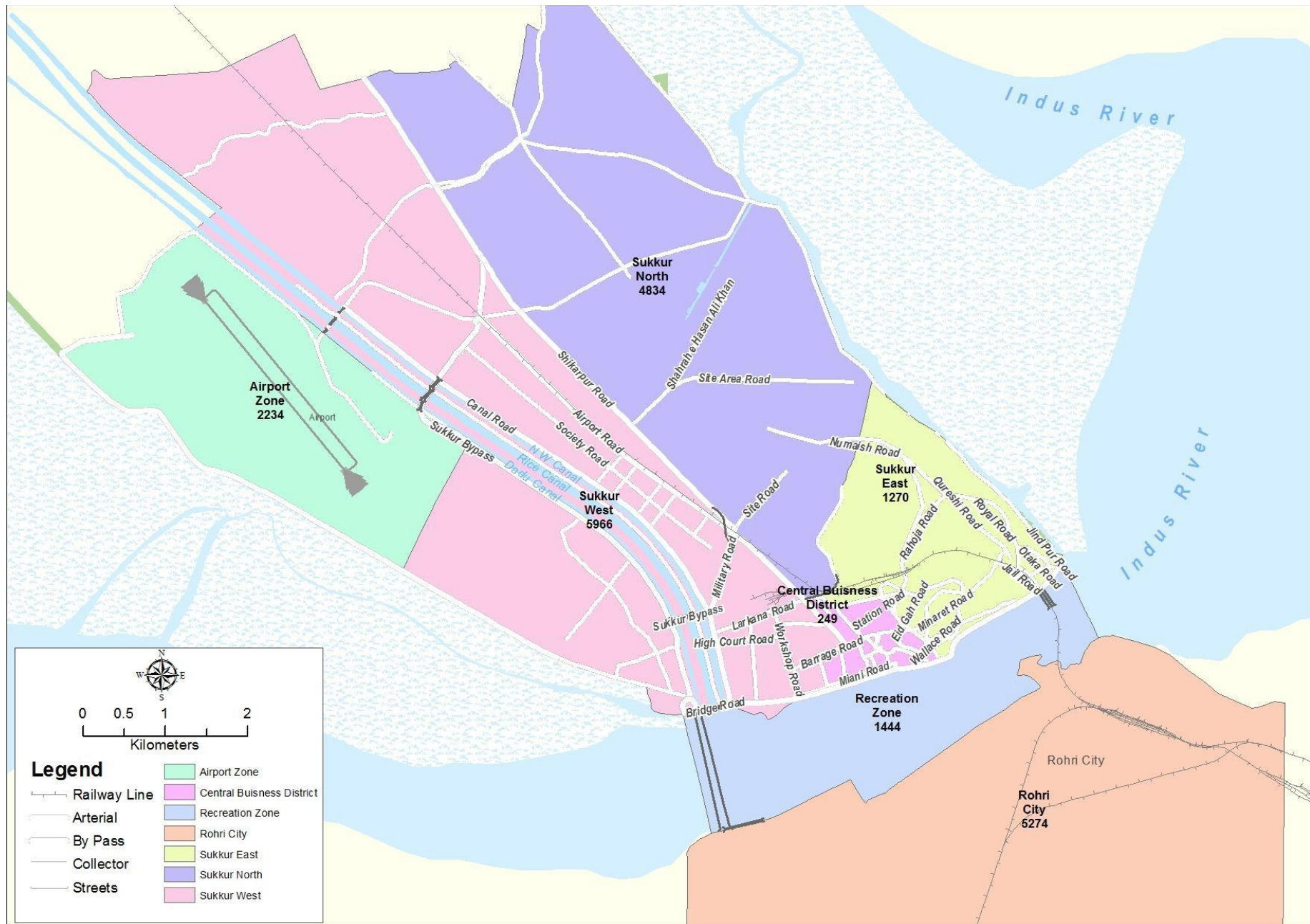


Figure 4-3: Proposed Administrative Zoning of Sukkur and Rohri

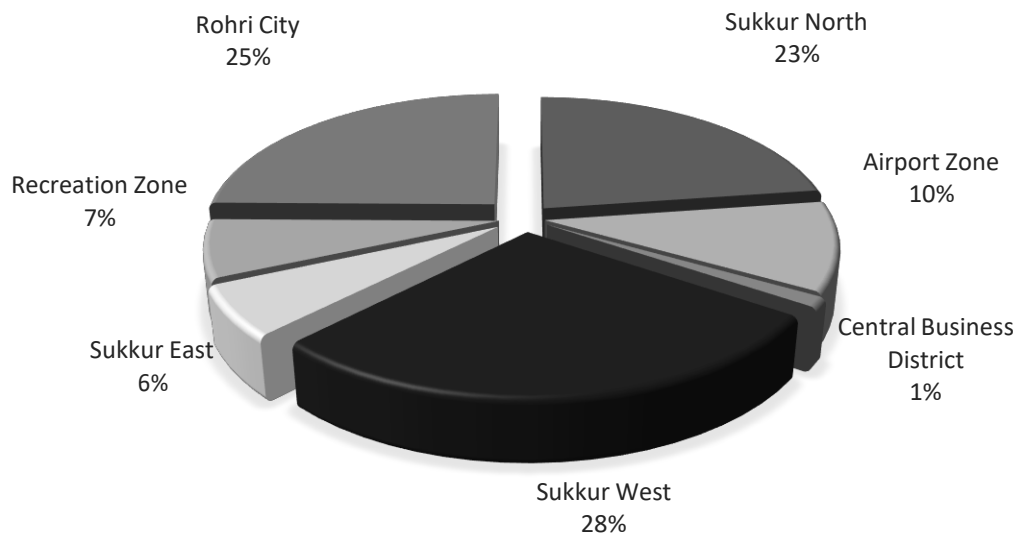


Figure 4-4: Administrative Zones Area

#### 4.2.1.2 FUNCTIONAL ZONES

Based on the current and prospective dominant land uses, and the existing urban morphology, Sukkur has been divided into various functional zones following the guidelines of SCIP-03 consultants. This functional zoning has been made at two levels. Level one defines the major functional zones, whereas level two makes further segregation of level one zones, if required. The SMC area, including some area of Rohri City has been divided into 12 functional zones. As the detailed land use and zoning of Rohri was not included in the scope of the UDS-Sukkur, the whole city of Rohri has been shown as one zone (however, not included in the list of zones), except the areas required for both the cities for Indus Green River Zone and Sukkur Rohri Education City. The functional zoning has been listed below and the same has been shown on a base map of Sukkur and Rohri (see Figure 4-5 and Figure 4-7).

1. Residential Zone
  - a. High and Middle Income Residential Zone
  - b. Middle and Low Income Residential Zone
  - c. Low Income Residential Zone
2. Central Business District Zone
3. Smart Commercial Zone
4. Trade & Commerce Zone
5. Institutional Zone
6. Health Facility Zone
7. Sukkur-Rohri Education Zone
8. River Indus Green Zone
9. Canal Green Area Zone
10. Industrial Zone
  - a. Medium and Heavy Industrial Zone
  - b. Small Industrial Zone
  - c. Industrial Expansion Zone
11. Airport Zone
12. Future Expansion Zone
13. Rohri City



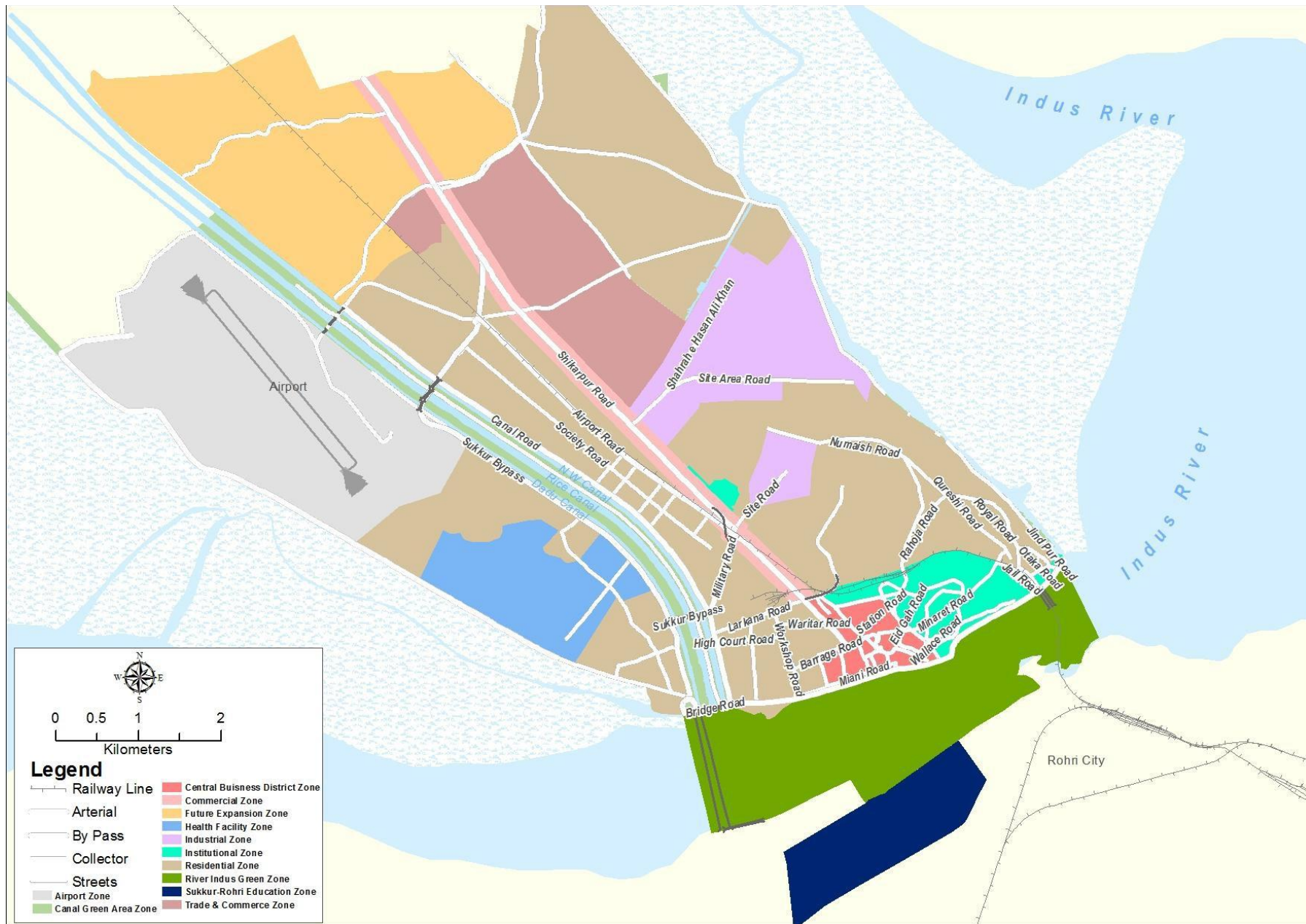


Figure 4-5: Functional Zoning – Level I

The Table 4-2 and Table 4-3 show the area and percentage shares of various functional zones. Residential zones cover 34% of the land area, which is very near to national standards of 24-32%. Similarly, other functional uses are within the prescribed ranges. However, at city level, the prescribed ranges may not be fully adhered to as it always depends upon the future vision and development strategies of a particular city.

Table 4-2: Functional Zoning - Level I

	Functional Zoning (Level I)	Area (Acres)	Percentage
1	Airport Zone	2,129.40	12.87
2	Canal Green Area Zone	914.90	5.53
3	Central Business District Zone	249.30	1.51
4	Smart Commercial Zone	565.80	3.42
5	Future Expansion Zone	1,979.30	11.96
6	Health Facility Zone	661.80	4.00
7	Industrial Zone	989.90	5.98
8	Institutional Zone	433.70	2.62
9	Residential Zone	5,644.40	34.11
10	River Indus Green Zone	1,444.80	8.73
11	Sukkur-Rohri Education Zone	547.80	3.31
12	Trade & Commerce Zone	984.30	5.95
	<b>TOTAL</b>	<b>16,545.40</b>	<b>100</b>

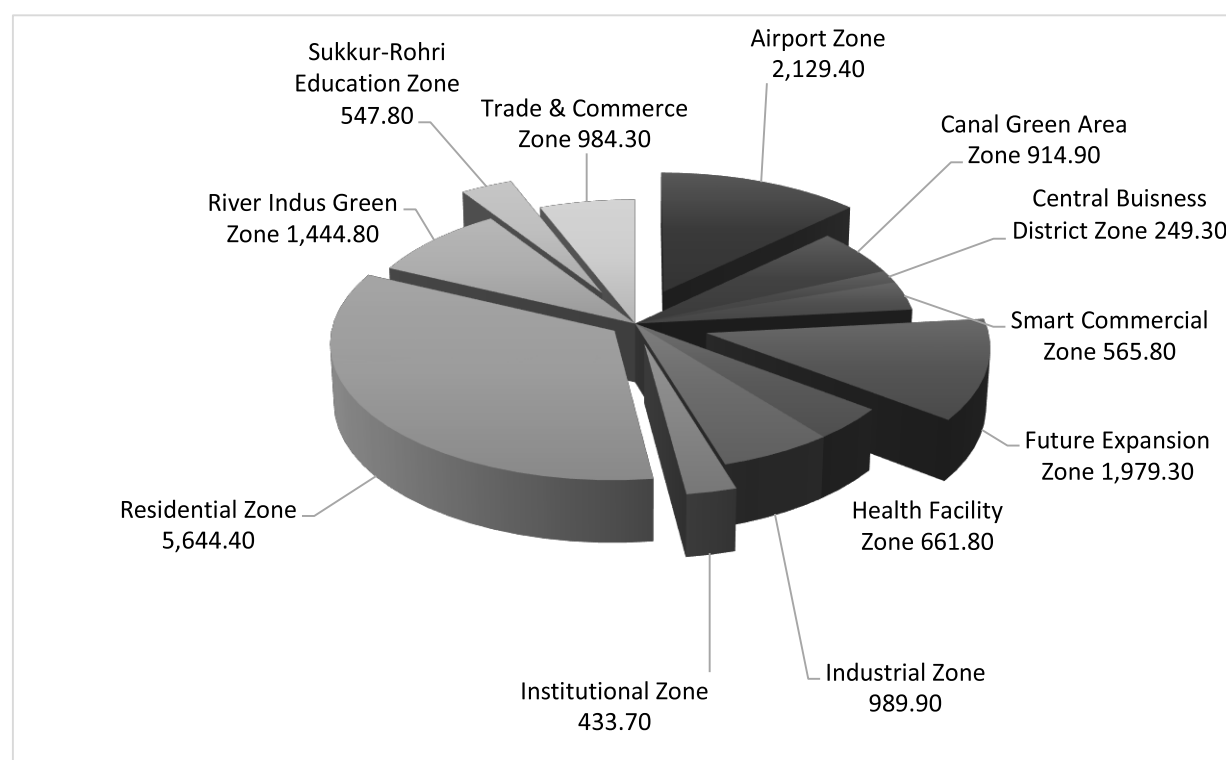


Figure 4-6: Functional Zoning - Level I

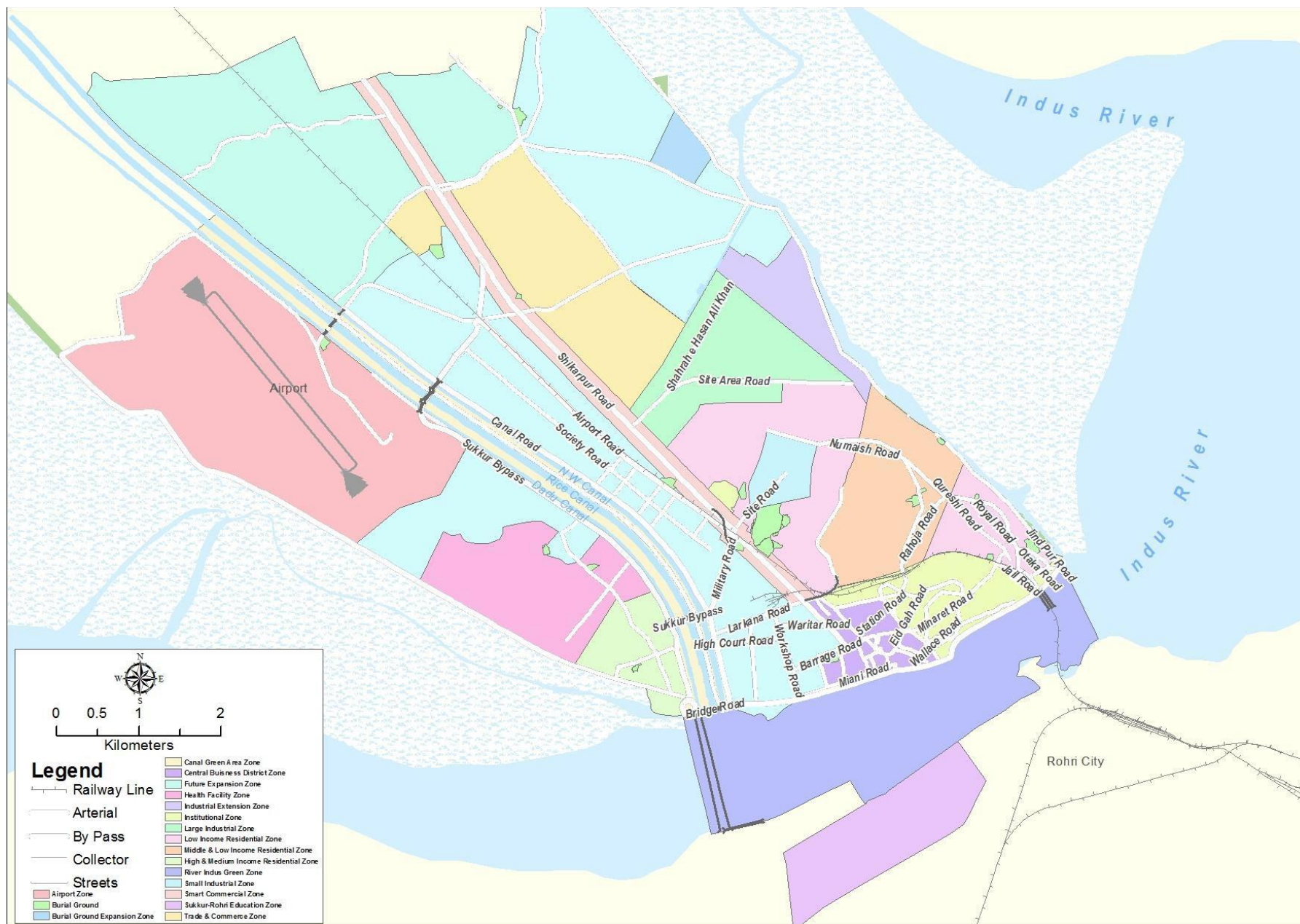


Figure 4-7: Functional Zoning - Level II

Table 4-3: Functional Zoning - Level II

	Functional Zoning (Level I)	Functional Zoning (Level II)	Area (Acres)	Percentage
1	Central Business District Zone	Central Business District Zone	245.60	1.48
2	Residential Zone	High & Middle Income Residential Zone	2,209.60	13.35
		Middle & Low Income Residential Zone	2,368.80	14.32
		Low Income Residential Zone	905.00	5.47
3	Smart Commercial Zone	Smart Commercial Zone	553.80	3.35
4	Open Space Zone	River Indus Green Zone	1,444.80	8.73
		Canal Green Area Zone	914.90	5.53
5	Social Infrastructure Zone	Sukkur-Rohri Education Zone	547.80	3.31
		Health Facility Zone	659.30	3.98
6	Trade & Commerce Zone	Trade & Commerce Zone	983.70	5.95
7	Industrial Zone	Large Industrial Zone	585.00	3.54
		Small Industrial Zone	136.60	0.83
		Industrial Extension Zone	268.20	1.62
8	Institutional Zone	Institutional Zone	431.50	2.61
9	Burial Ground	Burial Ground	95.20	0.58
		Burial Ground Expansion Zone	90.90	0.55
10	Airport Zone	Airport Zone	2,126.10	12.85
11	Future Expansion Zone	Future Expansion Zone	1,978.80	11.96
	<b>TOTAL</b>		<b>16,545.60</b>	<b>100</b>

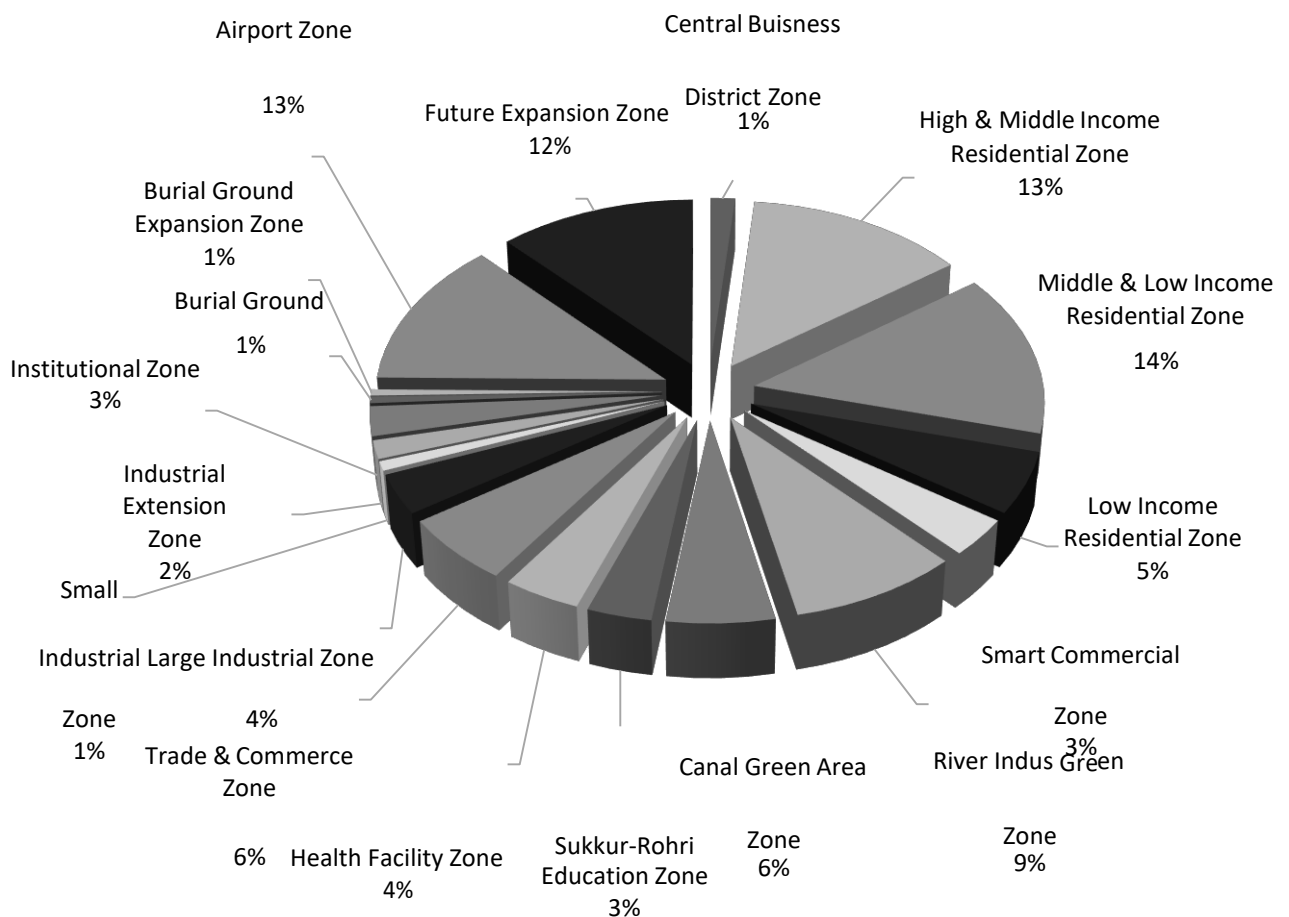


Figure 4-8: Functional Zoning - Level II

#### 4.2.1.3 DESCRIPTION OF FUNCTIONAL ZONES

##### 1. RESIDENTIAL ZONE

###### a. High and Middle Income Residential Zone

Strategic Objective: Residential development with modern housing and all possible facilities with luxurious touch.

Description: Government shall formulate such policies to attract and encourage private investment for provision of housing and associated services and amenities, with strict regulatory measures.

These housing schemes and projects shall be entirely launched and implemented by private sector and should comprise of residential plots of sizes from 125 to 1000 square meters. The total residential area should not exceed 55% of the total area of approved layout plan. Provision for all categories is made i.e. different size plots for different income groups, including specific provisions in various categories for government servants, PWDs, and other vulnerable groups.

Permitted land uses:

- Residential buildings
- Neighborhood level commercial and service activities
- Open Spaces
- Amenities and utility services
- Religious buildings

Permissible Uses: High-rise apartments for middle and high-income groups can be constructed on demand, not exceeding more than five storeys. However, with special permission on a case-by-case basis, high-rise projects exceeding five stories may be launched.

Prohibited Uses: The land use of the area reserved for high and middle-income housing should not be changed to cater for other land uses

###### b. Middle and Low Income Residential Zone

Strategic Objective: Housing with all facilities and affordable luxuries.

Description: New housing schemes including residential plots for low income (125 – 200 square meters) and middle-income (200 – 300 square meters) population should be developed by the private sector, including walk-up apartments (up to 5 storeys). In above stated housing schemes, 5-10% quota for government employees can be provided.

Permitted land uses:

- Residential buildings
- Neighborhood level commercial and service activities
- Open Spaces
- Amenities and utility services
- Religious buildings

Permissible Uses: Ratio of residential area vis-à-vis other land uses can be increased more than 55%, but not exceeding 65% of the total area of approved scheme layout, to cater for incremental demand.

Prohibited Uses: No Residential Plot more than 300 square meters size allowed

### **c. Low Income Residential Zone**

Strategic Objective: Low income and affordable housing with basic facilities

Description: High-density, low-income housing with minimum necessary open spaces and avoiding lavish roads and streets. It also includes provisions of feasible level of services, with bare minimum standards. This would provide employment opportunity within and nearby localities.

Housing schemes, including more than 75% smaller size residential plots can be developed by the private sector (Size: 100 – 200 square meters). Specifically targeted to low income government employees, area development schemes

Residential uses aiming to provide housing to the poor with certain incentives. The approach would be incremental development and provision of site and services. It may also include constructed houses and apartments. Relocation of Katchi Abadis may be planned within this zone.

Permitted Land Uses:

- Residential buildings
- Neighborhood level commercial and service activities
- Open Spaces
- Amenities and utility services
- Religious buildings

Prohibited Uses: No Residential Plot more than 200 square meters size is allowed.

## **2. CENTRAL BUSINESS DISTRICT ZONE**

Strategic Objective: Mixed-use zone with smart development and redevelopment / urban regeneration.

Description: The basic idea is to provide for, protect and strengthen the vitality and viability of CBD, through consolidated development, encouraging a mix of uses and maximizing the use of land, to ensure the efficient use of infrastructure and services. The zone, which can encourage more efficient use of urban infrastructure, add vitality to the area and promote better access to employment and services. It also includes increasing the variety of housing options and reducing production costs allowing the higher densities.

Permitted Land Uses:

- Up gradation/improvement/reconstruction of commercial buildings
- Multi-storey apartment buildings
- Adaptive re-use of abandoned under-utilized and functionally obsolete properties
- Dedicated car parking spaces
- Pedestrian movement/crossing/footpaths
- Construction of new buildings for commercial purposes
- Recreational and public service amenities
- Petrol filling/CNG stations
- Markets, offices, small godowns etc.

Permissible Uses: Walk-up five Storey Apartments above commercial outlet at ground level. High-rises with modern facilities and after detailed multi-hazards risk assessment analysis.

Prohibited Uses:

- No further Residential Plotting for House Construction
- Permission to be Obtained for High-rise Building more than 5 Storey
- Educational Institution not allowed

### **3. SMART COMMERCIAL ZONE**

Strategic Objective: Realizing the smart growth concept for commercial activities, business and housing.

Description: Predominantly a modern commercial zone like blue area in Islamabad with mix use for residential, institutional and business purposes with a special character that can encourage more efficient use of urban infrastructure, add vivacity to the area and promote better access to employment and services. Traditional commercial ribbon development is not encouraged, but this proposed zone of 553 acres along Shikarpur road, which is bisecting Sukkur city. The widening and extension of this main arterial road have been proposed with ROW of 350 feet to meet the future traffic flow (with service roads on both sides) and on-street/curbside parking demands.

Emphasis should be on the provision of vehicular access and parking, congested commercial roads ensure adequate parking spaces. Encourage commercial developments along loops / transverse streets.

Permitted Land Uses:

- Up gradation/improvement/reconstruction of commercial buildings
- Multi-storey apartment buildings
- Adaptive reuse of abandoned, under-utilized and functionally obsolete properties
- Dedicated car parking spaces
- Pedestrian movement/crossing/footpaths
- Construction of new buildings for commercial purposes
- Recreational and public service amenities, entertainment uses
- Petrol filling/CNG stations
- Markets, offices, small godowns etc.
- Large departmental stores and shopping malls
- Residential apartments with commercial activities on up to second floor

Permissible Uses: Walk-up five Storey Apartments above commercial outlet at ground level. High-rises with modern facilities and after detailed multi-hazards risk assessment analysis.

Prohibited Uses:

- No further residential plotting for house construction
- Permission to be obtained for high-rise building more than 5 storey
- Educational Institution not allowed
- No industrial or manufacturing activity
- No pollution creating / obnoxious use or activity

#### **4. TRADE & COMMERCE ZONE**

Strategic Objective: well-facilitated and agglomerated cluster of economic activities.

Description: Sukkur is already well known as trade and commerce hub in the region with an outreach to three provinces and within the immediate region. There are about forty formal trade associations covering the whole range of wholesale and retail business. The city has specialization some businesses as well. To sustain, boost and flourish this sector, this zone with all required facilities would be highly useful. Moreover, certain markets in the CBD are required to be shifted outward and this would be the destination. A slaughterhouse may also be constructed within this zone.

Permitted Land Uses: Any proposal launched by Private Sector to provide trade & commerce as well as the supporting technical & handling services will be encouraged, subject to the condition that these would help in promoting the production, trade & transportation of the Industries to be set-up in various Industrial Zones of Sukkur.

Permissible Uses: Industrial joint-ventures promoting High-Tech & Transfer of Technology will be encouraged and may be allowed to club more than one Industrial Plot for proper installation & the operation of their plants/machinery.

Prohibited Uses: Any Industrial activity causing environmental pollution and safety hazards to its worker/employees should not be allotted a plot in any Industrial Zone of Sukkur City.

#### **5. INSTITUTIONAL ZONE**

Strategic Objective: An innovative and well-connected cluster of institutional and public offices building with unique architecture

Description: The purpose of this zone is designated an exclusive area with distinct nature and unique architecture, and with an aim to facilitate the residents and visitors for connecting public offices and facilities. Normally it includes public services offices, courts, education institution, health institutions, religious institutions, with allied facilities and adequate vehicular parking spaces, and open spaces.

Permitted Land Uses: Construction of new Buildings for Public Offices / Office Buildings, and Rehabilitation / Renovation of Existing Offices / Buildings

Permissible Uses: Construction of Community Club/Halls and Utility shops.

Prohibited Uses: Other than permitted and permissible uses, no Building/Structure can be built.

#### **6. HEALTH FACILITY ZONE**

Strategic Objective: Specialized areas with high-tech health facilities and supporting services

Description: City is serving a large population within and outside the city. However, the existing facilities are lacking and even no CT scan facility exist in Sukkur now. To provide the desirable facilities and to attract the surrounding area to use the facilities, this zone would play a positive role, and contribute in employment and economy of the city.

Permitted Land Uses: Construction of health related facilities and buildings, such as hospitals, laboratories, clinics, specialized treatment centers, medical college; for example the National Health Institute of Islamabad containing all health related and compatible uses.

Permissible Uses: Construction of Community facilities/Halls/guest house/official residences and allied facilities.

Prohibited Uses: No commercial plazas or marriage hall or any private residential buildings

## **7. Sukkur-Rohri Education Zone**

Strategic Objective: A knowledge hub that is well connected and having modern educational facilities and a healthy environment

Description: As mentioned in situation assessment that Sukkur and even Rohri are deprived from its due share for education facilities in Sindh. No university exists in Sukkur despite the third city of Sindh with a current population of over half million. As anticipated, that Sukkur and the region need nourished and skilled human resources to boost the development and to substation the achieved development agenda. To cover the gap, this zone has been proposed to cover not only the needs of these twin cities but the region as a whole. The education city within this zone may be established with PPP under the provisions of 'Sindh Education Cities Bill 2013'.

The education city would be a favorite destination for high quality education and shall contain any type of tertiary level education covering various disciplines towards special fields like medical, engineering, agriculture, Visual and Fine Arts, Modern Languages etc. This development should be targeted for the planning period until 2035.

Permitted Land Uses: Construction of education related facilities and buildings such as university, college, hostels, official residences, laboratory etc.

Permissible Uses: Construction of Community facilities / Halls / guesthouse / official residences and allied facilities

Prohibited Uses: no commercial plazas, marriage hall, any private residential buildings, or any other compatible use.

## **8. RIVER INDUS GREEN ZONE**

Strategic Objective: A highly specialized and unique recreation zone with state-of art facilities

Description: Sukkur and Rohri are blessed with the eminent natural beauty of the Mighty Indus River with full of aquatic scenic attractiveness and world-renowned protected habitat of endangered Indus blind dolphin. This part of the river is full of historic iconic features such as Lansdowne Bridge, Sukkur Barrage, Bukkur Island, Sadho Belo, Sattian Jo Astano and other islands. Universally this beauty is recognized at very high level of praise, whereas, such a blessed site is still untapped for tourism development in this region. There are several examples worldwide where such combination of river in a city has been exploited fantastically and developed a source of large-scale tourism. For instance, the famous River Tames in London, River Sien in Paris and River Chao Phriya in Bangkok. In the same lines, the proposed project is envisaged for development of Sukkur as a mega project with multiple components. Some of the components may include Waterfront landscaping on both sides of the river and the islands, marina development, theme park, Tourist Ferry service, boat dinners, fishing and boating, three and four star hotels and cable chair across the river.

Permitted Land Uses:

- Outdoor recreation
- Theme park
- Water sport
- Parks and gardens
- Clubs and indoor facility area

- Support facilities, like shops, food corners and other relevant services

## **9. CANAL GREEN AREA ZONE**

### Strategic Objective:

Description: Three Canals are running along the median in between National Highway & Khairpur Road, passing all along Sukkur & Rohri Cities. It's necessary from the environment protection point of view to develop the vacant area in between each canal & two roads be developed in environment friendly manner. All encroachments & temporary settlements/Katchi Abadis existing in such area should be immediately removed, by launching Roads Widening & Lane increasing & Horticulture Projects all along the stretch of roads & canals passing through Sukkur & Rohri.

### Permitted Land Uses:

Permissible Uses: Should be decided in consultation with all concerned Federal & Provincial Governments Line Departments & after approval by the competent Forum, subject to resolving the Katchi Abadis issue amicably.

Prohibited Uses: To be decided on the advice of the Directorate of UP&SP.

## **10. INDUSTRIAL ZONE**

- Medium and Heavy Industrial Zone
- Small Industrial Zone
- Industrial Expansion Zone

Strategic Objective: Incentive zone with all necessary amenities and support for promoting industrial activities

Description: the Local Chambers of Trade & Commerce & Sindh Industries Development Board should approve/recommended the nature, type & size of each industrial activity to be initiated, prior to initiating the work at site & placing order for procurement of plant & machinery. As regards to the requirement of electricity, gas & water for an industry, the Sukkur/Rohri administration should ensure their availability, in time. The selection & categorization, as well as the clustering of a certain group of industries in low, middle or heavy industrial zone should be decided by mutual consent/concurrence of all concerned stakeholders involved in the urban development of Sukkur & Rohri. It is recommended that the industrial zone shall have a main connection to the proposed ring road in the northeast and a green belt/buffer zone around the industrial zone may be introduced to protect the surrounding residential zones.

Permitted Land Uses: Mainly consists of factories, workshops and warehouses, etc. It is generally an intense activity zone, generating considerable traffic, noise, air, and industrial pollutions. Normally residences are not allowed, but depending upon the size and nature of the industry, it can be permitted within the same industrial complex.

Permissible Uses: Various Industries proposal for Development in Medium or High Industrial zones can be categorized, keeping in view their interdependence or collaborative similar nature of production. In this connection, the recommendations for clubbing/clustering various Industries may be approved for Development, subject to the fulfillment of necessary environmental & regulatory requirements.

Prohibited Uses: Any type or category of Industry, declared by Sindh Environmental Protection Agency as polluter or degrading the environment or any natural resources, should neither be approved nor any work on site be allowed to commence at site, until obtaining a formal NOC from Provincial EPA

## **11. AIRPORT ZONE**

Strategic Objective: Area with special restriction to ensure safety and security of CAA operation

Description: Sukkur airport is the fifth busiest airport of Pakistan after Karachi, Lahore, Sialkot and Islamabad connect almost all commercially important destinations through 48 flights in a week. It is about 8 kilometers from the city center and connected through Airport Road, which provides connectivity to the most of the new and posh housing schemes of Sukkur.

According to the Civil Aviation Authority's (CAA) Airspace and Aerodrome Regulations 1994, there are certain prohibitions regarding developmental activities around the airport, particularly in the immediate surroundings. The airport zone has been earmarked with an objective to set special building regulation according to the requirements of the CAA. The development activities are slow in pace now, and this is the time to create a check on them.

## **12. FUTURE EXPANSION ZONE**

Strategic Objective: Reserved area for future utilization

Description: According to the proposed UDS-Sukkur, the city is expected to accelerate its growth in future, which shall need more space to locate certain activities. This zone will serve as a reserve space available to accommodate changing requirements of the city.

## **4.3 URBAN DEVELOPMENT STRATEGY AND PROGRAM**

How the city of Sukkur should look, like and how far its spatial growth be allowed are important questions. While looking at the existing urban morphology and extent of the city, it is already evident that it has limited flexibility for its growth due River Indus. However, when it is combined with its sister / twin city Rohri, it has more options. According to the requirements of UDS-Sukkur, the future growth scenario has to be discussed within short and long-term perspective. The UDS-Sukkur covers a period up to 2035. The short-term strategy would be covering the period from 2014 until 2020 and the long-term strategy from 2020 until 2035.

From any arbitrary center of the city like Clock Tower Chowk (Ghanta Ghar), the major parts of both the cities come within five Kms radius, and future expansion for next 20-25 years can easily be accommodated within 10 Kms radius, as shown in Figure 4-9. Based on this scenario, it is suggested that outside the second circle of 10 Kms radius, extensive development should not be encouraged except industrial, trade and commerce activities. Revitalization and renewal projects to accommodate demands for housing and allied civic facilities, may be initiated within the first circle of five Kms radius, to enhance its functionality and particularly the service provision and mobility aspects.

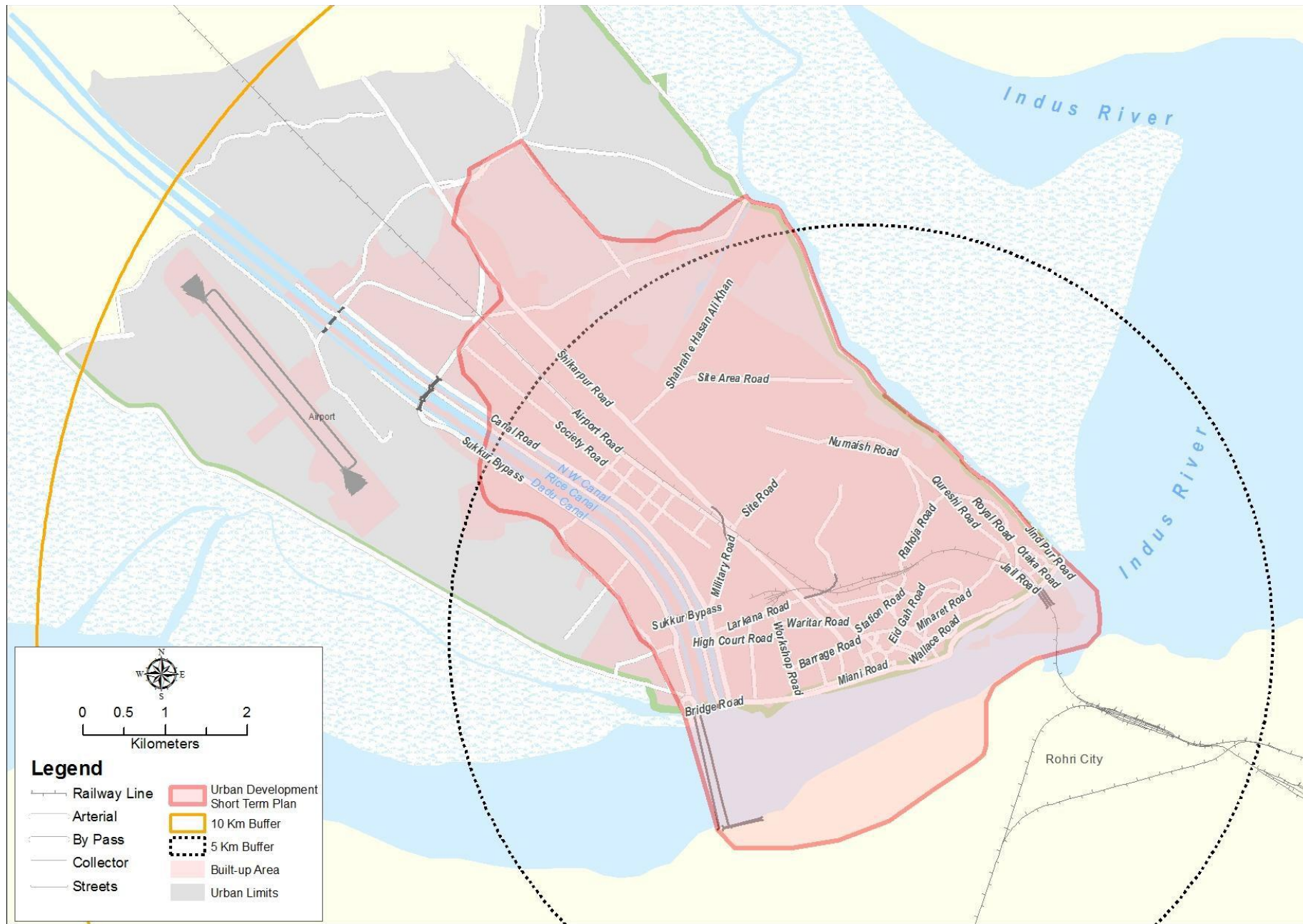


Figure 4-9: Urban Development Strategy: Short Term Plan (2014-20)

#### 4.3.1 SHORT TERM DEVELOPMENT STRATEGY PLAN (2014-20)

At large, in the short-term strategy, the focus has to be on rehabilitation, improvements of utility services with high service delivery indicators. During this phase, the basic aim would be to enhance the urban service delivery and the first impression of Sukkur city.

With an existing population of over 0.55 million, Sukkur would accommodate an additional 0.145 million population to make it a city of 0.7 million in 2020 which is a short-term action plan period of UDS-Sukkur. Applying the recently calculated household size of 6.23, about 23,000 housing units would be required until 2020 at 3,900 per annum. The current estimated housing backlog is nearly 5,000 units. Presently the housing demand is met by sub-division into portions and addition of floor area in existing houses, informal / un-planned houses in peripheral areas, further obesity, and densification of Katchi Abadis and through planned housing projects by private sector through both site, services schemes (known as the society area in Sukkur) and apartment buildings. To make exact calculations for each of the supply sources needs comprehensive surveys. However, apparently the major portion of the housing demand is being met through sub-division and informal housing leading to high population densities. Other social sectors of the city are also required to be upgraded to improve the quality of life.

In view of the future vision, one of the targeted goals is a sound local economy, which attracts investment, increases the tax base, creates employment opportunities for Sukkur residents, and eventually generates public revenues. In short-term plan, the envisaged strategy is based on revitalization of existing economic infrastructure and addressing the immediate concerns. Many strategic developments will be initiated in form of feasibility studies and detailing of the envisaged concepts.

The most deteriorated and public demanding urban component of the Sukkur City is the utility infrastructure and municipal services. Besides the initiation of long-term projects of utility infrastructure, improvement and gap filling strategy will be much needed. For instance, around 11 out of 22 MGD water demand is being supplied, which needs immediate attention by improving Intake, Treatment and Distribution segments of the network.

Growing population and increased number of vehicle ownership have created immense pressure on the streets of Sukkur City. In short-term plan, improvement of traffic flow through better management and rehabilitation of deteriorated roads are required. Sustainability and disaster resilience are the major challenges of effective urban strategies. Sukkur needs to overcome disaster risks and to build the capacity of better risk management.

For short-term development strategy, following major steps on high priority needs to be taken for the period 2014-2020:

- Revitalization / urban re-generation plan for the city center / CBD zone on high priority following the concept of smart development while preserving the cultural heritage of the city and selected locations in the District. It would require a special set of building byelaws for CBD zone
- Revitalization of industrial estate
- Construction of new slaughterhouse / Shifting of Markets from City Center to Trade and Commerce Zone including Iron Market, Building Material Market, Fish and Vegetable Market

- Development of detailed zoning plan, demarcation of zone boundaries and zoning regulations for each of the identified zones following the zonal strategic statements
- Regeneration / renewal of area under Katchi Abadis with special emphasis to curb this practice in future
- Development of master plan for utilization of Railways land situated within SMC limits
- Feasibility study of renewable energy production and supply to the city including solar energy park and Hydropower generation
- Feasibility studies and subject master plan for Housing for low income / vulnerable groups
- Initiating the construction of health and education facilities in designated zones following their detailed master plan preferably with PPP modality
- Feasibility studies and detailed planning of:
  - i) River Indus Green Zone for Tourism
  - ii) Sukkur Zoo and Botanical Garden
  - iii) Sukkur – Rohri Education City
  - iv) Health Facility Zone
- Construction and strengthening of primary schools/ secondary schools/ colleges
- Development and improvement of public amenities including construction of Public Toilets especially in central commercial areas, Emergency Health Centers at three points on roadway towards Sukkur-Punjab, Sukkur-Quetta & Sukkur-Karachi.
- Rehabilitation of historical monuments and public parks including Lakhueen jo Daro, Muhammad Bin Qasim Park at Minara road Sukkur, Ghazi Abdul Rasheed Park at Minara road Sukkur, Shah Abdul Latif Park in old Sukkur, Lab-e-Mehran Park, Gaznavi Park at Miani road Sukkur, Hawai Park near Masoom Shah Minara Sukkur, and Tek Chand Bal Chand Park at Bunder road Sukkur.
- Rehabilitation and renovation of Muhammad Bin Qasim Masjid at Arore Rohri, Mir Masoom Shah Minara, Pir Illahi Bux Tower, Victoria Clock Tower, Tomb of Adam Shah Kalhoro, Tomb of Shah Khairuddin, Tomb of Shah Saddarudin, Masjid & Tomb at War Mubarak Rohri, Sattian jo Astano, Bukkur Fort, Lloyd Barrage Sukkur, Ayub & Lansdowne Bridge Rohri and Sadho Bello in River Indus Island.
- Construction of trunk networks and allied facilities for water supply, sewage, waste water, solid waste along with landfill site (Currently under the mandate of NSUSC)
- Improvement of water intake works on the bank of Indus and on NW canal along canal road/ Rising main addition for Numaish Gah treatment plant from intake at river Indus/ Improvement / new construction of settling tanks at Rizvia, Bunder road and Numaish Gah/ Installation of water meters/ Establishment of testing laboratories and monitoring mechanism
- Construction of sewage treatment plant and disposal works/ Rehabilitation of existing force main/ Disposal system of effluent from treatment plants/ Rehabilitation and construction of primary trunk sewers
- Improvement/ rehabilitation of existing lined and un-lined drainage system/ Covering of open drains

- Construction of landfill site/ Extension of SWM and Waste to Energy conservation feasibility study
- Development of primary distribution and collection systems to link with above mentioned trunk infrastructure leading to full recovery of O&M cost, some portion of the capital cost with full satisfaction of end user on services delivery
- Rehabilitation and expansion of Sukkur power plant / Expansion of electric supply to newly developed areas / provision of un-interrupted power supply UPS to industrial estates
- Rehabilitation of the gas supply distribution network / Expansion of gas supply network to newly developed housing schemes
- Feasibility of surface drainage network to eliminate the water pounding in the city, which allows a land area about 100 acres to be used for residential, recreation and institutional purposes
- Investigation and feasibility of Groundwater source
- Rehabilitation and improvement of Bunder Road, Numaish Gah Road, Site Area Road, Shikarpur Road, Society Road, Station Road, Workshop Road / construction of a bridge over canals near Sukkur Township Bypass / Construction of overhead railway crossing bridge at Gadani Phattak / Construction of parking at Mehran Markaz.
- Investigate and feasibility of Ferry Service for transportation goods on Indus River
- Improvement of road hierarchy by construction of missing links
- Traffic flow management, particularly in CBD area, and improvement of street / road lighting
- Feasibility for remodeling, extension, widening of existing road network and Sukkur ring road.
- Feasibility of construction of proposed iconic bridge on River Indus
- Multi-hazard urban risk assessment of Sukkur and Rohri
- Establishment of District / Municipal Disaster Emergency Operation Centre
- Strengthening of local rescue and response capacity for natural and human-induced emergencies and disasters specifically firefighting
- Awareness campaign on environment and disaster reduction
- Improvement of microclimate of Sukkur city

#### 4.3.2 LONG TERM DEVELOPMENT STRATEGY PLAN (2020-35)

The long-term development strategy plan of Sukkur shall focus on sustainability and incremental development in all sectors based on the steps taken and outcomes produced during the short-term period. It would also correspond to the emerging needs of the residents and the economy of the area, meaning that no hard timeline needs to be fixed within this strategy. It would also ensure the continuity of initiatives started in the short-term action plan period.

##### **Housing**

The projected population in 2035 is 1.15 million, which means that another Sukkur city of current population would be added. It is anticipated that the total housing requirements until the end of the

UDS-Sukkur would be around 75-85 thousand, and allied civic services and economic support. The significant portion of this demand shall be accommodated through smart development in the CBD zone, commercial zone, and through site and services schemes / societies in high and middle-income residential zones mostly by the private sector. However, for low-income stratum, the public sector has to take initiatives to cater for housing demand through various innovative techniques already in place in Pakistan and other developing countries with a focus to recover a major portion of capital investments and O&M cost. The estimated additional land requirements would be around 6500 – 8500 acres. This can easily be accommodated in the proposed zoning and with the MCS limits notified recently in 2013, as shown in Figure 4-10. It is recommended by UDS-Sukkur that smart development be encouraged in the Sukkur city to reduce the mobility and infrastructure development costs. Thus, land and cost of infrastructure would be reduced in a longer-term perspective.

Approximately 25,000 housing units would be required for low-income groups (including highly vulnerable groups, like the poor of the poorest, destitute, PWDs etc.) until 2035. To avoid more Katchi Abadis in the future, concrete steps need to be taken in this regard, rather than to simply regularize the emerged and emerging Katchi Abadis in future. The proposed zone in the northeast of the city for low-income housing has close vicinity of the central part of the city, which will provide livelihood opportunities. However, through strict land use zoning and building control, private investments targeting high-income groups and business strata must be discouraged in the low-income zones.

### **Healthcare<sup>r</sup>**

Currently Sukkur City is serving a large population within and outside the city. However, the existing healthcare facilities are lacking. After implementation of short term plan, with the strategic objective of specialized zone having high-tech health facilities and supporting services is planned to meet the long-term healthcare requirements. To provide the quality health services and to attract the surrounding area, this zone would also play a positive role, and contribute in employment and economy of the city. Construction of health related facilities and buildings, such as hospitals, laboratories, clinics, specialized treatment centers, medical college; for example the National Health Institute of Islamabad containing all health related and compatible uses.

In addition to the Medical College / University of Medical Sciences, a 500 Bed General Teaching Hospital is proposed. This will not only serve the population of Sukkur City but also cater for the regional requirements. The projected city at the end of the plan period is over one million, and it is already serving surrounding 50 plus major settlements. This type of facility is imperative in Sukkur. At the proposed location, Sukkur Surgical Hospital is already under construction. The same be up-graded, or otherwise new hospital within the Health Facility Zone may be constructed.

### **Education**

Education sector strategy for Sukkur is envisaged with two major objectives viz. adherence of national education policy and strengthening of local education infrastructure. To achieve the first objective, provincial responsibilities are translated in form of action items including:

- The Government shall commit to allocating 7% of GDP to education by 2015 and necessary enactment shall be made for this purpose. Formula for proportional allocation (out of available funds) to different sub-sectors of education shall be evolved by the provincial government.
- Government shall explore ways to increase the contribution of the private sector, which at present contributes only 16 per cent of the total educational resources.

- For promoting Public-Private-Partnership in the education sector, particularly in the case of disadvantaged children, a percentage of the education budget as grant in aid shall be allocated to philanthropic, non-profit educational institutions.
- A system of checks and balances for the private sector shall be formed to oversee the issues of fees, school standards, pays of teachers, conduct and hygiene etc.
- Total resources for education shall be further augmented by developing strategies for inviting and absorbing international contributions.
- A system for donor harmonization and improved coordination between development partners and government agencies shall be developed
- Governments and educational institutions shall strengthen planning and implementation capacity to improve utilization of resources.

The second objective is more towards the improvement of local educational infrastructure. In this regard, projects are identified for improvement of school and college education and a dedicated Rohri Sukkur education zone is earmarked that will serve as a 'knowledge hub'. It will be well connected and having modern educational facilities and a healthy environment. It is anticipated, that Sukkur and the region need nourished and skilled human resources to boost the development and to substation the achieved development agenda. To cover the gap, this zone has been proposed to cover not only the needs of these twin cities but the region as a whole. The education city within this zone may be established with PPP under the provisions of 'Sindh Education Cities Bill 2013'.

The education city would be a favorite destination for high quality education and shall contain any type of tertiary level education covering various disciplines towards special fields like medical, engineering, agriculture, Visual and Fine Arts, Modern Languages etc. This development should be targeted for the planning period until 2035.

### **Recreation and Tourism**

Sukkur is blessed with the potential of recreational and tourism opportunities. However, this potential is hardly understood and utilized. Only potential of Mighty River Indus is huge as it is full of aquatic scenic attractiveness and world-renowned protected habitat of Indus blind dolphin. This part of the river is full of historic iconic features such as Lansdowne Bridge, Sukkur Barrage, Bukkur Island, Sadho Belo, Sattian Jo Astano and other islands. Universally, this beauty is recognized at very high level of praise whereas, such a blessed site is still untapped for tourism development in the region.

However, in reality, there is a huge gap even to meet the minimum requirement of the availability of parks and playgrounds. The historical and archeological sites are inattentive and in dilapidated condition. These requires a systematic and a balanced development strategy, which can meet the local requirement as well as can promote the tourism activities in the region. Strategically, several action are identified in short and long terms to gain the maximum advantage of local opportunities.

### **Water Supply**

The current average daily water demand of the Sukkur City is around 22 MGD, which will be increased up to approximately 46 MGD in planning period of 2035. The existing water supply infrastructure is not capable to meet the existing demand, which is continuously increasing. Fortunately, water source is available for long future in form of Indus River water. Therefore, long-term urban development strategy is focusing on the modular intake expansion, enhancing of water treatment facilities, improvement of existing supply and expansion of network in unserved areas. To reduce the cost of

service, network remodeling, maximization of gravity flow, construction of overhead tanks, and leakage control through DNI implementation are adopted.

### **Sewerage and Drainage**

The topography and urban morphology of the Sukkur City have made difficult the sewage disposal and storm water drainage. More than 30 pumping stations dispose the untreated sewage collected through open drains and sewers. Eradication of increased waterborne diseases burden, water ponding on precious urban land, and some serious environmental concerns are the part of strategy that can be controlled by strengthening of trunk mains, expansion of sewage collection system, construction of main drain and enhancement of sewage treatment facilities. To make more cost effective, remodeling of the sewerage system is highly recommended that may reduce the number of pumping stations and may handle sewage on gravity basis. Expansion of the network in newly developed areas in future and unserved part of the city is in focus of the long-term strategy.

### **Solid Waste Management and Environmental Concerns**

The Government of Pakistan enacted the Pakistan Environmental Protection Act (PEPA) in 1997, which is the most recent and updated legislation on environment. It provides a framework for establishing federal and provincial Environmental Protection Agencies (EPAs). One of the functions of EPA is to assist the local councils, local authorities, Government Agencies, and other persons to implement schemes for the proper disposal of wastes to ensure compliance with the standards established by it.

The increasing solid waste volume is posing a serious risk to ecosystems and human health in Sukkur. Currently only Sukkur City is producing more than 200 tones domestic solid waste. Industrial, hazardous and hospital waste is in addition. NSUSC has taken some remarkable steps in last 5 years for collection. However, still primary collection and ultimate disposal is poorly managed. Resultantly, the entire city presents the heap of garbage. Poor waste management - ranging from non-existing collection system in some areas to ineffective disposal, causing air pollution, water and soil contamination. A project of combined landfill site for Rohri and Sukkur has envisaged, BUT land and funding are still to be resolved. The devised strategy for Solid Waste Management is primarily focusing on the primary collection, expansion of secondary collection system, removal of waste heap, appropriate sanitary and hospital waste disposal.

The long term solution, is however, the minimization of waste. Where waste cannot be avoided, recovery of materials and energy from waste as well as remanufacturing and recycling waste into usable products are the options. It is known that the recycling leads to substantial resource savings. For example, for every tons of paper recycled, 17 trees and 50 per cent of water can be saved. Moreover, recycling creates jobs.

### **Transportation Network**

The pressure on urban transport system is increasing in Sukkur as part of the process of growth. Motor vehicle ownership and use are growing even faster than population, with vehicle ownership growth rates. This growth exceeds the ability to increase road space, and the major impediments to the efficient working of the urban economy are the level of road traffic congestion, encroachments and roadside parking. Travel speeds are decreasing and the travel environment for pedestrians. Sukkur CBD is the highest concerned area where weekday traffic speed is reported to average 10 kilometers per hour.

The focus of the UDS-Sukkur for transport sector is to reduce the impediments through rehabilitation of deteriorated roads, widening for increasing the capacities, development of new required links, bypassing heavy traffic through ring road, diverting loading vehicles towards shifted material markets, and overall traffic management.

### **Electric Power and Gas Supply**

Sukkur City has a strategic location where conventional as well as renewable energy can be produced. Proximity to the River and availability of high solar energy potential land have made the city very fortunate that can produce the power even for other cities. It is also on the Natural Gas Supply Network developed by SSGCL for domestic and industrial users. With this heavy potential, the focus of the UDS Sukkur is to utilize the advantage of the location in form of rehabilitation of existing conventional power plant and establishment of renewable solar and hydropower generating units. These may produce the power to fulfil the domestic as well as industrial users' long-term demand. That produced energy can ensure the uninterrupted power supply for the local consumers as well as can be transmitted to other cities.

For long-term development strategy, following major steps needs to be taken for the period 2020-2035:

- a) Based on the detailed studies and feasibilities conducted in short term action plan phase of UDS-Sukkur, implementation of the identified projects in a phased / incremental manner, which includes:
  - i) Revitalization / urban re-generation of city center / CBD zone following the concept of smart development
  - ii) Renewal of Katchi Abadis / Slums area
  - iii) Construction of iconic bridge on River Indus and its approach roads
  - iv) Widening of existing arterial roads and construction of new arterials and ring road
  - v) Construction of main drain and secondary drainage system
  - vi) Construction of solar energy park near Salehpat and Hydropower generating units at irrigation canals
  - vii) Continue / initiate the implementation of subject master plan for the following:
    - 1) River Indus Green Zone for Tourism
    - 2) Sukkur Zoo and Botanical Garden
    - 3) Sukkur-Rohri Education City
    - 4) Health Facility Zone
    - 5) Housing for low income / vulnerable groups
- b) Expansion of industrial estate
- c) Construction of office complex
- d) Construction and strengthening of primary schools/ secondary schools/ colleges
- e) Expansion and revitalization of industrial estate

- f) Expansion of Sukkur cattle colony.
- g) Establishment of dates and dry dates dehydration plant
- h) Development of Sukkur Export Processing Zone and Sukkur Dry Port
- i) Development of low income housing projects
- j) Construction of 500 beds general teaching hospital/ Cancer diagnostic and treatment center
- k) Improvement of Shikarpur road/ Rehabilitation of secondary roads and streets/ Construction of truck terminal
- l) Improvement of water intake works on Bukkur Island/ Rehabilitation / constructions of overhead tanks / underground reservoirs/ Improvement of pumping stations
- m) Construction and rehabilitation of primary trunk sewer system/ Establishment of sewage testing laboratories at each STP and monitoring mechanism
- n) Expansion of Solid waste management and waste to energy conversion
- o) Expansion of electric and gas supply networks for future development
- p) Expansion of local rescue and response capacity for natural and human-induced emergencies and disasters specifically firefighting
- q) Awareness campaign on environmental improvements and disaster reduction
- r) Development of DRM Plan based on multi-hazard urban risk assessment for Sukkur and Rohri also taking into account the impacts stemming from the phenomena of climate change

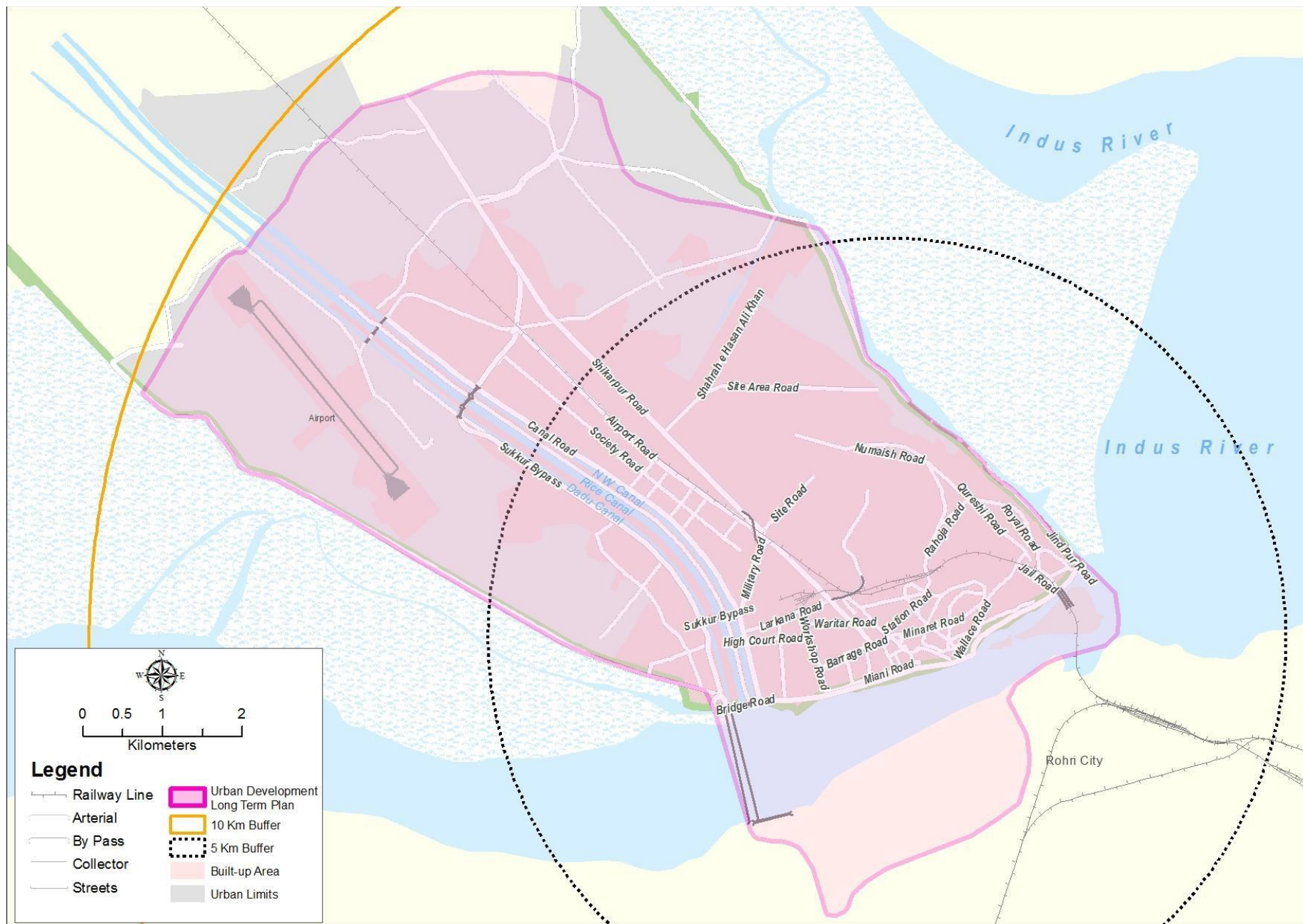


Figure 4-10: Urban Development Strategy: Long Term Plan (2020-35)

## 5 PRIORITY DEVELOPMENT PROJECTS

The proposed priority development projects have been categorized into various sectors such as economic development, detailed planning & feasibility, social development, basic utilities, roads and communication network, environment & disaster management. About 71 projects with approximate cost of 65.3 billion rupees have been proposed spread on two decades i.e. until 2035 (see Table 5-1).

Table 5-1: Prioritization of Development Projects

DEVELOPMENT SECTOR	PROJECT	CONSULTANTS					CONSULTATION WITH STAKEHOLDERS					IEE / EIA
		TIMELINE RANKING		PRIORITY RANKING			TIMELINE RANKING		PRIORITY RANKING			REQ.
		Short Term	Long Term	High	Medium	Low	Short Term	Long Term	High	Medium	Low	
Economic development	Development of Indus River Green Zone						21	14	11	11		EIA
	Development / Urban Re-Generation Of CBD and Selected Surrounding Areas within SMC Limits						10	14	14	7		IEE
	Revitalization and Expansion of Industrial Estates						11	18	8	13	1	EIA
	Construction of New Slaughterhouse						14	11	16	5	1	EIA
	Relocation of Iron / Building Material Market											EIA
	Shifting / Development of Fish and Vegetable Market											EIA
	Establishment of Dates and Dry Dates Dehydration Plant						10	17	13	8	3	EIA
	Development of Sukkur Export Processing Zone						9	18	11	11		EIA
	Development of Sukkur Dry Port						17	10	6	12	1	EIA
Housing , detailed planning and feasibility projects	Detailed Planning Feasibility of Identified Functional Zones						4	19	7	9	1	IEE
	Ground Water Study						4	19	8	8	1	-
	Development of Sukkur Cattle Colony (Bhains Colony)											EIA
	Construction of Office Complex						16	11	11	8	1	EIA
	Low-Income Housing Projects / Schemes						15	12	16	7		EIA
	Master Planning of Railway Land within SMC Limited						10	17	13	8	3	
	Feasibility study of renewable energy production						10	17	13	8	3	EIA
	Feasibility study and detailed master planning of Healthcare City						10	17	13	8	3	EIA
Social development projects	Construction and Rehabilitation of Primary Schools and allied Infrastructure						22	9	19	5	1	EIA

DEVELOPMENT SECTOR	PROJECT	CONSULTANTS					CONSULTATION WITH STAKEHOLDERS					IEE / EIA
		TIMELINE RANKING		PRIORITY RANKING			TIMELINE RANKING		PRIORITY RANKING			REQ.
		Short Term	Long Term	High	Medium	Low	Short Term	Long Term	High	Medium	Low	
	Construction and Rehabilitation of Higher Secondary Schools / Colleges						14	11	18	4	2	EIA
	Development of Sukkur – Rohri Education City						12	15	20	4	1	EIA
	Development and improvement of public amenities including construction of Public Toilets and Emergency Health Centers						12	15	20	4	1	-
	Rehabilitation of historical monuments and public parks											
	Construction of 500 Beds General Teaching Hospital						11	20	17	8	1	EIA
	Construction of Cancer Diagnostic and Treatment Centre						11	15	16	3	3	IEE
	Sukkur Zoo and Botanical Garden						12	13	8	15	2	EIA
Infrastructure development projects	Improvement of Water Intake Works						18	9	15	3		EIA
	Improvement / New Construction of settling tanks at Rizvia, Bunder Road and Numaishgah						18	8	14	11	1	EIA
	Rehabilitation / Constructions of Over-Head Tanks						19	10	16	7	3	IEE
	Installation of Water Meters						20	8	9	11	6	IEE
	Proposals for Main Drain						14	8	19	5	1	EIA
	Construction of Sewage Treatment Plant and Disposal Works						14	18	20	5		EIA
	Proposed Primary Trunk Sewer						19	7	8	13		EIA
	Proposals for Secondary Drainage Systems						14	13	17	5	1	EIA
	Proposals for Trunk Sewers						16	9	11	10	1	EIA
	Solid Waste Management and Waste to Energy Conversion Feasibility Study						17	13	10	9	2	IEE
	Construction of Landfill site in Sukkur						16	10	11	8	2	EIA
	Addition of Rising Main from Intake at River Indus to Numaish Gah Treatment Plant						16	10	11	8	2	EIA
	Establishment of Testing laboratories and Monitoring mechanism						16	10	11	8	2	IEE
	Improvement of Water Intake Works on Bukkur Island						14	8	19	5	1	EIA
	Improvement of Pumping Stations						14	8	19	5	1	IEE
	Extension of Existing Stabilization Ponds and construction of Sewage Treatment Plant and Disposal Works						14	8	19	5	1	EIA

DEVELOPMENT SECTOR	PROJECT	CONSULTANTS					CONSULTATION WITH STAKEHOLDERS						IEE / EIA
		TIMELINE RANKING		PRIORITY RANKING			TIMELINE RANKING		PRIORITY RANKING			REQ.	
		Short Term	Long Term	High	Medium	Low	Short Term	Long Term	High	Medium	Low		
	Rehabilitation of Existing Force main						14	8	19	5	1	EIA	
	Disposal System of Effluent from Treatment Plants						14	8	19	5	1	EIA	
	Improvement/ rehabilitation of existing lined and un-lined drainage system/ Covering of open drains						14	8	19	5	1	EIA	
	Proposals for Secondary Drainage Systems						14	8	19	5	1	EIA	
	Establishment of Sewage Testing Laboratories at each STP and Monitoring Mechanism						14	8	19	5	1	EIA	
	Construction of New Drainage Pumping Stations						14	8	19	5	1	EIA	
	Construction of solar energy park near Salehpat and Hydropower generating units at irrigation canals						14	8	19	5	1	EIA	
Roads and communication network	Rehabilitation and Improvement of Bunder Road						17	13	10	9	2	IEE	
	Rehabilitation and Improvement of Numaishgah Road						16	10	11	8	2	IEE	
	Rehabilitation and Improvement of Site Area Road						18	13	14	7	2	IEE	
	Rehabilitation and Improvement of Shikarpur Road						22	4	18	2	3	IEE	
	Rehabilitation and Improvement of Society Road						13	11	12	5	3	IEE	
	Rehabilitation and Improvement of Station Road						21	6	13	7	2	IEE	
	Rehabilitation and Improvement of Workshop Road						21	8	14	6	2	IEE	
	Construction of Ring Road						15	8	15	4		EIA	
	Widening / Rehabilitation of Bagarji Road and link with Existing Sukkur Bypass						15	11	16	5	2	IEE	
	Widening / Rehabilitation of New Pind Road						15	14	14	7	2	IEE	
	New link between Sukkur and Rohri with new Bridge over River Indus						9	12	13	4	1	EIA	
	Truck Terminal						14	10	7	9	3	EIA	
	Improvement of Road Hierarchy by Construction of Missing Links and Rehabilitation of Existing Links						9	17	7	13	1	EIA	
	Traffic Management of CBD Area						18	7	15	3	1	IEE	
	Street Lighting on road corridors and key intersections						16	10	15	9		IEE	
	Rehabilitation and expansion of Sukkur power plant and Expansion of electric supply to newly developed areas						16	10	15	9		-	
	Rehabilitation of the gas supply distribution network/						16	10	15	9		-	

DEVELOPMENT SECTOR	PROJECT	CONSULTANTS						CONSULTATION WITH STAKEHOLDERS						IEE / EIA
		TIMELINE RANKING		PRIORITY RANKING			TIMELINE RANKING		PRIORITY RANKING			REQ.		
		Short Term	Long Term	High	Medium	Low	Short Term	Long Term	High	Medium	Low			
	Expansion of gas supply network to newly developed housing schemes													
Environment & disaster management projects	Detailed Urban risk Assessment of Sukkur and Rohri						8	19	7	14	1	IEE		
	Establishment of EOC (Emergency Operation center)						17	9	14	5	3	IEE		
	Strengthening of Rescue and Response Capacity						17	11	13	5	3	EIA		
	Awareness Campaign on Environment and Disaster Reduction						16	15	11	8	4	IEE		
	Improvement of microclimate of Sukkur City.						17	9	14	5	3	IEE		

## 5.1 ECONOMIC DEVELOPMENT PROJECTS

### 5.1.1 DEVELOPMENT / URBAN RE-GENERATION OF CBD AND SELECTED SURROUNDING AREAS OF SUKKUR DISTRICT

#### Project Justification and Technical Description

It is widely recognized that the CBD of Sukkur is facing serious problems. These problems, which are created by congestion, increasing commercial activities in combination with the non-availability of land for expansion of the CBD, reflect on the presence of numerous encroachments and ever-increasing land and rent prices. Immediate steps are therefore necessary to deal with the situation. A rapid transformation process is already in place, which need technical direction.

In the past, Sukkur was famous for its heritage, commercial, economic, and social values. After the independence and political influence in every decade, commercial activities in the city received a setback from which Sukkur has not yet recovered. A negative aspect of this situation is related to the condition of buildings in the Sukkur Central Business District (CBD) and other important historical buildings in surrounding areas. Most of these buildings, which are multi-storey and exhibit various interesting architectural style dates from the pre-independence period. General economic decline in the city resulted in lack of maintenance of this building stock, which seems to crumble down.

The project will also cover rehabilitation and renovation of Muhammad Bin Qasim Masjid at Arore Rohri, Mir Masoom Shah Minara, Pir Illahi Bux Tower, Victoria Clock Tower, Tomb of Adam Shah Kalhoro, Tomb of Shah Khairuddin, Tomb of Shah Saddarudin, Masjid & Tomb at War Mubarak Rohri, Sattian jo Astano, Bukkur Fort and Lukhween Jo Daro

A study should be carried out for singling out the most interesting buildings in the Sukkur CBD or in Sukkur urban jurisdiction and selected surrounding areas within District limit to be included in a conservation / restoration scheme. The proposed study should include:

- Detailed survey of the Sukkur CBD identification of commercial characteristics and potentials.
- Listing of buildings according to their architectural / historic importance in Sukkur district.
- Review of Sukkur urban jurisdiction and other selected surrounding areas in district, including listing of building.
- Study of the prevailing architectural style / design patterns.
- Assessment of structural problems and proposals for suitable restoration techniques.
- Creation of a database of the important buildings.
- Documenting and maintaining ROW of roads and streets, and even the water channels.

It will include comprehensive area re-development, preservation of the heritage and the provision of modern public facilities and utilities. The concept of smart development and sustainable urban transformation. It would be followed in line with the scope of the Walled City of Lahore Authority created in 2012.

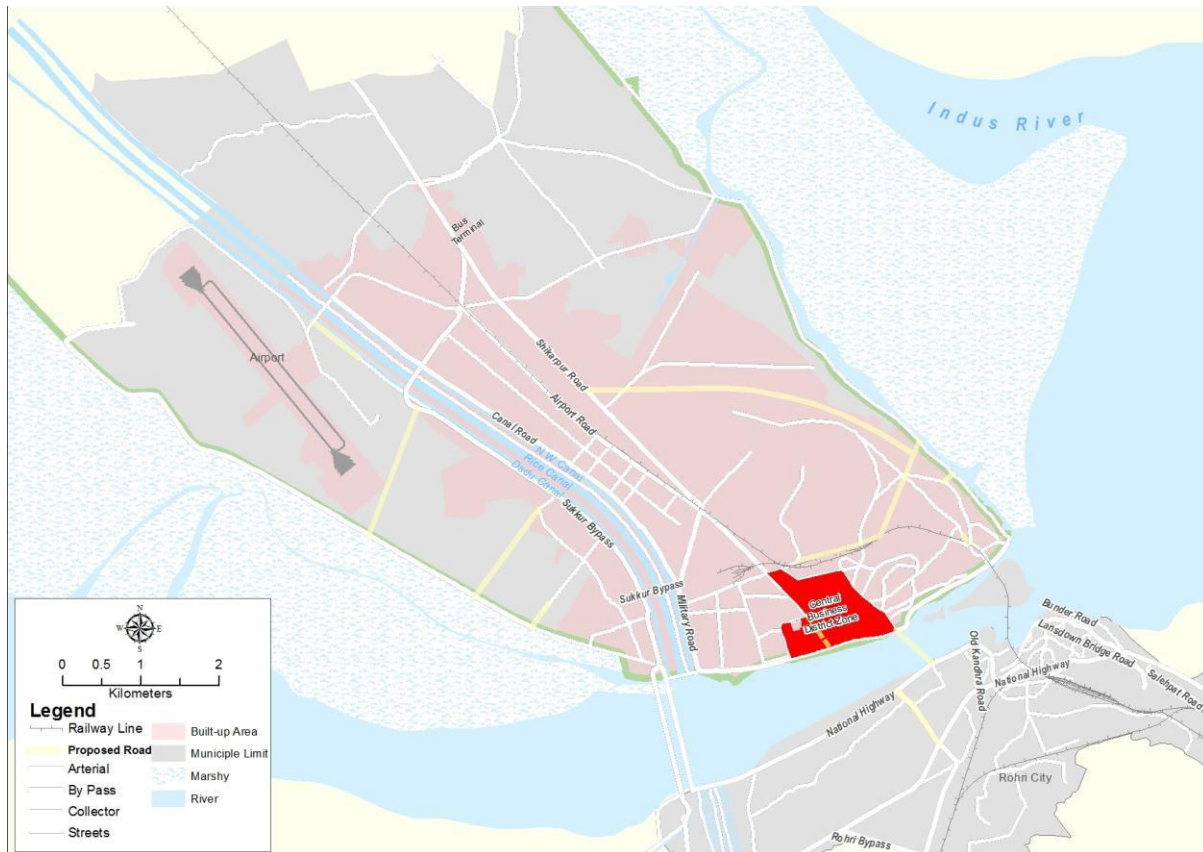


Figure 5-1: Development of Downtown & Selected Areas of Sukkur District

### Project Benefits

This project does not generate any direct income. However, indirect benefits for the city are manifold. Considerable social and economic benefits are associated with this project. The long-term economic benefits will be mainly through increase in output, employment, and incomes, which shall have multiplier effects and would boost the city development.

### Executing Agency

Sukkur Municipal Corporation and all line development departments

### Estimated Cost: PKR 2.5 Billion

This is the rudimentary cost of the project. There are at least two phases of the project as hereunder:

- Phase 1: Detailed Urban Renewal / Urban Regeneration Master Plan, Separate and more detailed for CBD (PKR 175 Million) – Short-term
- Phase 2: Regeneration Projects (PKR 525 Million) – Short-term
- Phase 3: Regeneration Projects based on PPP / BOT modalities (1800 Million) – Long-term

## 5.1.2 CONSTRUCTION OF NEW SLAUGHTERHOUSE

### Project Justification and Technical Description

The deficiencies and lack of maintenance have made problematic the functioning of the existing slaughterhouse. Moreover, the existing traditional practices have become out-of-date and cannot keep pace with the current requirements of the city. The modernization of the existing slaughterhouse

becomes essential not only to increase its capacity, but also to utilize all the by-products. In order to alleviate shortcomings, construction of a new, modern slaughterhouse is proposed in Trade and Commerce Zone on Shikarpur Road with minimum 10 to 15 acre area. Preferably, it should be PPP or BOT model to cater for the local and export needs. The existing space shall be best utilized to meet the other needs within the CBD.



Figure 5-2: Proposed Slaughter House

### Project Benefits

It will generate local economic benefits including an increase in taxation, employment, and quality products through state of the art facilities.

### Executing Agency

Sukkur Municipal Corporation and Private Investors

**Estimated Cost:** PKR 500 Million

## 5.1.3 RELOCATION OF IRON / BUILDING MATERIAL MARKET

### Project Justification and Technical Description

The existing market is located at Bunder Road in congested areas of the city. Transportation, particularly the goods transportation is a significant issue. These markets are serving the surrounding hinterlands and small urban areas apart from Sukkur city, therefore it is proposed that the existing markets at Bunder Road and elsewhere may be completely shifted within the proposed 'Trade and Commerce Zone' at Shikarpur Road. This planned market shall provide an easy access and the CBD shall not face traffic congestions and other related problems.



Figure 5-3: Proposed Iron Building Material Market

### Project Benefits

It will generate local economic benefits including an increase in taxation, employment, and quality products through state of the art facilities. Furthermore, the traffic congestion in the central areas would be released, and timely and efficient transportation would be possible.

### Executing Agency

Sukkur Municipal Corporation and Private Investors

Estimated Cost: PKR 500 Million

## 5.1.4 SHIFTING / DEVELOPMENT OF FISH AND VEGETABLE MARKET

### Project Justification and Technical Description

The existing market is located in the highly congested area of the city. Transportation, particularly the goods transportation is a significant issue. These markets are serving the surrounding hinterlands and small urban areas apart from Sukkur city, therefore it is proposed that a new market may be developed within the proposed 'Trade and Commerce Zone' at Shikarpur Road. This planned market shall provide an easy access and the CBD shall not face traffic congestions and other related problems. The land under current market location may be utilized for other appropriate usage.

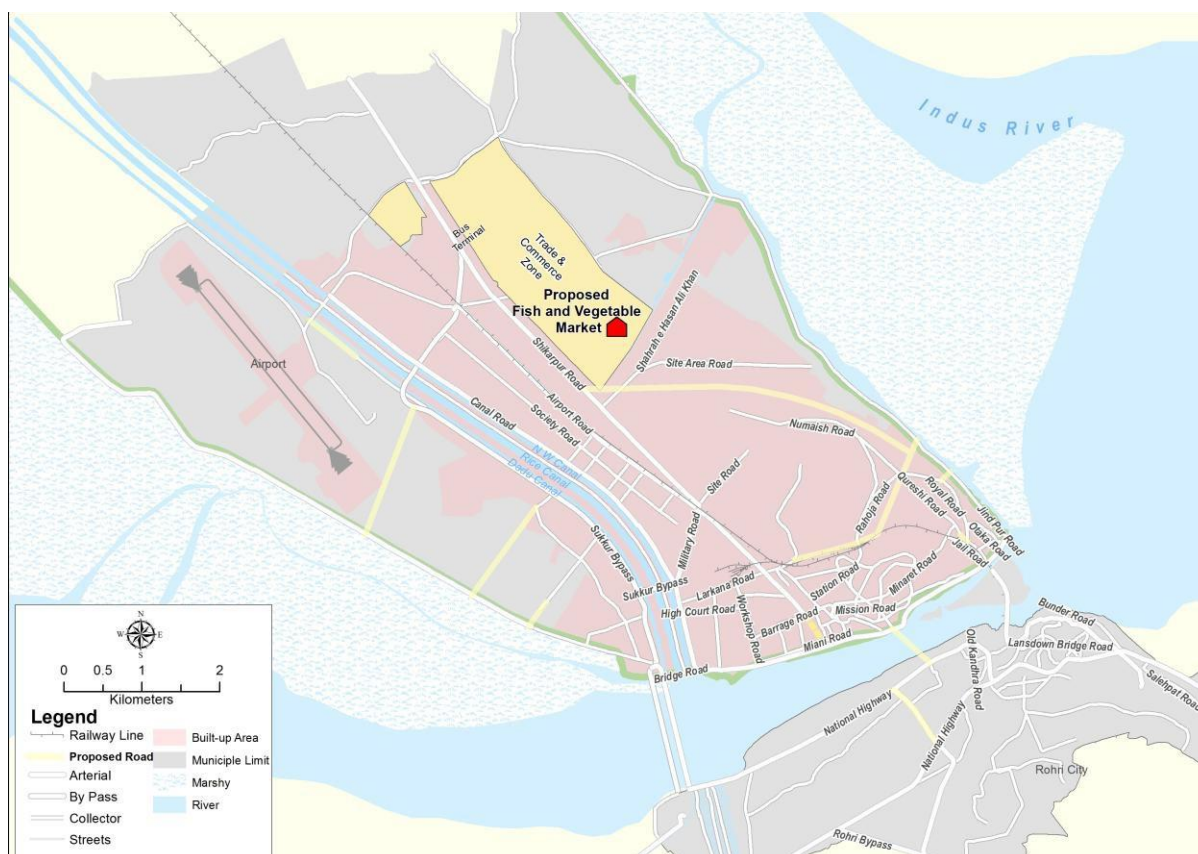


Figure 5-4: Proposed Fish & Vegetable Market

### Project Benefits

It will generate local economic benefits including an increase in taxation, employment, and quality products through state of the art facilities. Furthermore, the traffic congestion in the central areas would be released, and timely and efficient transportation would be possible.

### Executing Agency

Sukkur Municipal Corporation and Private Investors

**Estimated Cost:** PKR 500 Million

## 5.1.5 DEVELOPMENT OF INDUS RIVER GREEN ZONE

### Project Justification and Technical Description

Sukkur and Rohri are blessed with the eminent natural beauty of Mighty River Indus with full of aquatic scenic attractiveness and world-renowned protected habitat of endangered Indus blind dolphin. This part of the river is full of historic iconic features such as Lansdowne Bridge, Sukkur Barrage, Bukkur Island, Sadho Belo, Sattian Jo Astano and other islands. Universally, this beauty is recognized at very high level of praise whereas, such a blessed site is still untapped for tourism development in the region. There are several examples worldwide where such combination of river in a city have been exploited fantastically and developed a source of large-scale tourism. For instance, the famous River Thames in London, River Seine in Paris, and River Chao Phraya in Bangkok. The photo glimpses of existing situation of River Indus and the three rivers in the world (Thames, Seine, and Chao Phraya) are shown in Figure 5-7 to Figure 5-10. In the same lines, the proposed project is envisaged for development of

Sukkur as mega project with multiple components in phases. Some of the components includes, but not limited to;

1. Detailed master planning and designing of Indus Green River Zone
2. Rehabilitation and renovation of iconic Ayub and Lansdowne Bridge, Lloyd Barrage and surrounding areas including Sadhu Bello
3. Water front landscaping on both sides of the River and the Islands
4. Marina development
5. Theme Park
6. Ferry service for transportation goods
7. Tourist Ferry service and boat dinners (Like Dhow Cruises in Dubai)
8. Fishing and boating
9. Three / Four Star Hotels
10. Food outlets
11. Cable chair across the river

At the stage of detailed feasibility, EIA and DRA (Disaster Risk Assessment) would be the essential part to avoid all adverse impacts to the city and particularly to the habitat of blind Dolphin.

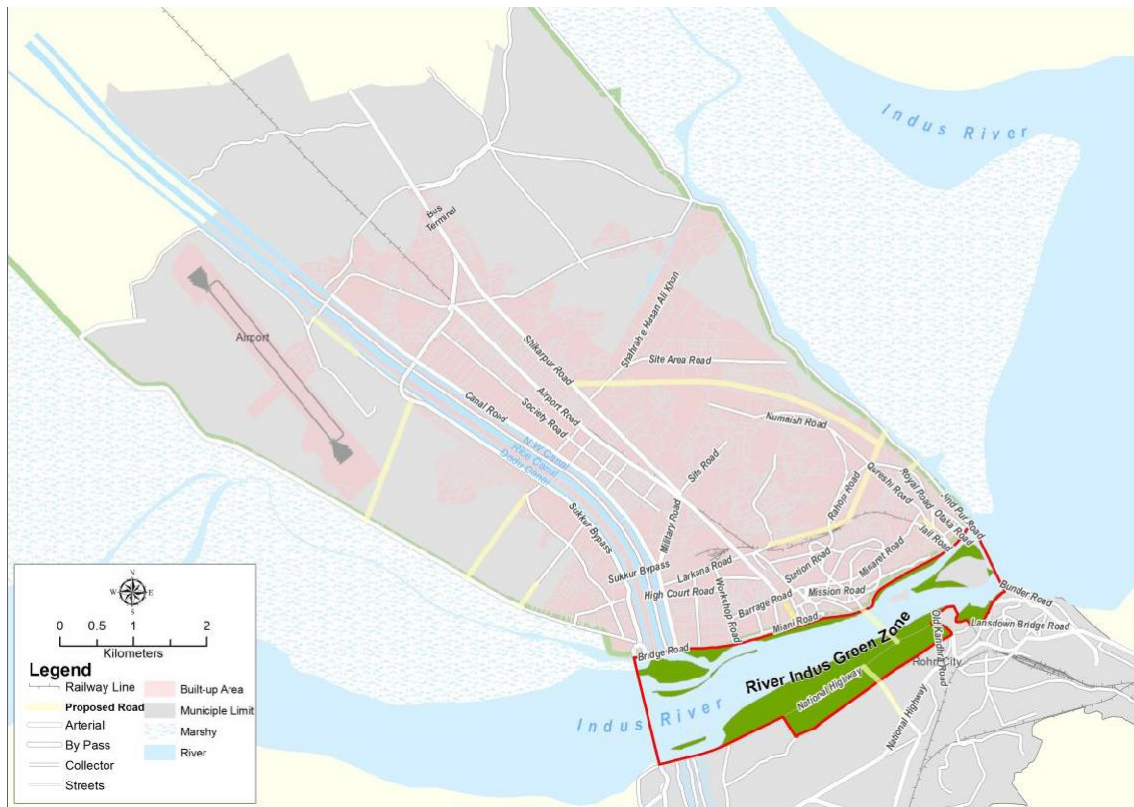


Figure 5-5: Proposed River Indus Green Zone

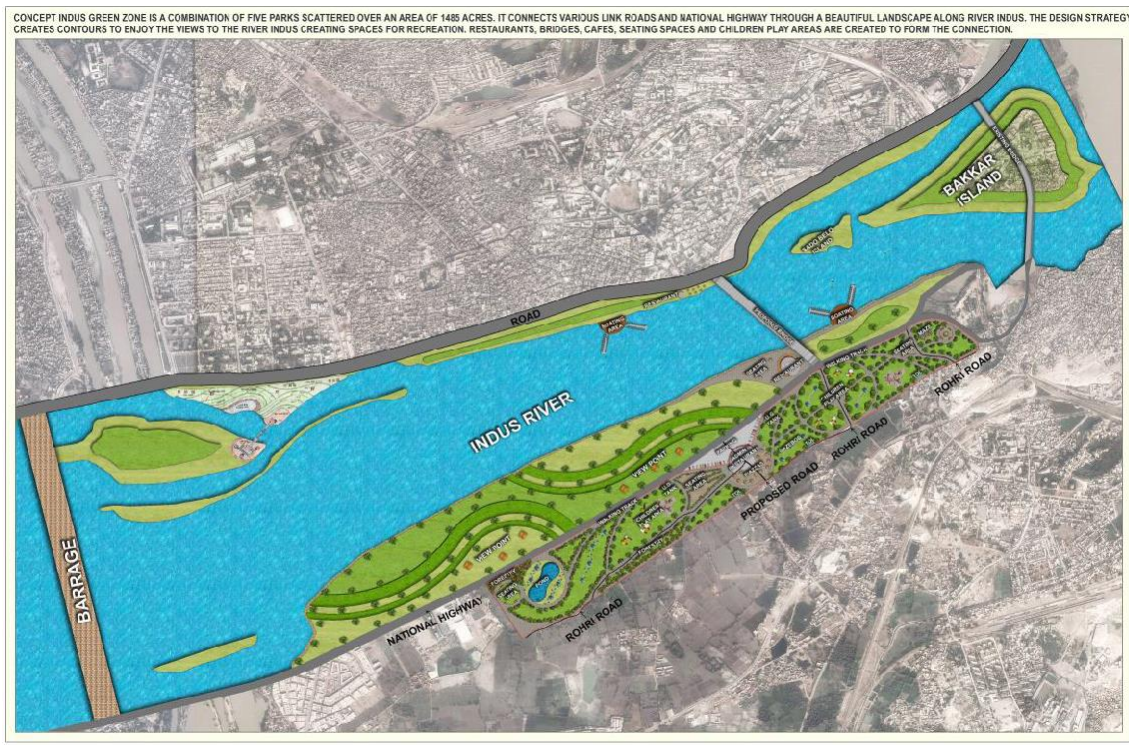


Figure 5-6: Proposed Conceptual Design of Indus Green Park

### Project Benefits

It will be a unique national project to boost a local economic potential with significant benefits from local to national level. It will generate number of employment opportunities, revenues and create a unique city landscape.

### Executing Agency

Federal Government, Provincial Government, Local Government, Irrigation Department, Wildlife and Fishery Department and Private Investors. It is proposed that a private company should be formed such as **Sukkur-Rohri Tourism Development Company** to plan, execute, and operate this multi-phased long-term project.

### Estimated Cost: PKR 10 Billion

This is the rudimentary cost of the project. Initially three phases are proposed as hereunder:

- a) Phase 1: Detailed Master Plan / Feasibility Studies, and formation of proposed company (PKR 150 Million) – Short-term
- b) Phase 2: Revitalization of Lab-e-Mehran Park and connecting it with internal island, and starting water sports / boating etc. (PKR 250 Million) – Short-term
- c) Phase 3: Inviting proposals for above listed facilities PPP / BOT modalities with minimum public investment. It will have further sub-phases depending upon the situation (9600 Million) – Long-term

Figure 5-7: River Indus, Sukkur-Rohri

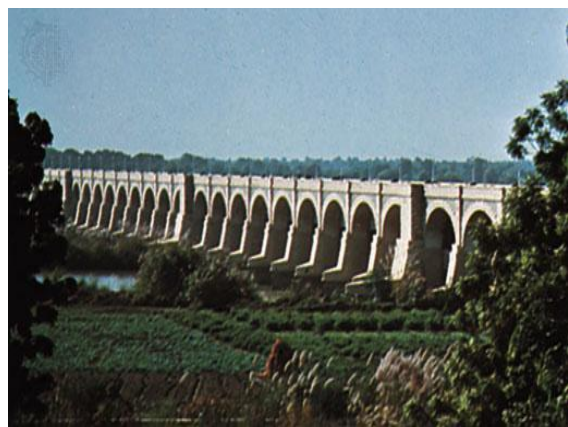
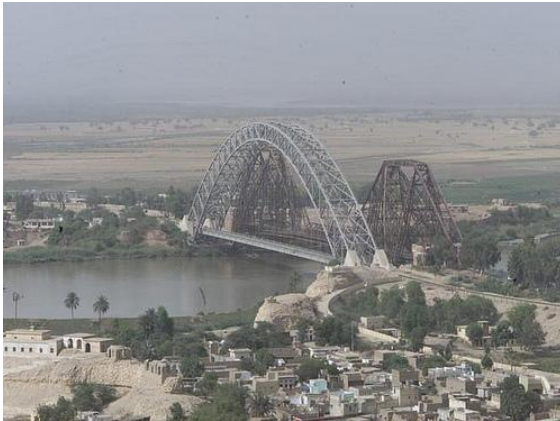


Figure 5-8: River Chao Phraya, Bangkok



Figure 5-9: River Thames, London



Figure 5-10: River Seine, Paris





### 5.1.6 REVITALIZATION AND EXPANSION OF INDUSTRIAL ESTATES

#### Project Justification and Technical Description

It aims to generate more industry-based income to Sukkur through small and medium enterprises as well as the large manufacturing units. At present, compared to its size and other cities in the province, manufacturing provides low employment opportunities for the working population at Sukkur. In order to reverse this situation, there will be a need to take several actions including physical revival of existing industrial estates and expansion thereof, with basic aim to retain the existing and to attract the future investments leading towards exports.

With the above philosophy, this project will explore ways and means to revitalize the industrial estates in Sukkur named as Sukkur SITE and Small Industrial Area. These two sites were fully developed as site and services industrial areas in 60s and 70s, but both are facing hindrances to revitalization of their units due to the deteriorated infrastructure, lack of secure environment and especially social unrest in the area. While revitalizing and expanding the industrial activities, the industrial zone must be bifurcated through green belts as buffer zone to limit the adverse impacts of industrial pollution on adjoining residential areas.

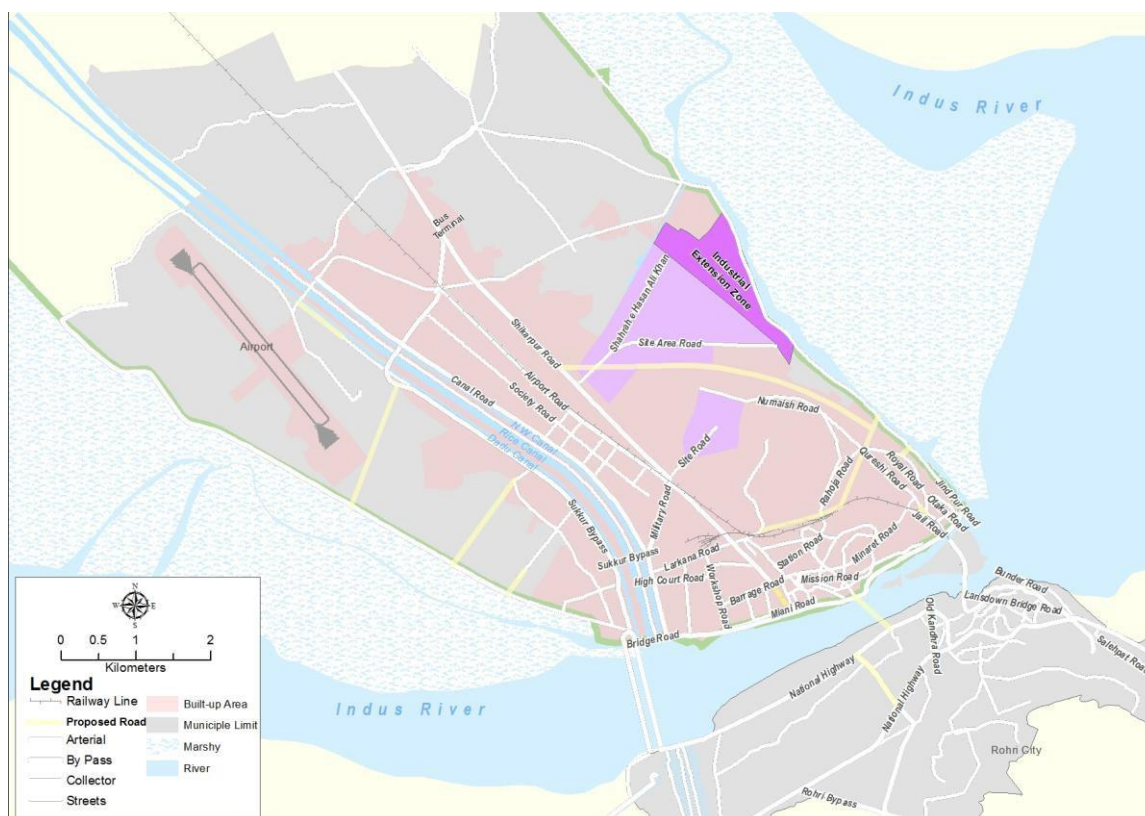


Figure 5-11: Industrial Estate Expansion

### Project benefits

Enhanced industrial activity with significant employment generation and overall contribution to the city's economy.

### Executing Agency

Sindh Industrial Development Board, SITE, Sindh Business Forum, and Sukkur Chamber of Commerce and Industries

**Estimated Cost:** PKR 1 Billion

- Phase 1: Renewal of two existing industrial areas (PKR 250 Million) – Short-term
- Phase 2: Acquiring and securing land for future expansion (PKR 250 Million) – Short-term
- Phase 3: Development of new Industrial Areas (on the land acquired above) based on PPP modality with minimum public investment. (500 Million) – Long-term

## 5.1.7 ESTABLISHMENT OF DATES AND DRY DATES DEHYDRATION PLANT

### Project Justification and Technical Description

Sukkur and Khairpur are the major cities in Pakistan where Dates and Dry Dates are being growing and processed in large quantities. This industry needs further mechanization and support for a boost. There are about 200,000 people directly or indirectly involved in the growing, processing, trading, packing, transporting of dates and dry dates. A semi-automatic unit usually requires 30-32 technical or non-technical labor. However, this cluster, in spite of the easy availability of raw material for the processing of Dates and Dry Dates, and skilled workers has limited itself to the processing by machine of dates and dry dates only.

The Project proposes the establishment of Dates and Dry Dates Dehydration Plants with the major objective of helping this cluster diversify into the mechanical processors of Dates and Dry Dates beside inconvenient way and rain interruptions. The dehydration plant will provide the following services:

- Drying the Dates
- Product Technology Development
- Testing Facilities.

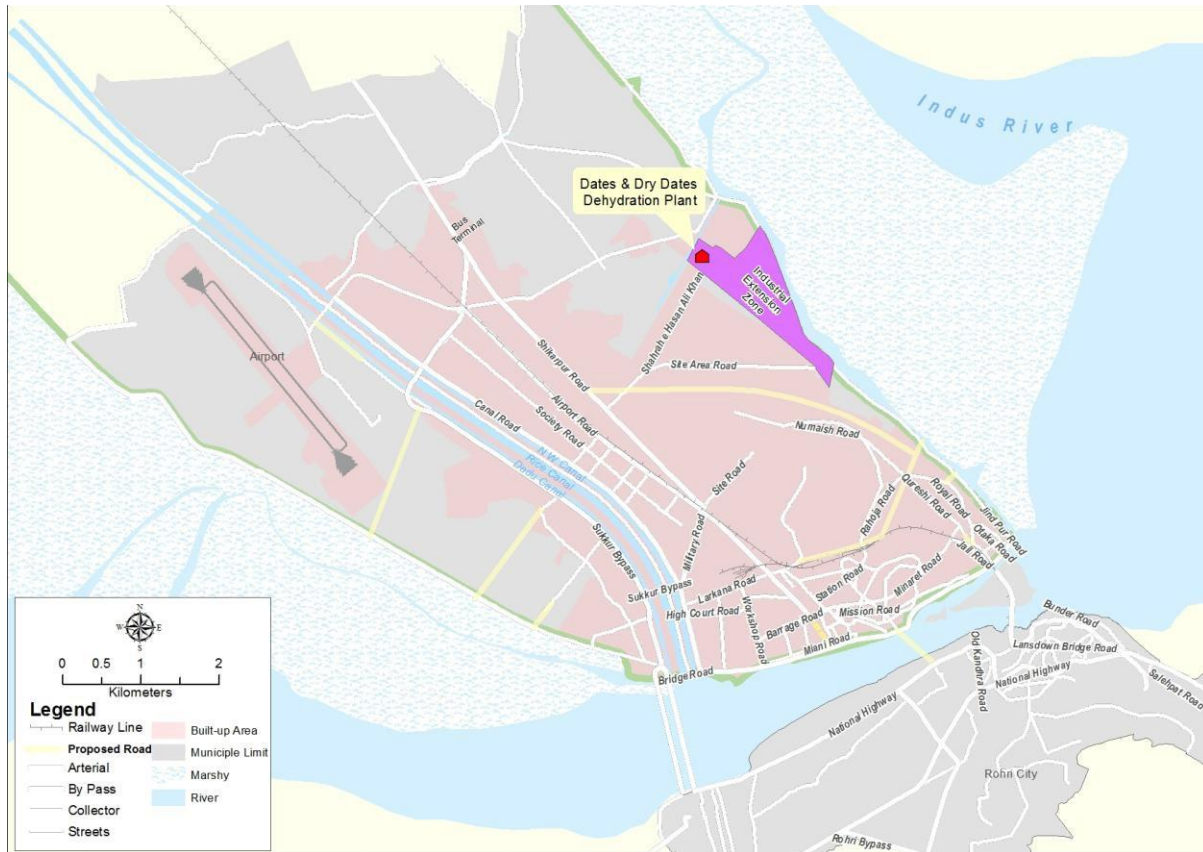


Figure 5-12: Proposed Dates & Dry Dates Dehydration Plant

### Project Benefits

It will enable the cluster to diversity into the production of an assorted range of date products, thereby, expanding the present field of work, creating job opportunities, bringing in more revenue to the region and helping the industry.

### Executing Agency

SMEDA, SSIC, Sukkur Chamber of Commerce, Industries, and Private Investors

**Estimated Cost:** PKR 500 Million

## 5.1.8 DEVELOPMENT OF SUKKUR EXPORT PROCESSING ZONE

### Project Justification and Technical Description

Sukkur offers the best location for EPZ, as its geographical location is quite suitable and hub between Sindh, Punjab, and Baluchistan. Sukkur Industrial Estate was established in 1963 on 1066.8 acres and was planned to colonize Industrial Units, which was acquired at that time. Out of that, nearly half has already colonized and in the remaining area, EPZ is proposed by SITE Ltd. on self-financing basis to

provide required infrastructure on demand. However, it is proposed in new location at Shikarpur Road in the Trade and Commerce Zone along with the Dry Port as shown in the Figure 5-13.

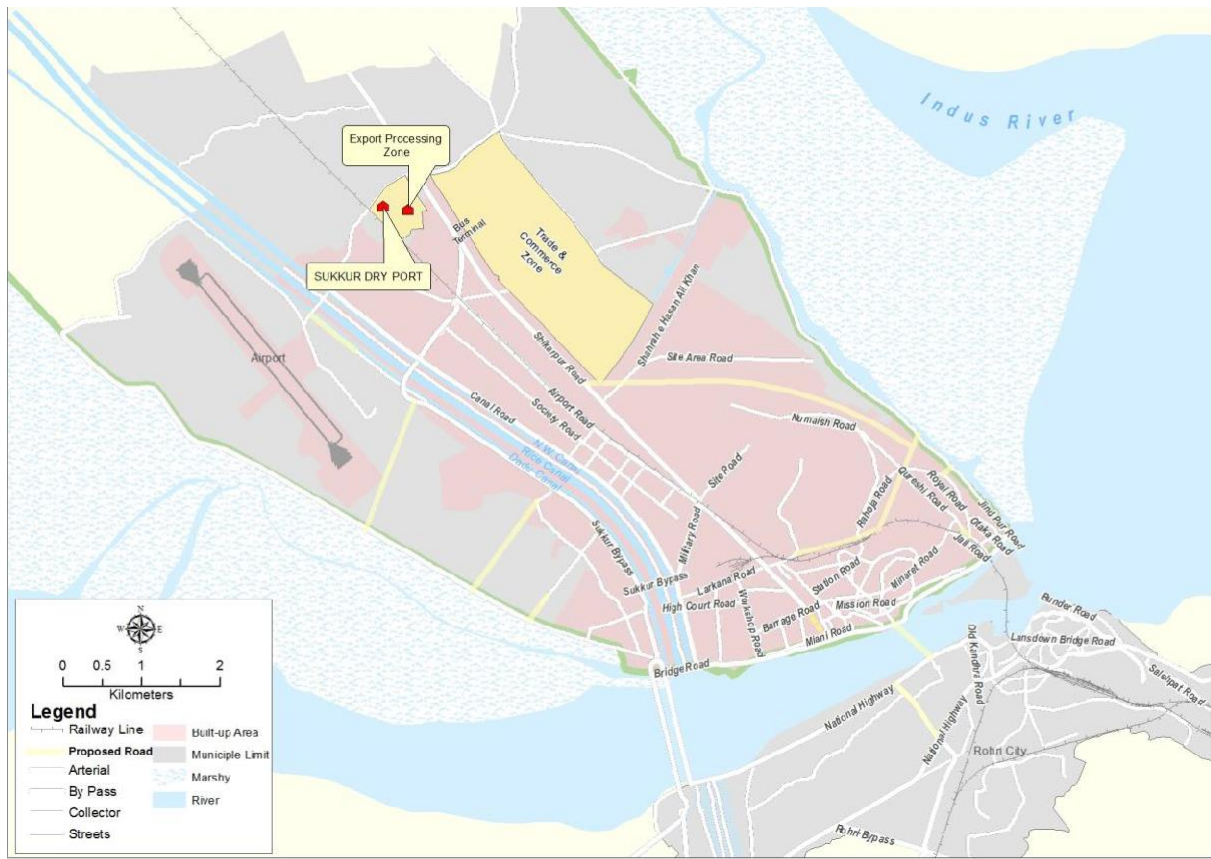


Figure 5-13: Proposed Export Processing Zone & Dry Port

### Project Benefits

- This will boost industrialization by inviting foreign and local investment in the industry.
- It will promote establishment of export-oriented industries, generate employment.
- The project will generate foreign exchange earnings and will contribute positively in level of tax collection.

### Executing Agency

Federal Government, Sukkur SITE Ltd., Private Investors

**Estimated Cost:** PKR 1 Billion

## 5.1.9 DEVELOPMENT OF SUKKUR DRY PORT

### Project Justification and Technical Description

The geographical advantage of Sukkur as a major trading and commerce hub between three province of Pakistan i.e. Sindh (largely covering upper Sindh), Baluchistan, and Punjab justifies the establishment of dry port at Sukkur. The project will facilitate the importers and exporters in goods clearance.

### **Project Benefits**

- The facilitation generated through this project directly benefits traders and will have significant cost and timesaving in goods clearance. It will increase the local investor confidence that would likely to generate significant trade and manufacturing activities.
- It will increase the level of investment and help boost the local economy beside generating employment.
- It will contribute in increasing the foreign exchange earnings and will raise the level of tax earnings.

### **Executing Agency**

Federal Government and Private Investors

**Estimated Cost:** PKR 200 Million

## **5.2 HOUSING, DETAILED PLANNING AND FEASIBILITY PROJECTS**

### **5.2.1 DETAILED PLANNING, FEASIBILITY OF IDENTIFIED FUNCTIONAL ZONES**

#### **Project Justification and Technical Description**

In pursuance of the proposed zoning of Sukkur City developed as the urban development strategy for growth, it is highly desirable to detail out the zoning plans for different land uses and municipal utility services so that proper land allocation can be determined. In urban development plan, proposed major Functional Zones include:

1. Residential Zone
  - a. High and Middle Income Residential Zone
  - b. Middle and Low Income Residential Zone
  - c. Low Income Residential Zone
2. Central Business District Zone
3. Smart Commercial Zone
4. Trade & Commerce Zone
5. Institutional Zone
6. Health Facility Zone
7. Sukkur-Rohri Education Zone
8. River Indus Green Zone
9. Canal Green Area Zone
10. Industrial Zone
  - a. Heavy and Medium Industrial Zone
  - b. Small Industrial Zone
  - c. Industrial Expansion Zone
11. Airport Zone
12. Future Expansion Zone
13. Rohri City

Although Rohri city is a separate administrative entity, however, functionally Sukkur and Rohri are dependent on each other. It is proposed to take up Rohri as functional part of Sukkur and joint

planning and development activities must be done under one umbrella like proposed Sukkur-Rohri Development Authority.

### Project Benefits

It will determine the compatible land uses in various defined zones that will increase the overall efficiency of the city in the form of utility services, transportation, recreation, and public desired amenities. The detailing exercise will help the Sindh Building Control Authority to design strategies and standards for implementing the building control byelaws according to the proposed zones. It will provide a continuum of connectivity and the city's landscape.

### Executing Agency

Directorate of UP&SP, Sukkur Municipal Corporation, Sukkur & Rohri Urban Plan Implementation Unit / SRDA (Proposed)

**Estimated Cost:** PKR 100 Million

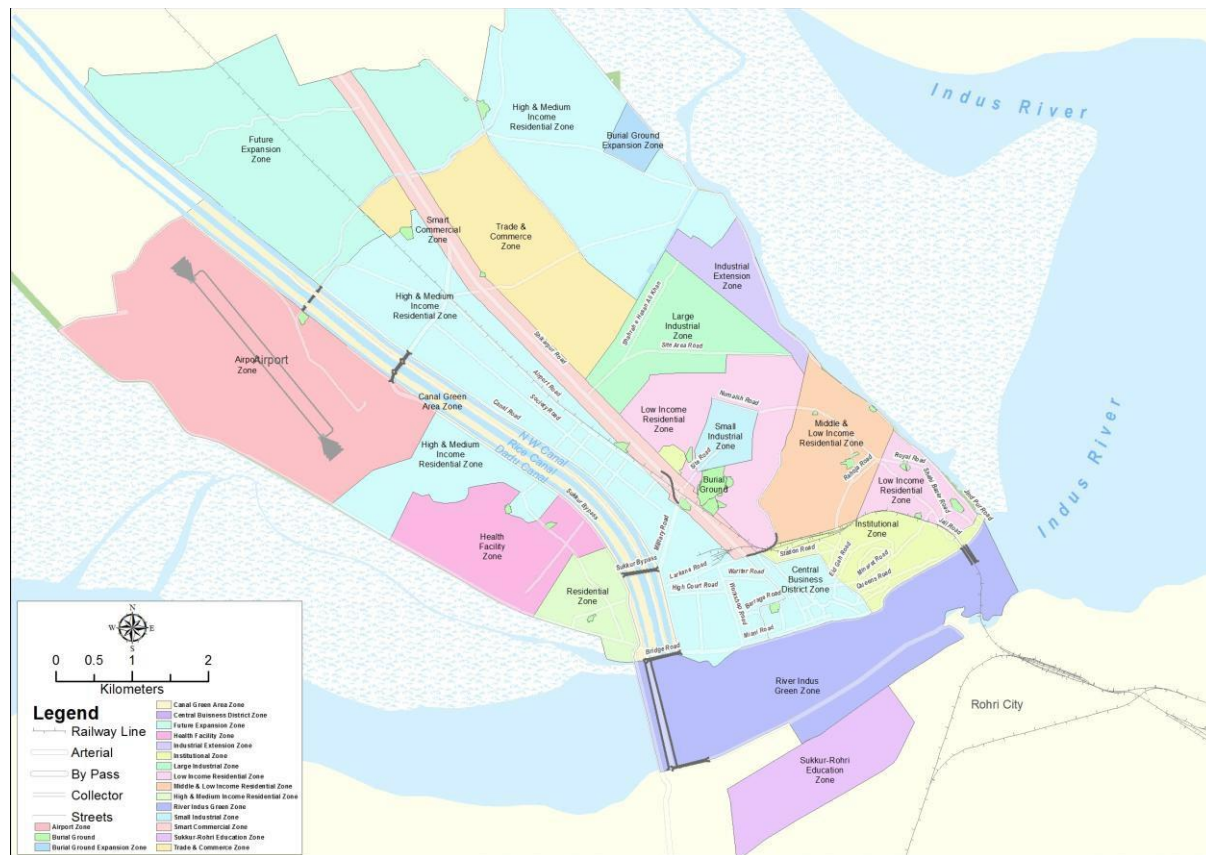


Figure 5-14: Proposed Functional Zoning for Sukkur SMC Area

## 5.2.2 GROUND WATER STUDY

### Project Justification and Technical Description

Ground water study in a city like Sukkur is crucial, the piped water and use in-house pumping do not benefit the majority of the population in the city, or use bore water. To know the availability of underground water, it is necessary to conduct Geotechnical investigation of the city. Based on the

study authorities will be able to know the water level and quality/quantity of water reservoirs available, which can be utilized efficiently for the welfare of Sukkur City.

#### **Project Benefits**

It will provide handful knowledge about the water reservoirs. Planning through this information for efficient use of water reservoirs can be done for the well-being of Sukkur City.

#### **Executing Agency**

ADP.

**Estimated Cost:** PKR 20 Million

### **5.2.3 LOW-INCOME HOUSING PROJECTS / SCHEMES**

#### **Project Justification and Technical Description**

According to crude estimate, about 25% population of the city is living in slums/Katchi Abadis and deteriorated houses. A considerable percentage of households in Sukkur have low income. These households are unable to acquire housing through the formal private market mechanisms and resort to informal settlements in order to solve their housing problem resulting rising number of slums, encroachments. Living conditions in such informal housing are appalling; houses are overcrowded while utility services are mostly non-existing.

In order to alleviate problems created by this situation, the public sector in Sukkur should launch as part of the Urban Strategy, an affordable housing program for low-income households. This Programme should be located in the zones earmarked as Low Income Residential Zones near Industrial areas at Shikarpur Road or near the ponding areas where slums are already created. It should target at least 1000 low-cost families in the short-term of the plan period. Another 1000-2000 low-income families may be targeted in the long-term plan period until 2035. Through this program, housing may be provided to displace families near their original location using low-cost vertical development options in the north of the CBD. The purpose of this project is:

1. Provide decent and affordable shelters to about over 20,000 urban poor;
2. Create an opportunity to apply, test and possibly modify the Urban Strategy standards in a situation which can serve as an example of similar residential development projects
3. It will provide an alternate resettlement location for redevelopment in the congested part of the City

The allowed percentages of land uses within the housing scheme will be following the minimum standards to make it low cost. For residential purposes, proper water supply, sanitary drainage, and power supply will be provided to all housing units and along with community facilities.

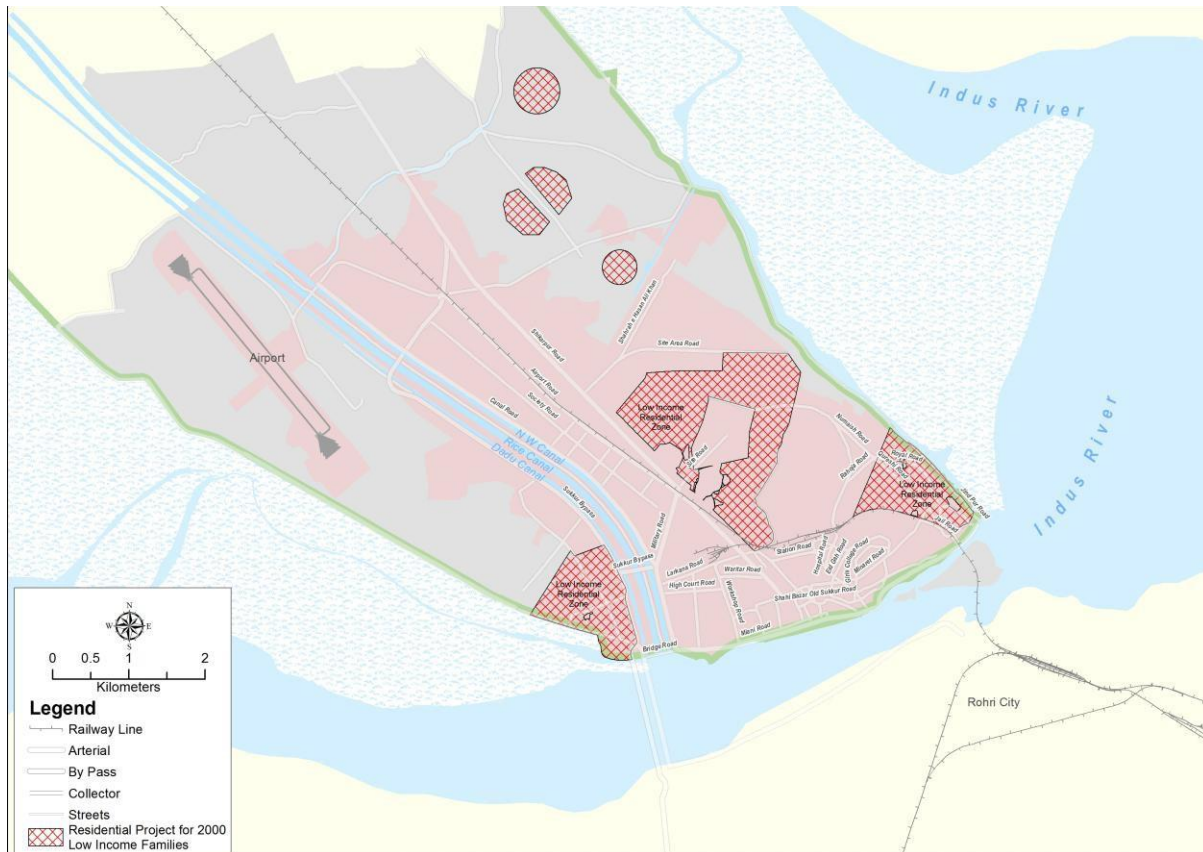


Figure 5-15: Proposed Low Income Housing Projects

### Project Benefits

Part of the capital expenditure is expected to be recovered through auctioning of commercial plots and buildings. The project is expected to generate direct income. Indirect benefits to the low-income population of the city are manifold. Improvement in living conditions are associated with long term social and economic benefits.

### Executing Agency

Government of Sindh (Katchi Abadis Directorate), Sukkur Municipal Corporation, SBCA, NSUSC, SEPCO etc.

### Estimated Cost: PKR 1 Billion

- a) Phase 1: Low Income Housing Project 1 – Site and Services Scheme (PKR 500 Million) – Short-term
- b) Phase 2: Low Income Housing Project 2 – Low Cost Apartments near proposed Zoo and Botanical Garden in Low Income Residential Zone (PKR 500 Million) – Long-term

## 5.2.4 DEVELOPMENT OF SUKKUR CATTLE COLONY

### Project Justification and Technical Description

Population of Sukkur has already crossed the figure of half a million and is expected to double in 2035. Currently, cattle's sheds (for buffaloes etc.) are being maintained in the city at scattered places. During

the cattle movement, traffic jams and accidents occur. The existing sheds are creating un-hygienic conditions and choking the sewerage drains.

To avoid this situation, several cities in Pakistan have developed special colonies called 'Bhains Colony'. On similar lines, Sukkur Cattle Colony comprising an area of 250 acres is proposed in the north of the city, near north river embankment. This location shall have direct access to the ring road, making easy the transportation of cattle's in and out of the city and easy access to the new slaughterhouse.



Figure 5-16: Proposed Cattle/Bhains Colony

### Project Benefits

By implementing this project, city landscape would be improved by avoiding stray cattle's and eliminating potential source of bad odor and unhygienic conditions. Moreover, traffic and transport problem caused by the cattle would be minimized. Eventual it will add to the economy of the city by proper collection of applied taxes.

### Executing Agency

Sukkur Municipal Corporation, Livestock, and Dairy Develop net Department, and Private Investors

Estimated Cost: PKR 500 Million

## 5.2.5 CONSTRUCTION OF OFFICE COMPLEX

### Project Justification and Technical Description

Existing Sukkur City is highly dense and over occupied with respect to its services and communication. Therefore, many Governmental Departments and Offices are not centrally located rather dispersed

and located in narrow streets, where parking facilities are scarce for its visitors and officers. It is proposed that multistoried office complexes may be built at available location under old office buildings. It is proposed to build 10-15 acres multi-storey office complex at institutional zone and at Shikarpur Road in Trade and Commerce Zone with appropriate accessibility, services, and facilities.



Figure 5-17: Construction of Office Complex

### Project Benefits

It will provide appropriate working space for all local and provincial line department offices in Sukkur at centrally located places. The locations will be approachable and facilitated by all desired services and facilities.

### Executing Agency

Government of Sindh, District Authorities, Sukkur Municipal Corporation, NSUSC, etc.

**Estimated Cost:** PKR 800 Million

- a) Phase 1: Office at Shikarpur Road in Trade and Commerce Zone (PKR 100 Million) – Short-term
- b) Phase 2: Office at Shikarpur Road in Institutional Zone (PKR 700 Million) – Long-term

## 5.3 SOCIAL DEVELOPMENT PROJECTS

### 5.3.1 CONSTRUCTION AND REHABILITATION OF PRIMARY SCHOOLS AND ALLIED INFRASTRUCTURE

#### Project Justification and Technical Description

Supporting primary education should be one of the major goals of any urban strategy. The situation regarding primary education in the city is not at the desired level. Special emphasis is placed on girl schools since it was badly ignored. It is estimated that Sukkur City needs 46 new primary school units according to the existing population. It is hard to construct 46 units due to non-availability of land for new schools, high density in major urban developed areas and a short-term project. As an alternate, most of the existing schools may be reconstructed containing two to three floors where double shift options can be practiced.

Current situation identifies a lack of 46 primary schools for the year 2013, and by the year 2035, it will increase up to 178 primary schools in Sukkur MC. Therefore, 132 more primary schools have to be constructed by the year 2035.

#### Project Benefits

The Project relates to the basic right of the people and falls under the mandatory social service obligation of the government. An increase in the overall literacy ratio will eventually materialize higher incomes and through the economic multiplier effect to boost the city development.

#### Executing Agency

Department of Education - Provincial Government and Sukkur Municipal Corporation

Estimated Cost: PKR 1 Billion

### 5.3.2 CONSTRUCTION AND REHABILITATION OF HIGHER SECONDARY SCHOOLS / COLLEGES

#### Project Justification and Technical Description

There is a significant deficit of college level educational institutions in Sukkur City when compared to the prevailing standards. There should be currently a minimum of 10 colleges in the city, according to the estimated population of 2013 whereas only two colleges are working in the public sector.

It is proposed that there should be at least 19 colleges more in terms of the projected population by 2035. So the provision of 12 more colleges is proposed by the year 2035.

#### Project Benefits

An increase in the overall literacy standard of the population will eventually materialize higher incomes and through the economic multiplier effect which will boost city development and leads towards high quality of life.

#### Executing Agencies

Department of Education - Government of Sindh, Private Sector

Estimated Cost: PKR 1 Billion

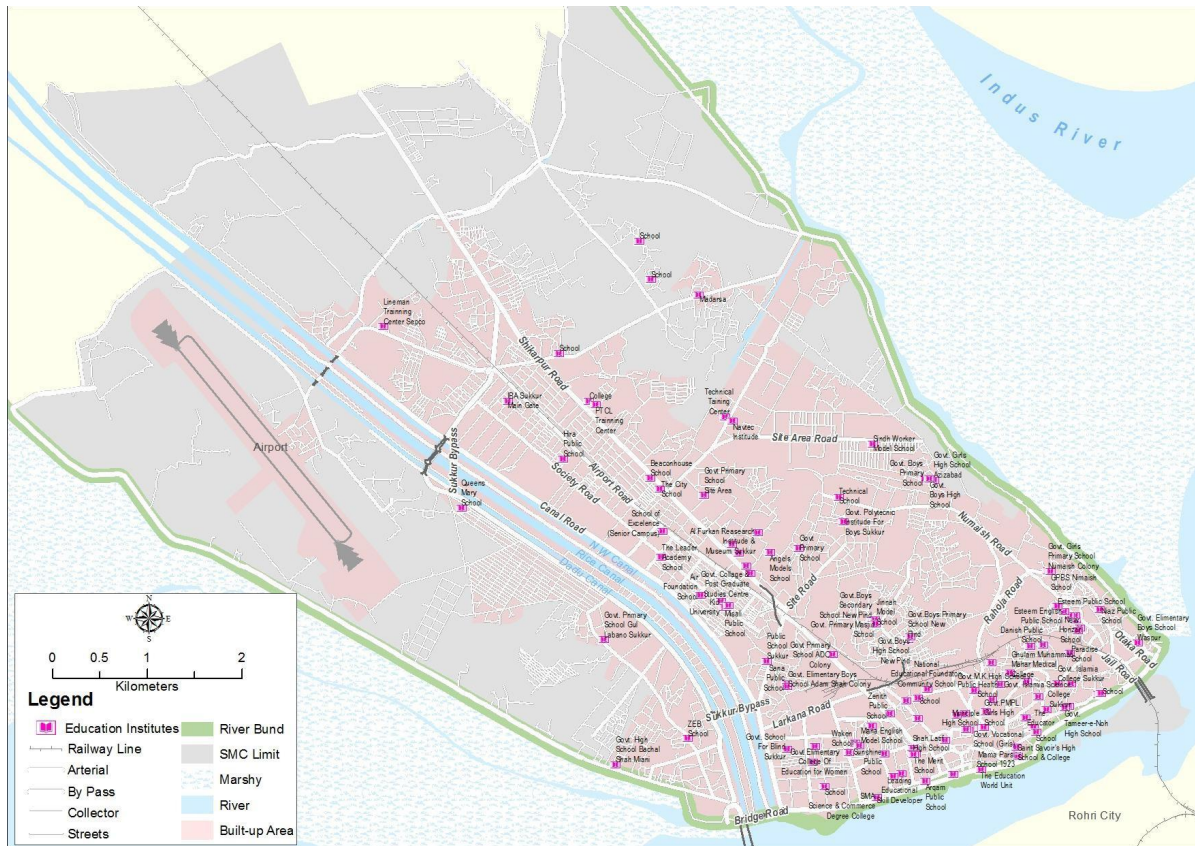


Figure 5-18: Educational Institutes in Sukkur

### 5.3.3 DEVELOPMENT OF SUKKUR – ROHRI EDUCATION CITY

#### Project Justification and Technical Description

Being a regional hub and the third largest city of the Sindh Province, Sukkur direly needs tertiary level educational facilities (higher education), which are currently lacking. The recent addition in the form of IBA is on the ground, but it is in selective academic disciplines and catering generally higher income groups. In an urban development strategy of Sukkur, a specialized education city comprising on an area of 550 acres has been proposed to fulfil the educational infrastructure demand according to local and regional needs. It may include the detailed planning, designing, and construction of

- General Public University
- University of Medical Sciences
- University of Engineering Sciences
- Technical Training Institutes
- Research Institutes



Figure 5-19: Proposed Sukkur-Rohri Education City

### Project Benefits

It will provide opportunities of higher education learning and skill development following the local, regional, and national demands. It will improve the overall tertiary level education of the dwellers of Sukkur and the region besides the increase in employment and local revenues. Implementation of this project would prove a catalyst for sustained change in the city culture and quality of life of its residents and surrounding areas. Ultimate benefits include employment generation and high-end education facilities in various fields.

### Executing Agencies

Federal Government, Provincial Government, Education Departments, HEC, and Private Investors etc.

### Estimated Cost: PKR 10 Billion

- a) Phase 1: Detailed Master Plan for the Education City, and infrastructure design for the basic layout and services (PKR 20 Million) – Short-term
- b) Phase 2: Development of basic infrastructure (Roads, utilities and boundary wall etc.) (PKR 480 Million) – Short-term
- c) Phase 3: Establishment of Universities and Other Educational Institutions, mostly on PPP modality (PKR 9.5 Billion) – Long-term

### 5.3.4 CONSTRUCTION OF CANCER DIAGNOSTIC AND TREATMENT CENTRE

#### Project Justification and Technical Description

The regional position of Sukkur direly needs some specialized health institutions, especially the Cancer Diagnostic and Treatment Centre. Currently, most of the patients have to go to Karachi or Lahore to avail the Cancer Treatment. In UDS-Sukkur, a health city zone is already proposed to build such institutions on priority basis. Being a part of the health facility zone, the Cancer Diagnostic and Treatment Centre should be constructed on priority basis.

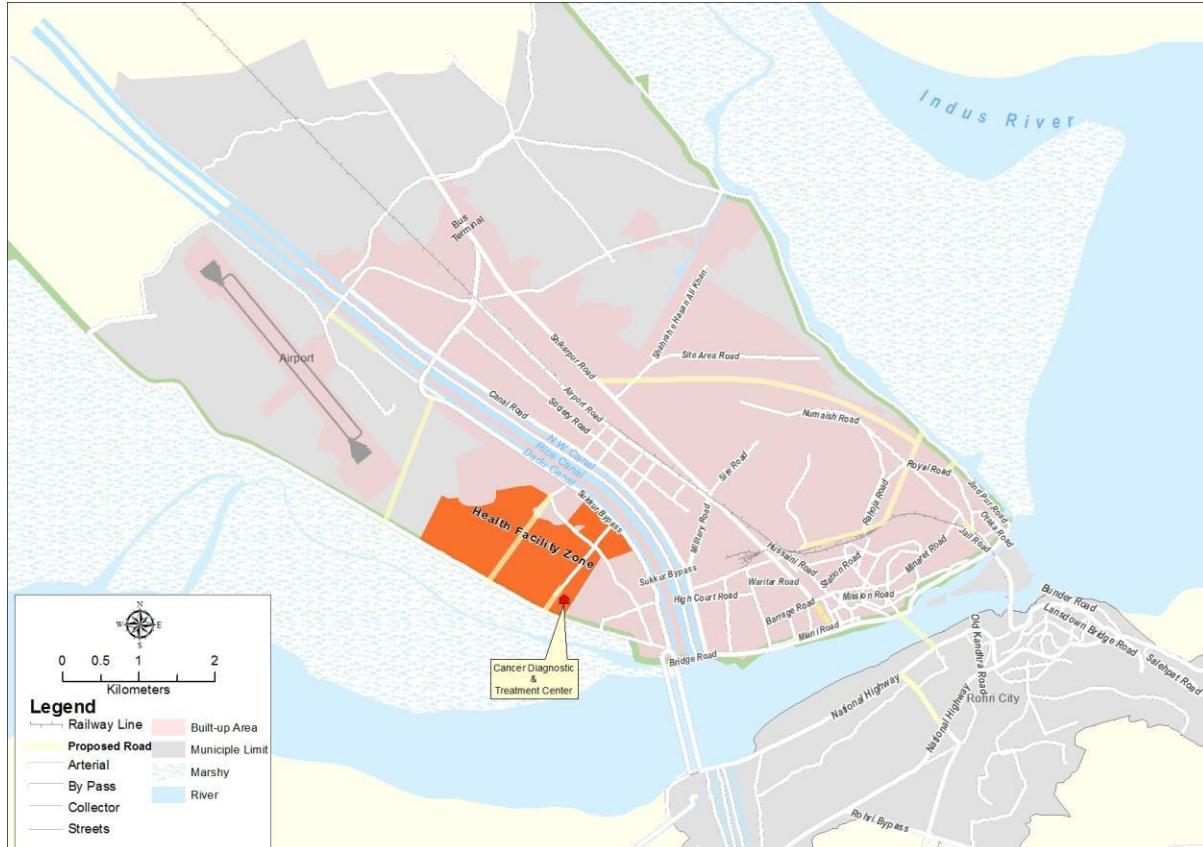


Figure 5-20: Proposed Cancer Diagnostic & Treatment Center

#### Project Benefits

The project will be a significant addition into the regional health care facility to serve the Northern Sindh, Southern Punjab, and North Eastern Baluchistan.

#### Executing Agency

Department of Health – Government of Sindh and Private Investors

**Estimated Cost:** PKR 500 Million

### 5.3.5 CONSTRUCTION OF 500 BEDS GENERAL TEACHING HOSPITAL & EMERGENCY HEALTH CENTERS

#### Project Justification and Technical Description

In addition to the Medical College / University of Medical Sciences, a 500 Bed General Teaching Hospital is proposed. This will not only serve the population of Sukkur City but also cater for the regional requirements. The projected city at the end of the plan period is over one million, and it is

already serving surrounding 50 plus major settlements. This type of facility is imperative in Sukkur. At the proposed location, Sukkur Surgical Hospital is already under construction. The same be up-graded, or otherwise new hospital within the Health Facility Zone may constructed.

Construction of Emergency Health Centers at three points on roadway towards Sukkur-Punjab, Sukkur-Quetta & Sukkur-Karachi are also proposed to overcome the loss due to road accidents and other emergencies.

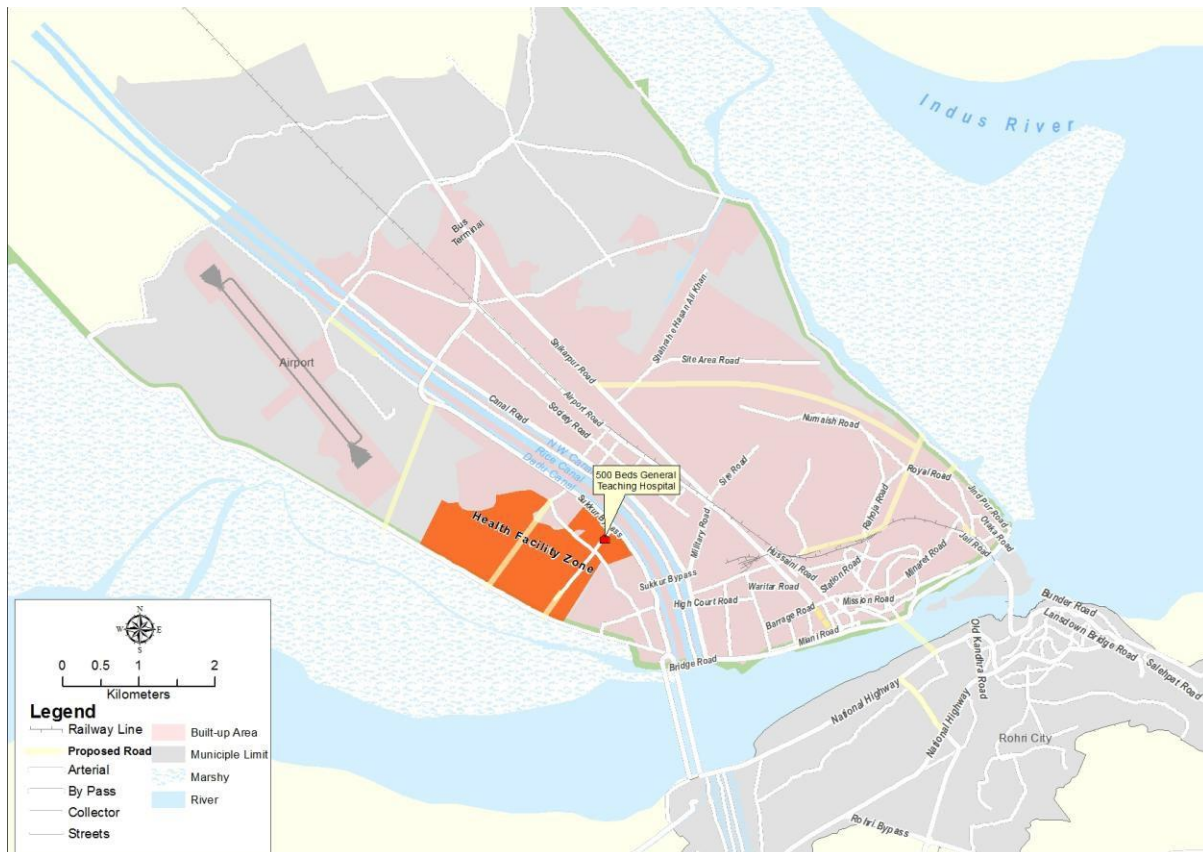


Figure 5-21: Proposed 500 Beds Hospital

### Project Benefits

The project will provide the health services to the dwellers of Sukkur and cover some of the regional requirements. It will also produce the health practitioners and paramedical human resources. Healthcare improvements both preventive and curative are associated with social and long-term economic benefits.

### Executing Agency

Department of Health – Government of Sindh

**Estimated Cost:** PKR 5 Billion

It is suggested to execute the project in multiple phases starting from a 200-bed hospital in phase 1 (short-term).

### 5.3.6 SUKKUR ZOO AND BOTANICAL GARDEN

#### Project Justification and Technical Description

The availability of parks in any city is essential for the safe and healthy urban life. The lack of availability of Parks inside the city has deprived the inhabitants to enjoy environmentally suitable enjoyment. The available notified open space is far less as compared to the required standards given in National Reference Manual. There are many ponds in the city space, which can ideally be converted and developed as park and leisure places. It is proposed that these areas should be developed as Zoo and Botanical Garden to provide high-class recreational place for the Sukkur city and surrounding dwellers.

Out of about two 200 acres land under the ponds, 44 acres would be used for this proposed project at the location shown in the map. The internal details would be in the detailed feasibility proposal, however, it will have 1-2 water bodies and surrounding collector roads to isolate the Zoo from surrounding settlements and to avoid encroachments. EIA is mandatory for this project.

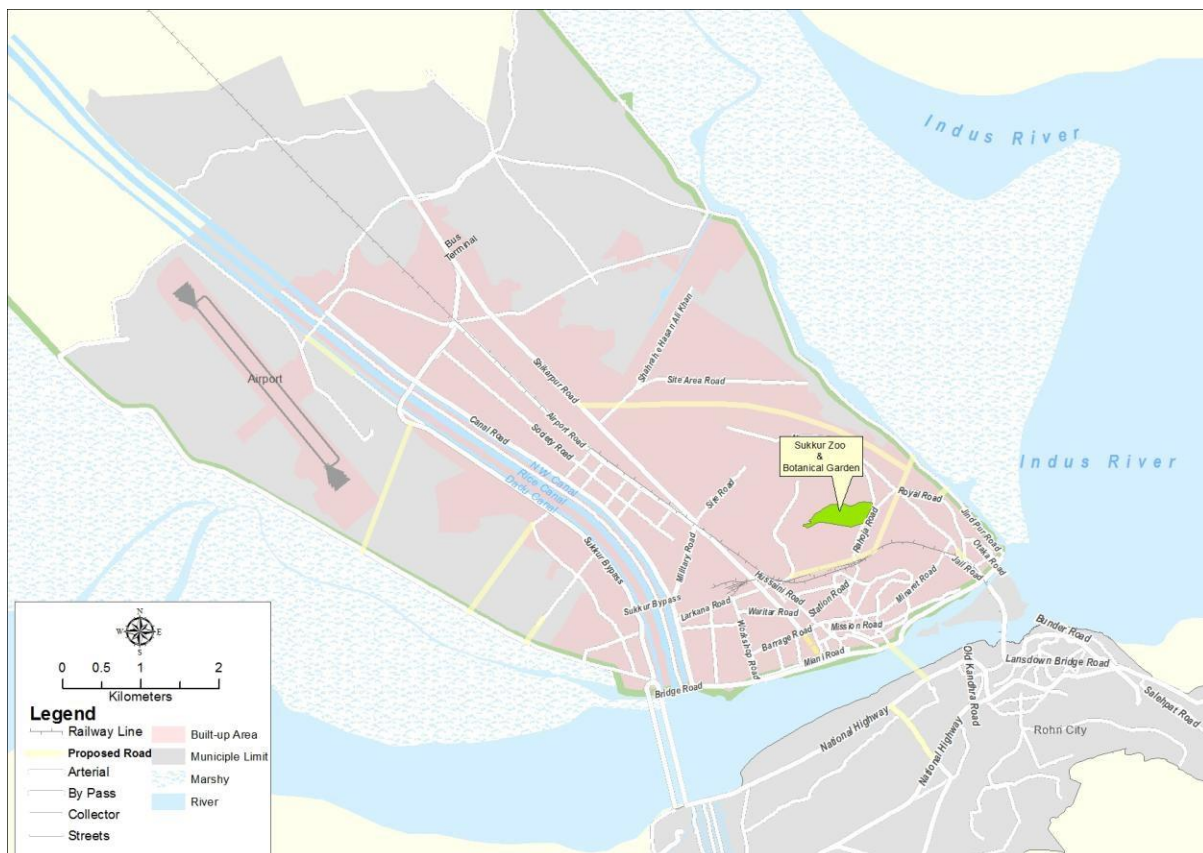


Figure 5-22: Proposed Sukkur Zoo & Botanical Garden



Figure 5-23: Proposed Conceptual Design of Sukkur Zoo & Botanical Garden

#### Project Benefits

It will provide better leisure facility and contribute in the overall improvement of health of the citizens of Sukkur and surroundings.

#### Executing Agency

Sukkur Municipal Corporation

**Estimated Cost:** PKR 500 Million

- d) Phase 1: Detailed Feasibility Study / Master Plan for Zoo and Botanical Garden (PKR 20 Million) – Short-term
- e) Phase 2: Land Possession and construction of peripheral road and boundary according to the master plan (PKR 130 Million) – Short-term
- f) Phase 3: Development of Zoo and Botanical Garden mostly on PPP modality (PKR 350 Million) – Long-term

## 5.4 INFRASTRUCTURE DEVELOPMENT PROJECTS

### 5.4.1 IMPROVEMENT OF WATER INTAKE WORKS

#### Project Justification and Technical Description

The overall objective of the proposed project is optimal solution for the raw water intake for Sukkur, since the current intake is inadequate especially during the dry season. The proposed project's aim is to get an uninterrupted water supply for treatment to supply potable water to Sukkur Micas mentioned in the NSUSC studies.

The project has the interrelated objectives to improve the raw water supply collection for water supply in the main water treatment works of Sukkur (i.e. Bunder Road WTP and Numaish Gah WTP) serving about two third of total projected (year 2035) population of over one million particularly at times of low flow in the River Indus.

The proposed project includes:

- Construction of RCC structure, sump chamber (20 x 10 x 20 ft.) to receive water from near end of the right bank. A set of 3 x 36 inch pipes each about 200 ft. length will be jacked into the riverbed horizontally to emerge into the free flowing zone at the designated intake point.
- Construction of pump house (27 x 38 ft.) at Bukkur Island above the sump chamber. Turbine suction will be lowered into the sump chamber. The pump house will be constructed on six piles.
- Construction of sub-station, which will include electric panel room for turbines, transformers, and generators on Bukkur Island.
- Laying of 3 x 36 inch diameter pipes below the ground surface of Bukkur Island and under the Riverbed. The total length of the pipes will be 1000 ft. and the pipelines will be laid 5 ft. below the ground surface.
- The project includes sump chamber, pump house, electric panel room, and laying of pipelines. The entire length of the pipeline is underground.
- The proposed pipelines have been sized for a capacity of 36 MGD with a diameter of 36".

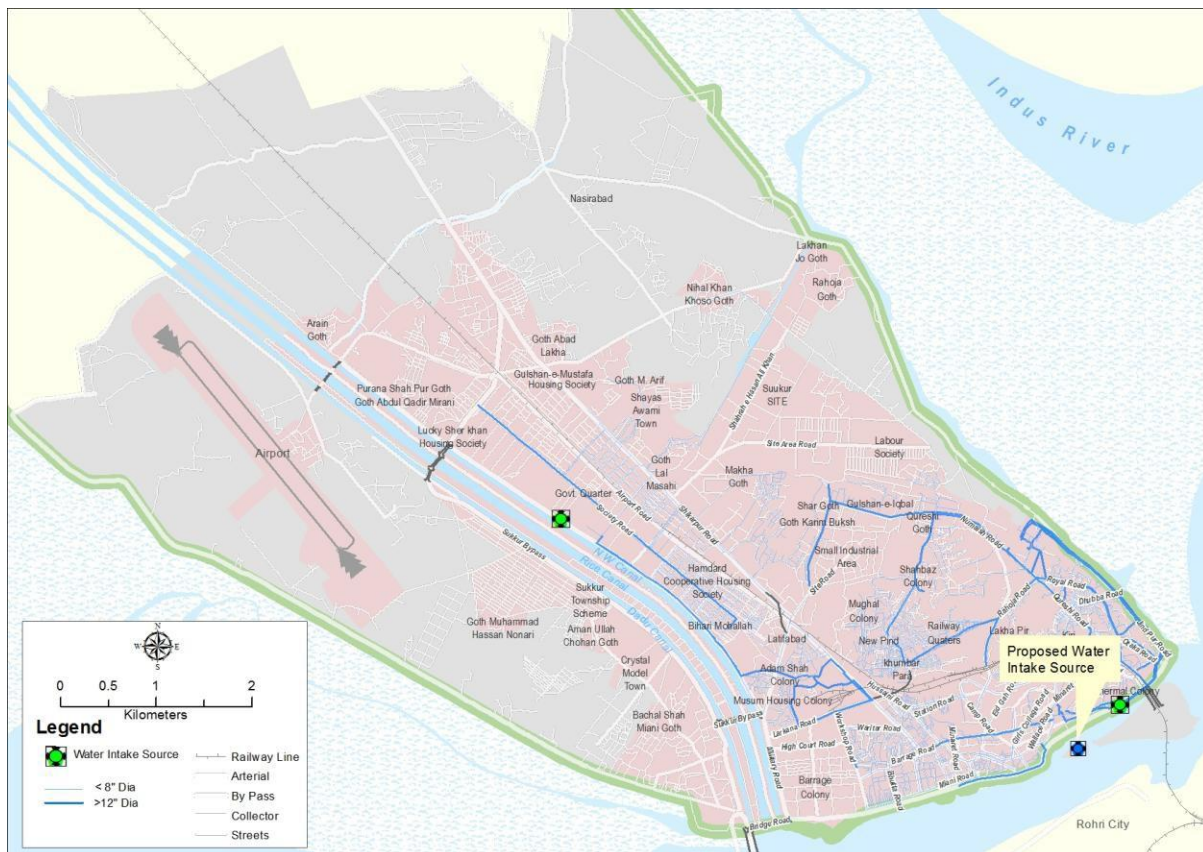


Figure 5-24: Improvement of Water Intake Source

### Project Benefits

People of Sukkur are facing acute shortage of water supply. After implementation of this project, there would not be any shortage of supply within Sukkur MC Area. Upon improvement in intake then supply can be distributed easily.

### Executing Agency

NSUSC, Sukkur MC, Government of Sindh

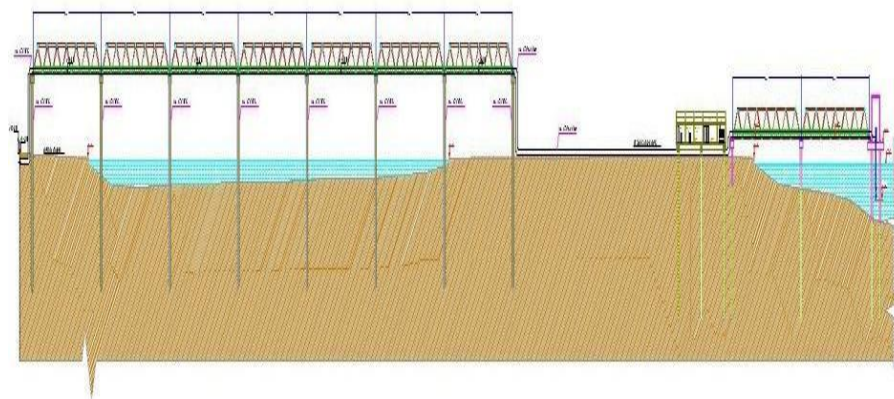
**Estimated Cost:** PKR 300 Million

## 5.4.2 IMPROVEMENT OF WATER INTAKE WORKS AT BUKKUR ISLAND

### Project Justification and Technical Description

The existing water intake to supply raw water for treatment, which is ultimately supplied to Sukkur and New Sukkur faced shortfall during the opening of the gates at Sukkur Barrage by lowering the level of water. The proposed water intake is planned at the Rohri side of Bukkur Island. The proposed water intake is located in the area having high level of water even during the period when the gates of the barrage are opened for maintenance.

The project includes construction of steel bridge on piles from shore of far side of Island to the near edge of the bank of the Indus River. The proposed route starts from far end of Bukkur Island and travels over-head horizontally to reach the near end of the right bank of Indus River. Pump house will be constructed at inside River Indus at the end of bridge using six piles and turbine suction will be lowered into river water. The steel bridge in this option crosses over the Bukkur Island and Indus River to reach right bank of Indus River. The total length of the route will be 1200 ft.



### Project Benefits

People of Sukkur are facing acute shortage of water supply. After implementation of this project, there would be no shortage of supply within Sukkur MC Area.

### Executing Agency

NSUSC, Sukkur MC, Government of Sindh

**Estimated Cost:** PKR 750 Million

### 5.4.3 IMPROVEMENT OF PUMPING STATIONS

#### Project Justification and Technical Description

As the water intake, and treatment plant capacities will increase therefore it is necessary to improve the pumping stations capacities as well. Most of the pumping stations are being improved through NSUSC program of improvement of pumping station but it is very limited considering only current capacity of treatment plans.

#### Project Benefits

Improvement of pumping stations mean increment in revenue.

#### Executing Agency

NSUSC, Sukkur MC, Government of Sindh

Estimated Cost: PKR 300 Million

### 5.4.4 ADDITION OF RISING MAIN FROM INTAKE AT RIVER INDUS TO NUMAISH GAH TREATMENT PLANT

#### Project Justification and Technical Description

As we have already described that Sukkur have been distributed into seven administrative zones, where most of the population lives in Sukkur East, Sukkur West, and Sukkur Central Business District and to cater the demand of water supply a new rising main should be laid followed by expansion of treatment plant on Bunder Road and Numaish Gah. This rising main will be of 24" dia having the length of approximate 3.5 km. A detailed study required for the actual costing.

#### Project Benefits

After laying this rising main, the water supply would increase and sufficient to residents of Sukkur East Sukkur West and Sukkur CBD Zone. After implementation of this project, there will be no shortage of supply within Sukkur MC Area.

#### Executing Agency

NSUSC, Sukkur MC, Government of Sindh

Estimated Cost: PKR 500 Million

### 5.4.5 ESTABLISHMENT OF TESTING LABORATORIES AND MONITORING MECHANISM

#### Project Justification and Technical Description

Testing laboratories are lacking in Sukkur and monitoring mechanism is not established, which is causing health and environmental issues for the citizens of Sukkur MC. Water is supplying to Sukkur MC without filtration in most of the areas and there is no monitoring mechanism. It is very essential to establish a monitoring mechanism and testing laboratories to check the quality of water supplied from fully functional treatment plants.

#### Project Benefits

Establishment of testing laboratories and monitoring mechanism will definitely improve the overall condition of water supply, which will prevent from water borne health issues.

### Executing Agency

NSUSC, Sukkur MC, Government of Sindh

Estimated Cost: PKR 500 Million

## 5.4.6 IMPROVEMENT / NEW CONSTRUCTION OF SETTLING TANKS AT RIZVIA, BUNDER ROAD AND NUMAISH GAH

### Project Justification and Technical Description

The present water supply in Sukkur is only 11 MGD, which is insufficient for Sukkur. The water supply demand of current estimated population is 22.1 MGD where intake sources are limited. Therefore, the proposed project for intake improvement at Bukkur Island can be extended / new construction of settling tanks Bunder Road and Numaish Gah. This project proposed by NSUSC and aims at;

- Providing adequate quantity of water to the city
- Upgrading the quality of water supplied to the city
- Replacing / improvement of piping. Silt and weed clearance
- Renovation of rising mains

Provision of water of acceptable quality and in the required quantity will improve the hygienic conditions of the population and improve the efficiency of industries and other institutions, which are, at present hampered by dismally low water quantity and poor quality. The further improvement in water supply networks can be achieved through;

- Construction of an additional / improvement in intake channel of Rizvia, Bunder Road, and Numaish Gah to cater the requirement / demand of Sukkur city.
- Construction of an additional raw water reservoir for Rice or NW Canal next to the existing ones.
- Construction of rapid sand filters, including chemical stores and dosing unit, air and water scour unit, pre-and-post chlorination with laboratory to supply bulk water to Sukkur including sludge pump, pipe works, and sludge lagoon.
- Construction of underground treatment, water reservoir.
- Installation of high pressure pumps, equipment to pump treated water to elevated water tanks.
- Rehabilitation improvement and extension of water distribution network.

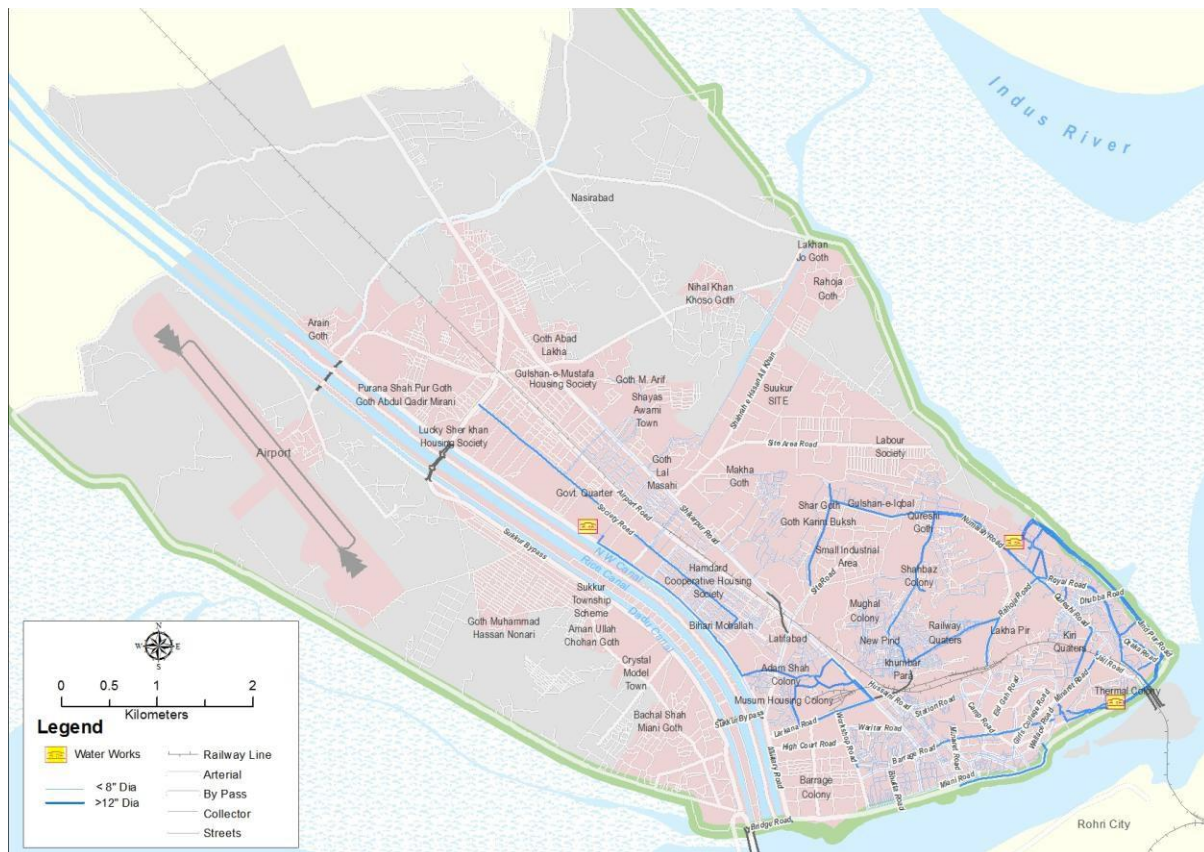


Figure 5-25: Improvement & New Construction of Settling Tanks

### Project Benefits

The project will create direct financial benefits. With noticeable improvement of the service, the municipality will be able to increase water rates up to the consumer's affordability level to recover at least O&M cost. Improve service will also assist efforts to maximize the recovery rates.

### Executing Agency

NSUSC, Sukkur MC, Government of Sindh

**Estimated Cost:** PKR 750 Million

## 5.4.7 REHABILITATION / CONSTRUCTIONS OF OVERHEAD TANKS

### Project Justification and Technical Description

At present there are three operational over-head reservoirs having total reported capacity of 13 MGD, at Takri Adam Shah and Islamia College. The rehabilitation of all operational or non-operational existing over-head reservoirs in Sukkur are required and included in this project. With respect to the projected population of Sukkur until 2035, it would require additional over-head tanks as well.

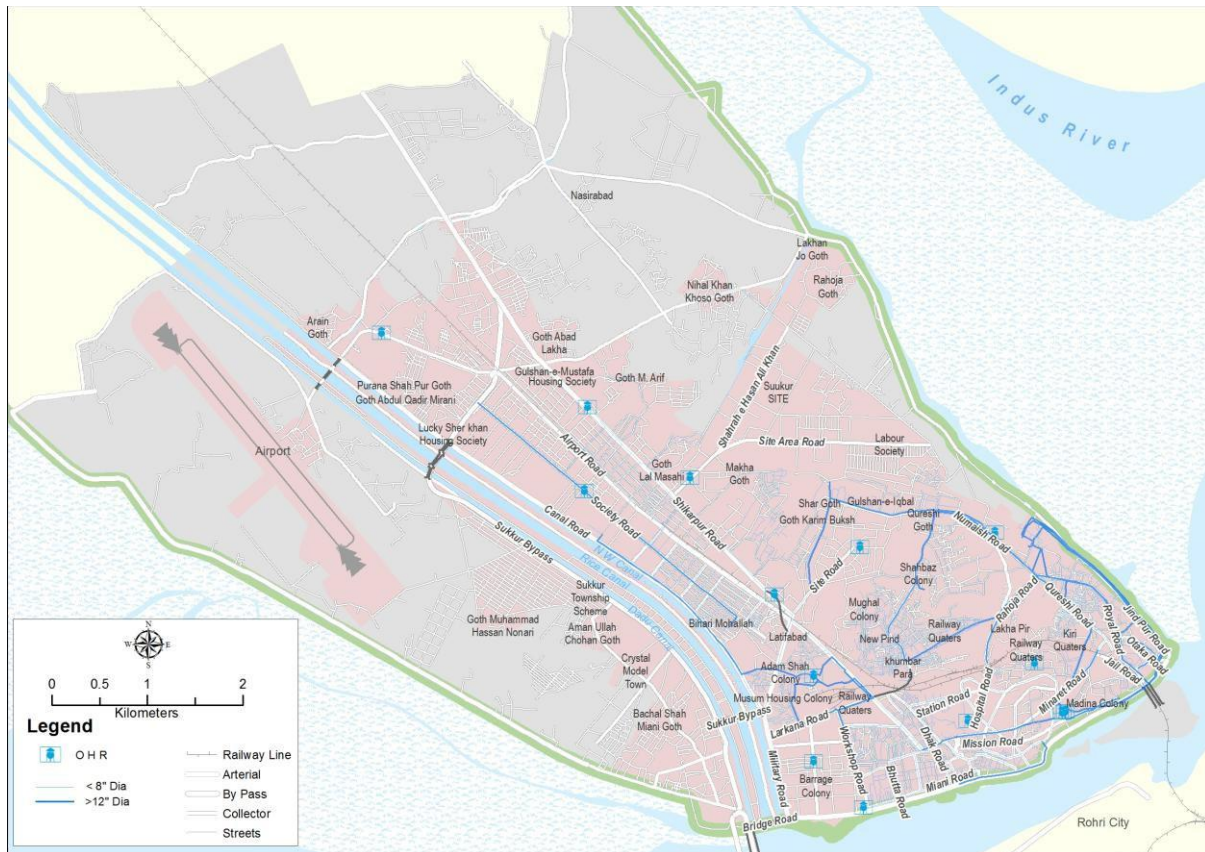


Figure 5-26: Construction of Overhead Tanks

### Project Benefits

The project is expected to materialize considerable benefits due to more efficient operations in the water supply. In addition, financial benefits are expected to accrue since improved operations will enable have a more efficient pricing policy to be implemented.

### Executing Agency

NSUSC, Sukkur MC, Government of Sindh

**Estimated Cost:** PKR 100 Million

## 5.4.8 INSTALLATION OF WATER METERS

### Project Justification and Technical Description

The main purpose of this project is to;

- Achieve an equitable distribution of charges among the various consumers (i.e. proportionate to the quantities consumed);
- Increase the revenues of the operating agency; and
- Reduce the wastage of water with the help of a better control system of the supply operation. Installation of water meters is also expected to result in better operation and maintenance practices from the consumers, which at present have no incentives to maintain their installations and fixtures to reduce water leakages.

### **Project Benefits**

It will enable for the more efficient water pricing policy thus considerably increasing the municipality's revenue and reduction in overuse and waste water and.

### **Executing Agency**

NSUSC, Sukkur MC, Government of Sindh

**Estimated Cost:** PKR 100 Million

## **5.4.9 CONSTRUCTION OF SEWAGE TREATMENT PLANT AND DISPOSAL WORKS**

### **Project Justification and Technical Description**

At present, wastewater and surface drainage in Sukkur are subjected to screening only, un-treated wastewater is disposed off directly to River Indus, and Rice Canal from the disposal works in the west of the city. Untreated sewage from the Sukkur East is disposed off to River Indus and ponding areas of East and North Sukkur of Sukkur. The pumps of disposal stations are not working on their full capacity due to which ponding have been created, rather increasing and affecting peoples' health.

The disposal of untreated wastewater to the canals is unacceptable as the water is used for agricultural purposes as well as for drinking in the down-stream settlements. Therefore, the purpose of this project is also to protect the health of the population using the irrigation canal water and to safeguard the agricultural land in the area.

The project includes:

- Installation of grit pump in disposal works;
- Construction of existing main disposal works and rising main to oxidation ponds;
- Installation of pump to discharge wastewater from the oxidation ponds to Rice canal and the Indus River.
- Installation of sludge pumps for regular periodical removal of sludge from oxidation ponds to sludge drying beds.

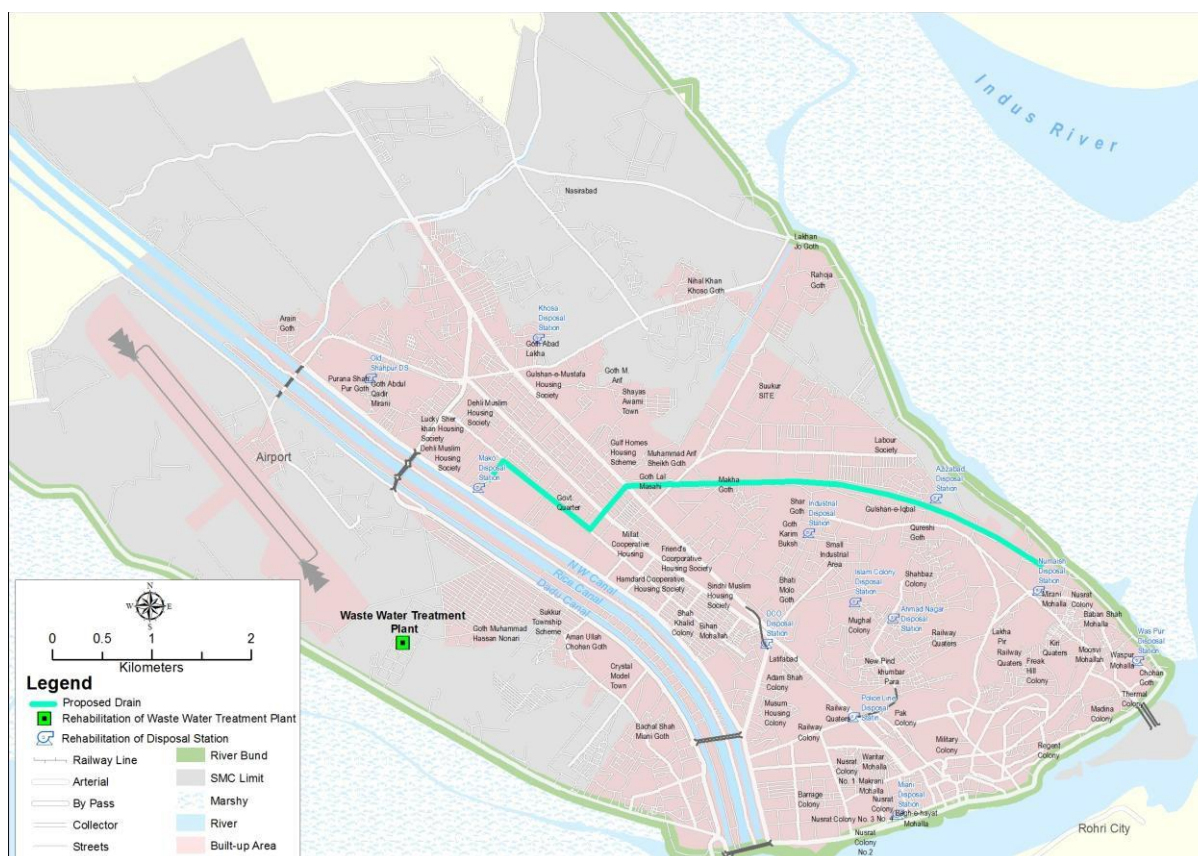


Figure 5-27: Rehabilitation of Disposal Stations

### Project Benefits

The project is expected to improve hygienic conditions considerably. This will have a direct positive impact over the whole population. In addition, financial benefits are expected to accrue since improved operations in the sector will enable the municipality to increase charges up to the consumer affordability level. It is assumed that consumers will appreciate the improved services and will eventually become more cooperative towards the revenue collection process.

### Executing Agency

NSUSC, Sukkur MC, Government of Sindh

**Estimated Cost:** PKR 2 Billion

### 5.4.10 EXTENSION OF EXISTING STABILIZATION PONDS AND CONSTRUCTION OF SEWAGE TREATMENT PLANT AND DISPOSAL WORKS

#### Project Justification and Technical Description

In Sukkur, much of the sewerage water is pumped or drained untreated to the River Indus in North West Canal. Which surround the town from three sides over or through flood protection bunds, some goes to ponds which have become highly polluted especially in quarried areas and on the eastern side of the town and some passes to the sewage stabilization pond through the Mega Project sewers and pumping stations. These required extension and rehabilitation works for safe disposal of treated effluent.

The sewerage network has been provided to meet specific local needs with little strategic planning and this has led to unnecessary numbers of Disposal Stations in close proximity. The Mega Project to

bring all the wastewater from the town to a common treatment plant is an appropriate strategic solution but there is need to rationalise the secondary collection networks.

The disposal of untreated sewerage to the canals / river is unacceptable as the water is used for agricultural purposes as well as for drinking in the down-stream settlements. Therefore, the purpose of this project is also to protect the health of the population using the irrigation canal water and to safeguard the agricultural land in the area.

The project includes:

- Installation of grit pump in disposal works;
- Construction of existing main disposal works and rising main to oxidation ponds;
- Installation of pump to discharge wastewater from the oxidation ponds to Katcha areas of Indus bed for the purpose of irrigation and in flood season to Indus River.
- Installation of sludge removal system for regular periodical removal of sludge from oxidation ponds to sludge drying beds.



Figure 5-28: Rehabilitation of Disposal / Pumping Stations

### Project Benefits

The project is expected to improve hygienic conditions considerably. This will have a direct positive impact over the health of population. In addition, financial benefits are expected to accrue since improved operations in the sector will enable the municipality to increase charges up to the consumer affordability level. It is assumed that consumers will appreciate the improved services and will eventually become more cooperative towards the revenue collection process.

### **Executing Agency**

NSUSC, Sukkur MC, Government of Sindh

**Estimated Cost:** PKR 2 Billion

## **5.4.11 REHABILITATION OF EXISTING FORCE MAIN**

### **Project Justification and Technical Description**

It has been observed that existing force main have become non-operational in most of the areas of Sukkur MC. The force main required rehabilitation in most of the areas of Sukkur MC to prevent development of sewerage ponds in Sukkur East and Sukkur West Zone specially.

### **Project Benefits**

Sukkur does not have proper sewage and drainage system causing un-healthy and un-hygienic conditions in Sukkur. The rehabilitation will improve the system and provided healthy environment in Sukkur.

### **Executing Agency**

NSUSC, Sukkur Municipal Corporation

**Estimated Cost:** PKR 500 Million. However, a detailed study is required for proper designing and costing.

## **5.4.12 DISPOSAL SYSTEM OF EFFLUENT FROM TREATMENT PLANTS**

### **Project Justification and Technical Description**

It has been observed that treatment plants are not fully functional in Sukkur MC Area due to lack of funding and skilled / professional staff to monitor. It is very essential that a mechanism should be developed along establishment / extension of treatment plants for effluent generate by treatment plants.

A detailed study is required for evaluation of treatment plant's capacity and draw the mechanism of disposal of effluent generated by treatment plants.

### **Project Benefits**

This mechanism would increase the life of treatment plants and avoid any hazardous situation to occur.

### **Executing Agency**

NSUSC, Sukkur Municipal Corporation

**Estimated Cost:** PKR 175 Million. However, a detailed study is required for proper designing and costing.

### 5.4.13 PROPOSED PRIMARY TRUNK SEWER SYSTEMS

#### Project Justification and Technical Description

The trunk sewer arrangement has been prepared for the whole of the NSUSC service area up to 2030.

The main criteria for the arrangement are:

- To bring flows to the existing wastewater stabilization pond site proposed for the construction of a new wastewater treatment plant.
- To generally follow natural drainage paths within the catchment boundaries
- To follow the routes of the main Mega Project trunk sewers to allow replacement over time maintaining secondary sewerage arrangements
- To greatly reduce the number of pumping stations required and to locate these at sites of the existing pumping stations.

The main routes are close run south, north along the west side of the town following the existing Mega Project sewers, which take flows from the old town center in the South. New trunk sewers proposed to serve the eastern part of the city, the central area, and developing areas to the north, taking flows across to the east for delivery to the wastewater treatment plant.



Figure 5-29: Proposed Sewerage Network

#### Project Benefits

The project is expected to improve hygienic conditions considerably. It is assumed that consumers will appreciate the improved services and will eventually become more cooperative towards the revenue collection process.

### **Executing Agency**

NSUSC, Sukkur MC, Government of Sindh

**Estimated Cost:** PKR 1000 Million

## **5.4.14 PROPOSALS FOR TRUNK SEWERS**

### **Project Justification and Technical Description**

Locally made spun reinforced concrete pipes are often of poor quality and frequently incur fractured joints due to the poorly formed spigot and socket rubber-ring pipe joints. These are often repaired with concrete surrounds, which makes them ridged, and any ground movement causes cracking and joint leaks. They are also not protected from hydrogen sulfide attack from septic sewage, which can ultimately cause the pipe to fail. The Mega Project sewers are un-protected spun reinforced concrete pipes.

The alternative is to use large diameter polyethylene (PE) or fiber reinforced plastic (FRP) piped sewers. These may have more reliable jointing systems and resist the hydrogen sulfide attack, but laying these pipes to maintain circularity requires careful control and special measures are needed at connections to ridged structures such as concrete manholes. More recently structured walled non-pressure PE pipes are manufactured, which provide greater rigidity and are of similar cost to the FRP alternative, and these are recommended. However, these are only manufactured up to 1200 mm diameter in Pakistan at present and imported pipes are much more expensive. Currently larger diameters would have to be in spun reinforced concrete and until integral neoprene linings are available, these should be painted with coal tar epoxy above the half diameter.

### **Project Benefits**

As Sukkur did not have any proper sewage and drainage system, therefore by implementing, un-healthy and in-hygienic conditions in Sukkur will be reduced.

### **Executing Agency**

NSUSC, Sukkur Municipal Corporation

**Estimated Cost:** PKR 500 Million. However, a detailed study is required for the designing and costing.

## **5.4.15 ESTABLISHMENT OF SEWAGE TESTING LABORATORIES AT EACH STP AND MONITORING MECHANISM**

### **Project Justification and Technical Description**

Sukkur is facing absence of testing laboratories and monitoring mechanism at STP, which will improve the life of STP and its contents and prevent any health and environmental issues for the citizens of Sukkur MC by means of using this treated water for agricultural purposes. Therefore, it is very essential to establish a monitoring mechanism and testing laboratories for testing treated water for cultivation.

### **Project Benefits**

Establishment of testing laboratories and monitoring mechanism will definitely improve the overall condition of STP, which will be used for agricultural purposes.

#### **Executing Agency**

NSUSC, Sukkur MC, Government of Sindh

**Estimated Cost:** Approximate PKR 300 Million

### **5.4.16 IMPROVEMENT / REHABILITATION OF EXISTING LINED / UN-LINED DRAINAGE SYSTEM**

#### **Project Justification and Technical Description**

The existing drainage system is not functionally present in any vicinity of Sukkur MC but utilizing sewer system to dispose it to nearby disposal point. The drainage system is designed un-properly which needs to be improve and rehabilitate accordingly. The Mega Project to bring all drainage water from the town to a common treatment plant is an appropriate strategic solution but there is need to rationalize the secondary collection networks.

#### **Project Benefits**

People of Sukkur are facing a great problem of settled water in Sukkur MC Area especially during rainy season, which would be resolved after proper designing of drainage network, disposal station and discharge point.

#### **Executing Agency**

NSUSC, Sukkur MC, Government of Sindh

**Estimated Cost:** Approximate PKR 300 Million

### **5.4.17 CONSTRUCTION OF MAIN DRAIN**

#### **Project Justification and Technical Description**

Almost one tenth of Sukkur City is in water logged and poorly served sanitation system. Most of the Old Sukkur city is under drainage water ponding with sewage mixing covering around 200 acres. Only the land cost of these ponding areas is over PKR 2 billion. This area can be rehabilitated by providing appropriate drainage and sewerage network, particularly surface drainage. The proposed solution is based on the open surface drain of 20-25 feet wide and variable depth up to 15 feet from surface level. The acquired 100 ft. ROW will carry not only the storm drain but also provide a new arterial road link and manage a utility corridor for all utility services including trunk sewer to cater the need of the adjoining areas such as Goshen-e-Iqbal, Makha Goth, Goth Lal Masahi etc. The proposed length is 20,727 ft. This drain would not go directly in Rice Canal but will connect with disposal station at Rizvia society or a new disposal works adjacent to it will be constructed.



Figure 5-30: Proposed Main Drain

### Project Benefits

After executing this proposal, a sufficient precious land will be reclaimed at prime locations of Sukkur City. The reclaimed land will be utilized for public amenities, institutional use, municipal services, and low-income housing and especially for the proposed Zoo and Botanical Garden, which will directly benefit the public and will contribute into the city's economy. The most significant benefit of the project will be the environmental upgrading and enhancement of city landscape.

### Executing Agency

NSUSC, Sukkur MC, Government of Sindh

**Estimated Cost:** PKR 5 Billion

## 5.4.18 PROPOSALS FOR SECONDARY DRAINAGE SYSTEMS

### Project Justification and Technical Description

Most of the area in Sukkur has serviceable secondary sewers and open drainage channels, which will need to be retained for future use, but it is proposed to cover the larger drains to prevent falling-in the solid wastes, but in due course, these may be replaced with secondary sewers. Covering the smaller drains would be difficult, and create hindrance in maintenance and is considered impractical. Readily lift-able pre-cast concrete covers with ventilation and drain holes are proposed for this purpose. Holes and / or gaps between the covers would allow the drains to be ventilated avoiding the

acidification of the sewage and the accumulation of hydrogen sulphide gas, which damages concrete and creates foul odors.

For new development, it is proposed to provide separate piped secondary sewerage. Spun reinforced concrete pipes are proposed, as there are no alternative inexpensive options available with brick manholes.

#### **Project Benefits**

As Sukkur, have not adequate sewage and drainage system so it will reduce un-healthy and in-hygienic conditions in Sukkur City.

#### **Executing Agency**

NSUSC, Sukkur Municipal Corporation

**Estimated Cost:** PKR 500 Million. However, a detailed study is required for the designing and costing.

### **5.4.19 CONSTRUCTION / DESIGN OF NEW DRAINAGE SYSTEM**

#### **Project Justification ad Technical Description**

The long-term plan for Sukkur has been to convey all drainage water from the town and treat it in a wastewater stabilization plant with the effluent used for irrigation. In years that are more recent the Mega Project has been established by PHED to provide trunk sewers and pumping stations and to extend the wastewater stabilization pond system, and some components of this are still under construction. The Mega Project sewers are large reinforced concrete sewers up to 1830 mm (72") diameter bringing flows to the Makko Disposal Station delivering to the wastewater stabilization ponds across the canals. These mostly serve the town centre and west of the town and other areas to a lesser extent but the basis of their design is not known. From invert level surveys of the Mega Project sewers, many are laid to very flat gradients so limiting their hydraulic capacity and not achieving self-cleansing velocities.

The older central area of the town and more recently developed western areas are mostly provided with secondary sewers but poorer areas north of the old town and along the east are less well served and more dependent on the open drains. The extent of the secondary sewer network except in the town centre is poorly recorded and difficult to locate on the surface and records are limited despite the surveys undertaken by MMP.

Despite the need for high maintenance, regular drainage flooding does not occur suggesting the sewer capacity in the well-served areas is generally adequate to meet present needs.

#### **Project Benefits**

People of Sukkur are facing a great problem of settled water in Sukkur MC area especially during rainy season which would be resolved after proper designing of drainage network, disposal station and discharge point and the areas where drainage system is present it needs to be cover for avoiding blockage in network.

#### **Executing Agency**

NSUSC, Sukkur MC, Government of Sindh

**Estimated Cost:** Approximate PKR 500 Million

#### 5.4.20 CONSTRUCTION OF NEW DRAINAGE PUMPING STATIONS

##### Project Justification and Technical Description

All the Disposal Stations are in very poor and unsafe condition, even those that have yet to be completed. Several of the pumps are not working and none has stand-by pumps in operational condition. The operating pumps require very frequent maintenance to clear blockages and for repairs, every day at some stations, and are at high risk of failure. Accumulated manually removed screenings require regular removal from the stations as often as every few days at some stations. However, there is no regular drainage flooding around the stations and if all the installed pumps were operational they would only be required to operate about 7 hr/day indicating that there is generally sufficient capacity. Nevertheless, none of the stations has a long-term asset value and any disposal stations required in the implementing of the Master Plan at the existing station locations are proposed to be demolished and replaced entirely.

##### Project Benefits

People of Sukkur are facing a great problem of settled water in Sukkur MC area especially during rainy season which would be resolved after proper designing of drainage network, disposal station and discharge point and the areas where drainage system is present it needs to be covered for avoiding blockage in network.

##### Executing Agency

NSUSC, Sukkur MC, Government of Sindh

Estimated Cost: Approximate PKR 400 Million

#### 5.4.21 SOLID WASTE MANAGEMENT AND WASTE TO ENERGY CONVERSION

##### Project Justification and Technical Description

The collection of the solid waste had been the responsibility of Sukkur MC before the formulation of NSUSC. The NSUSC have been contributing to keep clean the city by providing the basic municipal services including sewage disposal, solid waste management, storm water drainage, and provision of water supply.

The refuse collected from the dwellings and the street is transferred to collection points on a community basis from where NSUSC collect the waste for shifted to open dump in the Old Sukkur areal Sukkur area.

NSUSC has established its infrastructure in almost 75% of the urban built-up area of Sukkur City. Refuse is littering the streets where NSUSC has limited or no approach which resulting clogging the open drains and creating serious health hazards and inconvenience to the city population (breeding of diseases, odor etc.). The scavengers operating in the city are worsening the situation by scattering the refuse. A detailed feasibility study is proposed to develop an efficient waste management and waste to energy conversion.

### Project Benefits

The project will identify the feasible solution to improve hygienic conditions of the city. Besides that, refuse collection is expected to be improved in drainage and road maintenance. The waste to energy conversion project will provide the considerable amount of renewable energy on a sustainable basis.

### Executing Agency

Sukkur MC, NSUSC, Government of Sindh

**Estimated Cost:** PKR 250 Million

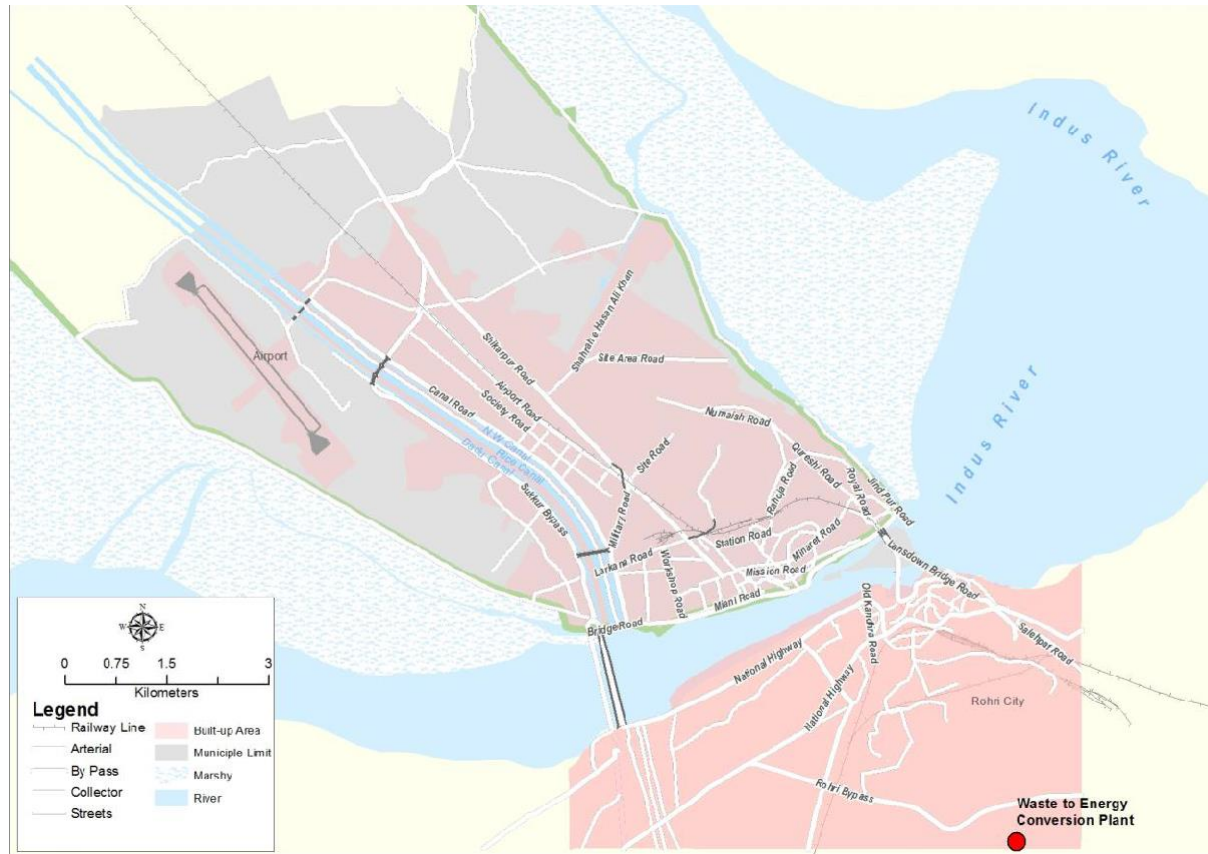


Figure 5-31: Solid Waste Management and Waste to Energy Conversion Plant

## 5.4.22 CONSTRUCTION OF LANDFILL SITE IN SUKKUR

### Project Justification and Technical Description

Neither Sukkur MC nor NSUSC have any suitable land for refuse disposal at present in Sukkur officially. As a result, refuse is disposed off at an open dumping site, which is near Numaishgah. NSUSC has developed a comprehensive proposal for a joint Landfill site in Rohri. The land for the development of landfill site is still to be acquired and detailed design and construction are to be executed.

### Project Benefits

Considerable health benefits are associated with the project.

### Executing Agency

NSUSC, Sukkur MC, Government of Sindh

**Estimated Cost:** PKR 1000 Million

## 5.5 ROADS AND COMMUNICATION NETWORK

### 5.5.1 REHABILITATION AND IMPROVEMENT OF ROADS

#### 5.5.1.1 BUNDER ROAD

##### Project Justification and Technical Description

Bunder Road is one of the busiest arterial roads running along the commercial area on one side and river Indus on the other side. Commercial loading vehicles and animal driven vehicles are common on this road, and significantly reducing the carrying capacity of this road. Apart from capacity deficiency, the overall existing condition is acceptable except for a 1.8 km long segment from Dua Chowk to Lansdowne Bridge. The Right of Way (ROW) of that segment is approximately 13 m with 9 m existing carriageway. The road condition is deteriorated due to excavation for lying in of sewerage lines. The presence of two rows of sewerage manholes on the main carriageway has significantly reduced the road capacity and causing accidents. It is recommended to rehabilitate this segment of road by raising it properly and flushing of the existing manholes with main carriageway. The existing road condition is depicted in Figure 5-32 and Figure 5-33. This project will be executed under Short Term Plan after the sewerage work is completed by NSUSC.



Figure 5-32: Bunder Road: Deteriorated Pavement Condition



Figure 5-33: Bunder Road: Road Condition after excavation for Sewerage Work

##### Executing Agency

Sukkur MC, PHED, Government of Sindh

**Estimated Cost:** PKR 150 Million

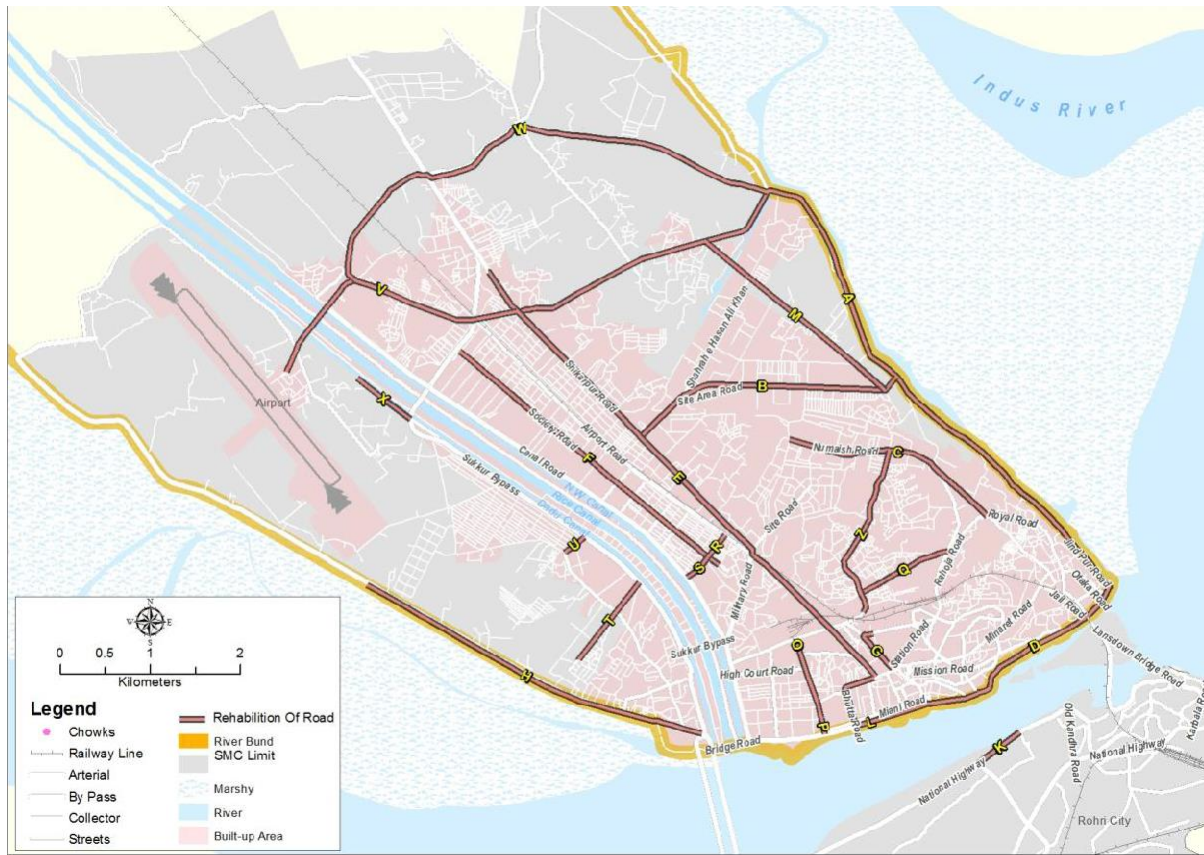


Figure 5-34: Rehabilitation of Roads Projects

### 5.5.1.2 NUMAISHGAH ROAD

#### Project Justification and Technical Description

On the present Numaishgah Road is divided into two segments; initial length of 600 m beyond Numaish Chowk is single carriageway with 7 m wide main carriageway and 1.5 m wide shoulders. The remaining major length of 1.8 km up to Shar Goth is dual carriageway with 6.1 m wide main carriageway, 0.61 m wide storm water drain and 2 m of unpaved area (mostly encroached) on both sides. This dual carriageway has a median of 7 m, which could be utilized for future widening and planning U-turns etc. Presently only one carriageway of the double road is being used for traffic movements resulting in deterioration of pavement structure with pot holes visible all along the road. It is recommended to rehabilitate the pavement structure of one carriageway and re-construction of the other carriageway to fully utilize the dual carriageway and make it functional. The project location is shown as "C" in and existing road condition is depicted in Figure 5-35 and Figure 5-36. This project will also be executed under the Short Term Plan.



Figure 5-35: Numaishgah: Deteriorated Pavement



Figure 5-36: Numaishgah Road: One Track Inundated and un-utilized

#### Executing Agency

Sukkur MC, PHED, Government of Sindh

Estimated Cost: PKR 180 Million

#### **5.5.1.3 SITE AREA ROAD**

##### Project Justification and Technical Description

Site Area Road serves mostly the industrial area traffic generated from both sides of the road. The road condition is relatively drivable from Pakola Chowk up to 800 m (out of a total length of 2.9 Kms) but beyond this point, the road condition is not good up to its dead end near Labor Society. The existing carriageway width is 8 m with 2 m to 3 m of shoulder on both sides. Within shoulder, streetlights and trees exist which are enhancing the overall ambiance of this road, however, the presence of sewerage / industrial waste ponds on either side is leading to unhygienic conditions in the area. It is recommended that all industrial sewerage should be properly treated and disposed off. The deteriorated segment of site area road should be rehabilitated to cater the heavy truck traffic plying on the road. The project location is shown as “B” in Figure 5-34: Rehabilitation of Roads Projects and existing road condition is depicted in Figure 5-37 and Figure 5-38.



Figure 5-37: SITE road: Trucks parked on Road



Figure 5-38: SITE road: Extreme Raveling of Pavement

### Executing Agency

Sukkur MC, PHED, Government of Sindh

Estimated Cost: PKR 150 Million

#### 5.5.1.4 SHIKARPUR ROAD

##### Project Justification and Technical Description

Shikarpur Road is an arterial road linking the downtown district with the outskirts developments like housing schemes, institutes, offices, bus terminal, etc. Given the functional classification of this road, it should be dual carriageway but owing to the existing encroachments, it is working as single carriageway with a width of 12.2 m with sewerage drain of 0.30 m width on both sides. 2 m to 2.5 m of shoulder on both sides is encroached by various shops etc. The road segment from Suzuki Stand Chowk to Shikarpur Phattak Chowk with approx. A length of 2 km is heavily encroached and pavement is severely deteriorated with the stripping of existing asphalt and potholes. The presence of animal driven vehicles has significantly reduced the carrying capacity of this road. However, the presence of street lighting on both sides has led to illumination at nighttime to facilitate vehicle movements. It is recommended to upgrade this portion to dual carriageway by introducing a median by removal of encroachments on both sides. Ideally, the Shikarpur Road being a primary arterial should be connected with Bunder road, but the build-up area in between is a major constraint. The existing road pavement structure should be strengthened to improve the drivable surface and traffic carrying capacity of the road. The project location is shown as “E” and “L” in Figure 5-34 and existing road condition is depicted in Figure 5-39 and Figure 5-40. This road rehabilitation project is planned to be executed under Short Term Plan while extension and dualization of this primary arterial should be considered for implementation under long-term plan, as it will warrant land acquisition and major removal of encroachments.

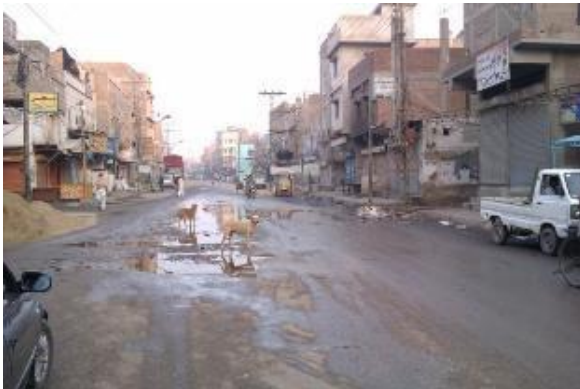


Figure 5-39: Shikarpur Road: Pot Holes with standing water



Figure 5-40: Shikarpur Road: ROW available for Dualization

### Executing Agency

Sukkur MC, PHED, Government of Sindh

Estimated Cost: PKR 150 Million

### 5.5.1.5 SOCIETY ROAD

#### Project Justification and Technical Description

Society road also designated as Abbasi Road by locals while inauguration board shows Imdad Ali Awan Road passes through new housing societies being developed. The 3.2 km length of this road has been already dual carriageway with a median, 9.6 m carriageway and 1 m shoulder on both sides. Street lighting also exists. The riding quality is not good due to asphaltic surface deterioration and presence of potholes. The major bottleneck is a 400 m stretch of this road, which is single carriageway having 6 m wide main carriageway with 0.3 m wide drain / sewerage channel. In this segment, 1 m width is encroached on both sides. It is recommended to convert this segment to dual carriageway after land acquisition to make it consistent with 3.2 km length and should be connected to Military road. The road needs to be strengthened with an overlay to cater the traffic flow specially, construction related traffic on this road. The project location is shown as "F" in Figure 5-34 and existing road condition is depicted in Figure 5-41 and Figure 5-42.

#### Executing Agency

Sukkur MC, PHED, Government of Sindh

Estimated Project Cost PKR 400 Million



Figure 5-41: Society Road: Dual Carriageway



Figure 5-42: Society Road: Rehab required

### 5.5.1.6 STATION ROAD

#### Project Justification and Technical Description

Station road primarily connects the traffic destined for railway station from downtown district and from out skirts via Shikarpur Road and Barrage Road. The station road leading to Ayub Gate is in good condition, however, a segment from Ghanta Ghar Chowk to Excise and Taxation office warrants rehabilitation. This 700 m long segment has a carriageway of 9.15 m with 0.31 m drains for sewerage collection. It is heavily encroached by shops on both sides. Recently a project was undertaken to install interlocking tiles / paver block along this road, but so far restricted to 100 m length only. Given the utility crossing issues and storm water related damages to the pavement surface of this road, it is recommended to stretch the pavement strengthening by use of 80 mm thick interlocking tiles / paver blocks along the damaged segment of 700 m. The existing sewerage manholes in the center of this road segment should be properly raised and flushed with the road surface to improve the riding quality

of this road. The project location is shown as “G” in Figure 5-34. Existing road condition is depicted in Figure 5-43 and Figure 5-44.



Figure 5-43: Station Road: Pot Holes



Figure 5-44: Station Road: Pavers recently Installed

#### Executing Agency

Sukkur MC, PHED, Government of Sindh

Estimated Project Cost PKR 40 Million

#### **5.5.1.7 WORKSHOP ROAD**

##### Project Justification and Technical Description

The Workshop road is an important road considering the presence of hospitals, hockey stadium, hotels, petrol filling stations, guesthouses etc. and serves as a vital link between Bunder road and Larkana road. Like Shikarpur road and Numaishgah road, this road is also not well planned. A 400 m long segment from Madrassa Chowk to Hockey Stadium is undivided with 12.2 m wide carriageway, 1.5 m covered drain on one side, which is also used as a footpath, and sewerage manholes located in the center of the road. In continuation, a 500 m long segment of this road from Hockey Stadium in Hira Medical Center is dual carriageway with 1.8 m wide medians, 8.5 m carriageway on one side and 10.0 m wide carriageway on the other side, 1 m to 1.4 m wide covered drains are functioning also as the footpath is located on both sides. A 100 m segment is an again dual carriageway with 1.8 m wide median, 9.15 m carriageway on one side and 14.6 m wide carriageway on the other side, 1.4 m wide covered drains functioning also as the footpath is located on both sides. Street lighting and tree plantation in the median has improved the ambiance of this road. Finally, a 200 m long segment towards Bunder road is single carriageway having width of 9.15 m, 1.4 m covered drain on one side, which is also used as footpath and 0.61 m open drains on the other side. It is recommended to upgrade entire length of this road into a dual carriageway after land acquisition. The project location is shown as “O” and “P” in Figure 5-34 and existing road condition is depicted in Figure 5-45 and Figure 5-46. This road improvement after rehabilitation will be executed under Short Term Plan while idealization of entire road will warrant land acquisition in single carriageway segment and encroachment removal, therefore will be part of long-term development plan.



Figure 5-45: Workshop Road: Single Carriageway Section



Figure 5-46: Workshop Road: Dual Carriageway Section

#### Executing Agency

Sukkur MC, PHED, Government of Sindh

Estimated Cost: PKR 140 Million

### 5.5.2 WIDENING / REHABILITATION OF BAGARJI ROAD AND LINK WITH EXISTING SUKKUR BYPASS

#### Project Justification and Technical Description

The widening and rehabilitation of this road and connection with Sukkur Bypass is essential to serve the newly planned housing schemes in this region. Although a 5.5 m wide carriageway do exist along 4.3 km stretch of Bagarji road but the dilapidated condition of the pavement structure and expected growth of traffic in this area warrants widening of this road to 7.3 m with 2.5 m wide shoulders. The connection of this road to Sukkur Bypass at exit and entrance is of significant importance to cater the influx of traffic flow of this region. The project location is shown as “H” and “I” in and existing road condition is depicted in Figure 5-47 and Figure 5-48. The road widening / rehabilitation will be implemented under Short Term Plan and construction of link road to connect Bagarji road to Sukkur Bypass will be part of Long Term Plan.



Figure 5-47: Bagarji Road: Temporary Underpass at Sukkur Bypass Bridge



Figure 5-48: Bagarji Road: Existing Single Carriageway

### **Executing Agency**

Sukkur MC, PHED, Government of Sindh

**Estimated Cost:** PKR 450 Million

## **5.5.3 WIDENING / REHABILITATION OF NEW PIND ROAD**

### **Project Justification and Technical Description**

New Pind Road is becoming a narrow street as it is facing a great encroachment on both sides of roads so it has become necessary to make it wide enough and retain this road as it is only rapid way to connect Numaishgah Road and New Pind UC to Sukkur CBD. The existing conditions of this road show that on some places it has become only 23 feet wide. This ROW of this road should be maintained at 30 m.

### **Executing Agency**

Sukkur MC, PHED, Government of Sindh

**Estimated Cost:** PKR 160 Million

## **5.5.4 NEW LINK BETWEEN SUKKUR AND ROHRI WITH NEW BRIDGE OVER RIVER INDUS**

### **Project Justification and Technical Description**

Considering the planned developments of twin cities of Sukkur and Rohri a new link is becoming essential. A new bridge over River Indus from Dua Chowk in Sukkur has been proposed with further enhancement of route via Bunder Road, Bhutta Road, Barrage Road and ultimately leading to Shikarpur Road. An ideal alignment would be to extend the Shikarpur Road to Bunder Road and align the bridge accordingly but the present build-up area in between Shikarpur Road present end i.e. Suzuki Stand Chowk and Bunder Road is a major constraint. Besides, this alignment will lead to increased length of bridge over River Indus thus resulting in higher cost. The alignment of this planned new link towards Rohri side also follows the existing roads passing through planned Education District and new housing schemes of Rohri before connecting with National Highway (N-65). The project location is shown as "J" in Figure 5-34 and road alignment towards Rohri side is depicted in Figure 5-49 and Figure 5-50.



Figure 5-49: New Link Traversing through Agriculture land in Rohri with Indus River and Sukkur in Back drop



Figure 5-50: Existing Road Connection with N-65 in Rohri

#### Executing Agency

Sukkur MC, PHED, Government of Sindh

Estimated Cost: PKR 2.5 Billion

### 5.5.5 IMPROVEMENT OF ROAD HIERARCHY BY CONSTRUCTION OF MISSING LINKS AND REHABILITATION OF EXISTING LINKS

#### Project Justification and Technical Description

While reviewing the overall road network of Sukkur, it was observed that the road hierarchy of Sukkur could be further strengthened by construction of missing links and widening / rehabilitation of some of the existing links. The construction of road on Katcha track “M” as shown in Figure 5-34 will enhance the site area traffic. The improvement of Link “N” near Bunder road is warranted. New links exhibited as “I”, “T”, and “U” in Figure 5-34 will strengthen the connectivity between existing Bagarji road and Sukkur Bypass. Construction of new links “R” and “S” in Figure 5-34 will strengthen the connections between existing Airport road, Society Road and Canal Road. The formation of new link roads identified as “V”, “W” and “X” will meet the city’s planned expansion in the north. Widening of existing road “Q” shown in Figure 5-34 will make the traffic flow efficient near Railway Quarters area. Construction of bridge over three parallel canals near Sukkur Township bypass to Sukkur IBA and an overhead railway crossing bridge at Gadani Phattak, Rahuja road are also part of this project. The railway crossing will facilitate the localities of Micro colony, Old Sukkur, Bhoosa Line, Gulshan-e- Iqbal and other important localities around.

#### Executing Agency

Sukkur MC, PHED, Government of Sindh

Estimated Cost: PKR 900 Million

### 5.5.6 TRAFFIC MANAGEMENT OF CBD AREA

#### Project Justification and Technical Description

The traffic movements in CBD area of any metropolis is of prime importance but neglected some of the major cities of Sindh including Sukkur. Few short-term low cost measures could be adopted to improve the traffic circulation in CBD area of Sukkur including:

- One way flow system on roads
- Prohibition of heavy traffic in CBD area
- Animal driven vehicles should be discouraged and, slowly and gradually removed from the traffic stream
- Road furniture including traffic signs and road markings should be done to channelize the traffic
- Major intersections including Ghanta Ghar Chowk, Suzuki Stand Chowk, Shikarpur Chowk etc. needs to be improved geometrically as well as aesthetically to enhance the ambiance of roads in Sukkur. Parking plazas should be constructed and no parking should be allowed in CBD area
- All encroachments should be removed from CBD area
- Construction of underground parking at Mehran Markaz near clock tower

#### Executing Agency

Sukkur MC, PHED, Government of Sindh

Estimated Cost: PKR 500 Million

### 5.5.7 STREET LIGHTING ON ROAD CORRIDORS AND KEY INTERSECTIONS

#### Project Justification and Technical Description

Though streetlights do exist on some of the roads in Sukkur, most of the roads are devoid of this facility. Street lighting is essential for safe maneuvering of vehicles at nighttime and to enhance sense of security of pedestrians on roads in dark hours. Given the energy crises in the country, it is recommended to have solar streetlights installed on all major roads and intersections of Sukkur.

#### Executing Agency

Sukkur MC, PHED, Government of Sindh

Estimated Cost: PKR 250 Million

## 5.6 ENVIRONMENT & DISASTER MANAGEMENT PROJECTS

### 5.6.1 DETAIL URBAN RISK ASSESSMENT OF SUKKUR AND ROHRI

#### Project Justification and Technical Description

Urban Risk assessment consists of hazard risk, specific to vulnerable areas and at various levels (Taluka and union committee). In addition, information to support planning, identifying priorities and making decisions for risk reduction is not centrally available.

Detailed Hazard, Capacity, and Vulnerability assessment HVCA needs to be undertaken neighborhood levels. To facilitate this, there is a need to develop a mechanism and system for collecting available information and continuous monitoring of hazard risks and vulnerabilities.

This multi-hazard risk assessment exercise should be undertaken by using GIS at local to city scales to define baseline for risk reduction and mitigation by the DDMA (District Disaster Management Authority) and other organizations following the already set guidelines by NDMA.

A central database should be developed and located at the District Emergency Operations Centre. The database will be made available to all stakeholders for access.

#### **Project Benefits**

After this exercise, DDMA will be able to update, contextualize and standardize assessment formats on yearly basis.

#### **Executing Agency**

District Disaster Management Authority, MCS etc.

**Estimated Cost:** PKR 200 Million

### **5.6.2 ESTABLISHMENT OF EMERGENCY OPERATION CENTRE (EOC)**

#### **Project Justification and Technical Description**

After facing earthquake and floods and other natural disasters all over Pakistan, it has now become a necessity to develop command-and-control setup in every district for rapid rescue operations. “District Emergency Operation Centre” is proposed to be establish in DC / DDMA office for any emergency operation and control.

#### **Executing Agency**

District Disaster Management Authority, MCS, NGOs etc.

#### **Project Benefits**

Rapid response to affected areas will save life of people.

**Estimated Cost:** PKR 50 Million

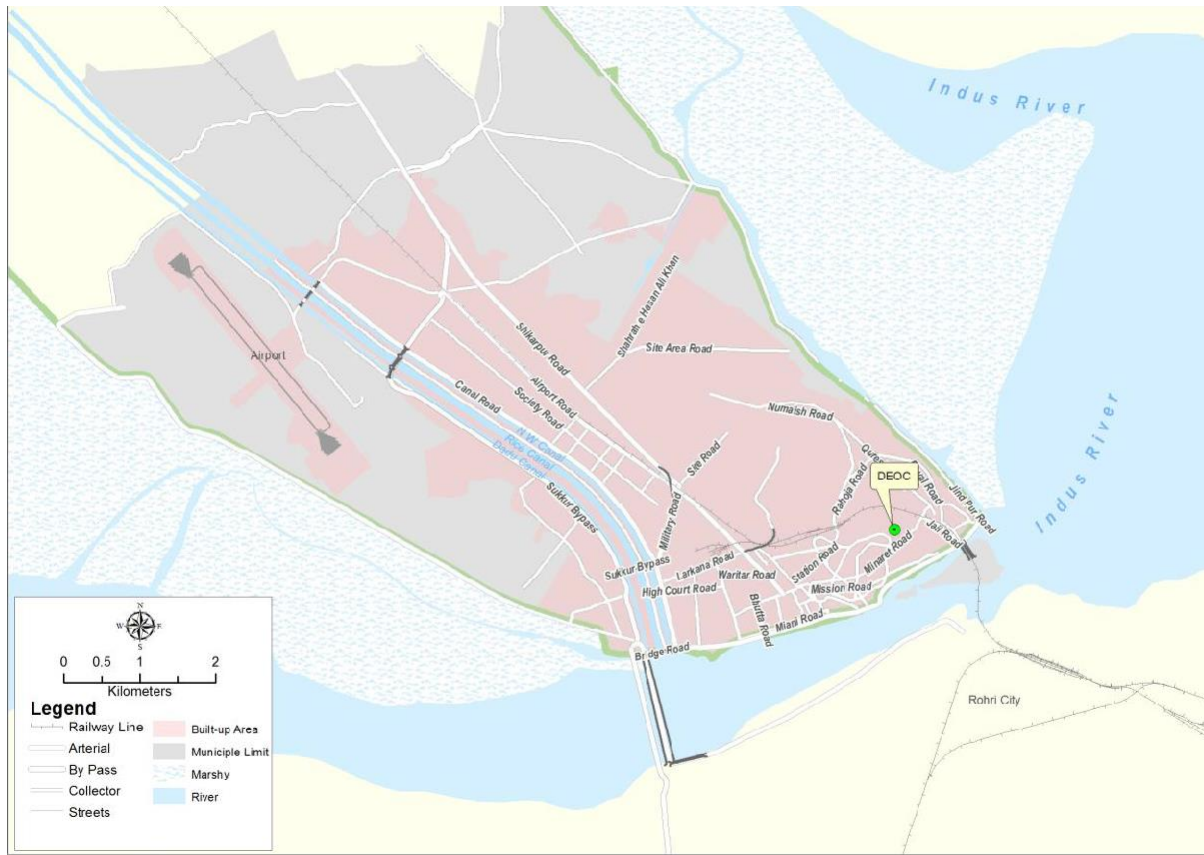


Figure 5-51: Establishment of Emergency Operation Center

### 5.6.3 STRENGTHENING OF RESCUE AND RESPONSE CAPACITY

#### Project Justification and Technical Description

Lack of knowledge of general public and local officials about severity of hazards that may affect them, associated risks, probable damage and precautions to be taken is perhaps one of the most significant hindrances in present day efforts to mitigate the potentially disastrous effects of most hazards.

Training and education would involve orientation about disaster risks and vulnerabilities, skill development on risk assessment, vulnerability reduction, hazard mitigation, and emergency response management like 1122 in Punjab province. This exercise will rehabilitate of existing setup of Firefighting, building collapse, etc.

#### Executing Agency

District Disaster Management Authority, MCS, NGOs etc.

#### Project Benefits

Specialized training in areas of response would also be needed; e.g. search and rescue, first aid, firefighting, evacuation, camp management and relief distribution. Considering the importance of media, DDMA will establish partnerships with electronic and print media and develop awareness of media personnel. DDMA training, education and awareness program can minimize loss of life, injury, suffering, and property damage in a community. An improved and up-dated firefighting and emergency response mechanism would be at place.

Estimated Cost: PKR 100 Million

The rough cost for this exercise would reach at cost PKR 300 million including civil works and equipment of two station but excluding recurring cost i.e. one in Sukkur North and one in Sukkur East.

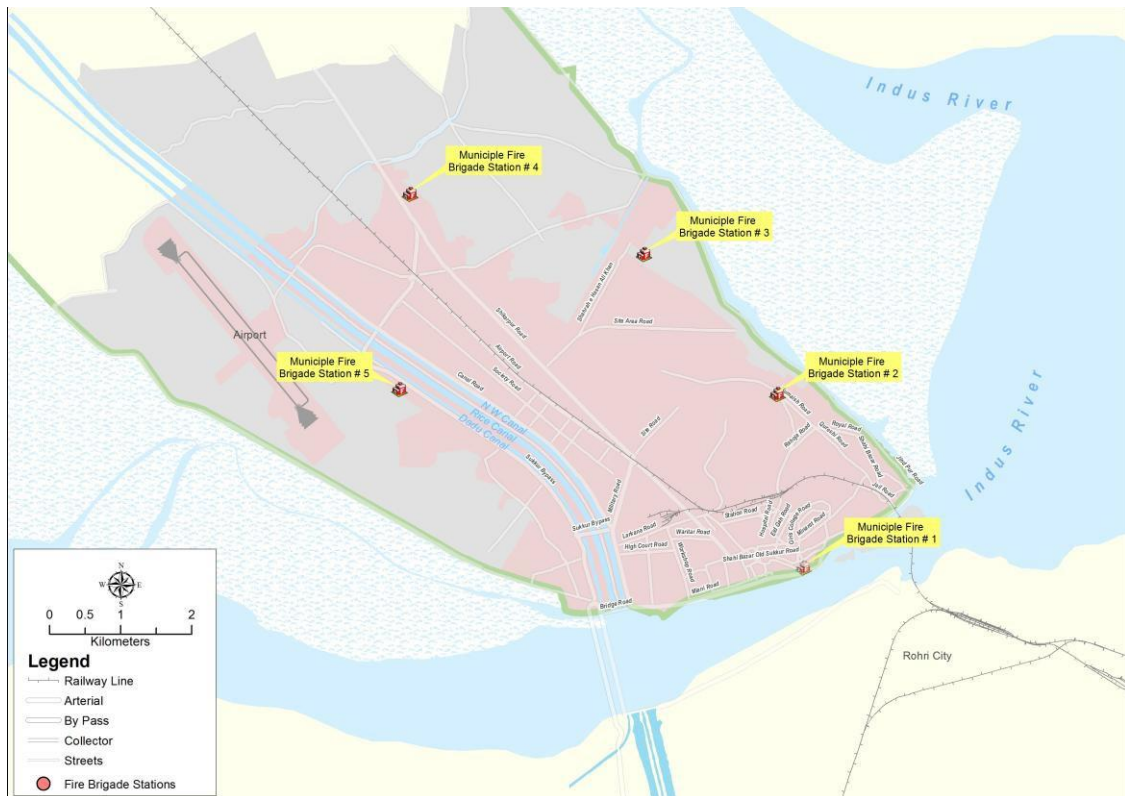


Figure 5-52: Proposed Rescue & Response Capacity Center

## 5.6.4 AWARENESS CAMPAIGN ON ENVIRONMENT AND DISASTER REDUCTION

### Project Justification and Technical Description

An important priority cited for the DDMA is to identify and develop a medium term, disaster awareness strategy and be equipped with financial and technical capacity to implement the strategy. DRM education, training, and awareness are required in multiple sectors, e.g. civil servants in government departments and offices, staff of technical agencies, NGOs, media and politicians and communities themselves being the first responders.

### Executing Agency

District Disaster Management Authority, MCS, NGOs etc.

### Project Benefits

DDMA will focus on following priority areas to enhance knowledge and develop technical skills on disaster risk management in the district.

- Develop DRM training curricula
- Identify competent trainers for DRM
- Conduct courses for district, municipal and local disaster management authorities in hazard prone areas in collaboration with PDMA and NDMA
- Develop public awareness materials (e.g. posters, brochures, booklets, videos) for training, education and public awareness
- Organize media orientations about its role in promoting DRM and community preparedness.

**Estimated Cost:** PKR 10 Million

## 5.6.5 IMPROVEMENT OF MICROCLIMATE OF SUKKUR CITY.

### Project Justification and Technical Description

The salient objectives of Sindh Forest Department are the management and protection of state owned forests and the maintenance and improvement of the environment. Interventions are also made to take Sindh a green and pollution free province. To achieve these objectives, potential areas need to be bought under tree cover and made green by developing green belts, establishing public parks and beautifying various available landscapes.

This project has also been envisaged to improve the microclimate of city Sukkur. Forests are the lungs of the earth and vital source for the clean air. This project can serve as an important source to capture greenhouse gases, mitigate adverse climatic changes, increase oxygen source, and provide wilderness opportunity, typical hot spot of river biodiversity for the residents of the Sukkur city and surrounding areas. Accordingly, this project would have a great impact on local tourism besides amelioration of microenvironment.

### Present status of the area

Bindi Dhareja forest is the reserved forest with an area of 7264.5 acres just along the Sukkur city river protection bund. It has a unique river eco-system. The main topographic features of the forest are degraded lands, tree patches, dhunds/dhoras and the blank areas.

### Project Benefits

It will be a unique national project to boost a local economic potential with significant benefits from local to national level. It will generate number of employment opportunities, revenues, and create a unique city landscape

### Executing Agency

Chief Conservator of Forests Sindh through Conservator of Forests, Afforestation Circle, Sukkur.

**Estimated Cost:** PKR 50 Million

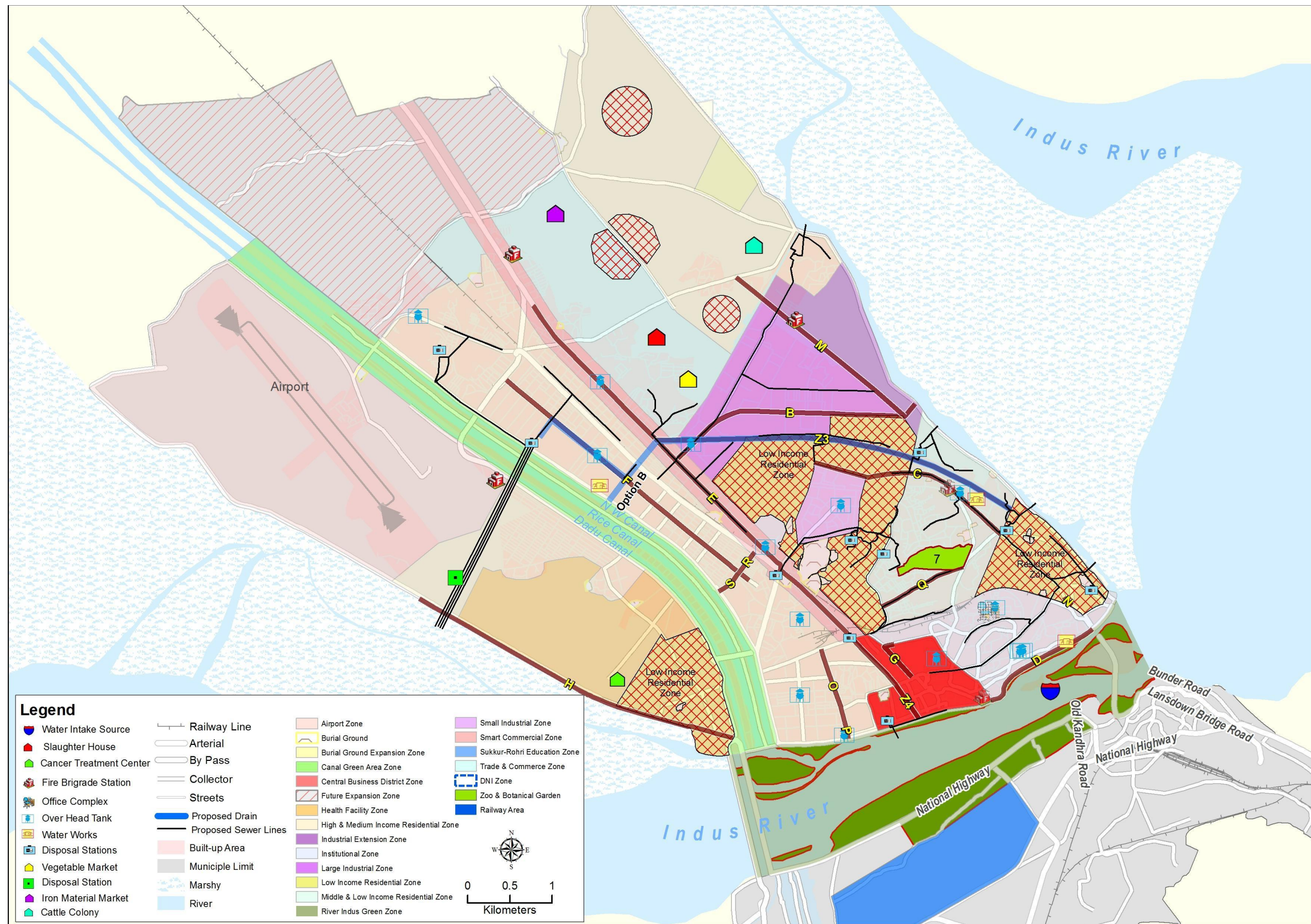


Figure 5-53: Short Term Proposed Projects

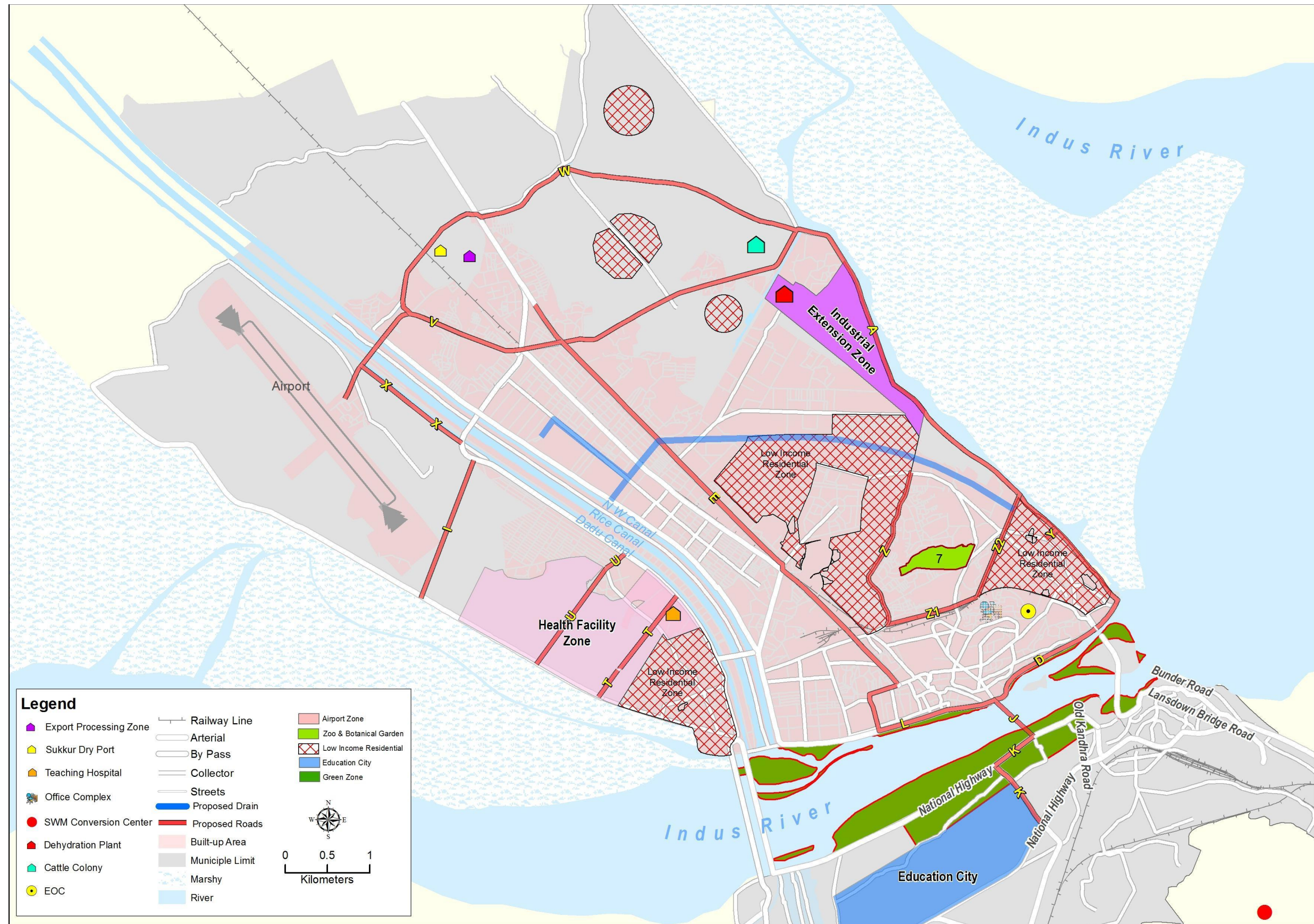


Figure 5-54: Short Term Proposed Projects

## 6 ECONOMIC DEVELOPMENT AND FINANCIAL PLAN

### 6.1 ECONOMIC DEVELOPMENT STRATEGY

Based on the development vision, urban growth strategy, goals, and objectives it is important to relate urban development strategy with local economic potentials and provincial priorities. Integrated strengths, weaknesses, opportunities, and threats have identified the priorities that need to be addressed to make a visionary Sukkur in future. However, existing economic appraisals are the backbone of the current development trends, which may lead to create a harmonic local economic development strategy (LEDS) with the urban growth and strategic development.

A multi-disciplinary group prepares the envisaged LEDS after analyzing the diversity of issues. During LEDS development, all possible stakeholders were consulted, including Sukkur city governance and administration, municipal managers, public service providers, builders, planners, industrialists, local business community, informal business representatives and community, public health and environment, media representatives, academicians and public in many cases. The engagements were focused on the understanding of urban dynamics, especially related to the development planning, economics and investment, infrastructure and utilities, health and social services, public administration, public finance, mapping, monitoring and evaluations. All plausible sector wise information was gathered, which was presented in front of stakeholders through various workshops and group meetings.

After the formulation of urban development vision, strategy, goals, objectives, and program a detailed list of projects were prepared in consultation with the stakeholders. The list covers the projects from all major sectors including economic development, social services development, housing, land use administration, transportation, infrastructure, environment, and disaster management. All projects were presented in detailed in front of stakeholders for setting up the priority based on urgency and significance. In this regard, the consultants and the client (Directorate of UP&SP) organized many consultation meetings. Two high-level dedicated stakeholders' workshops organized by the consultant are annexed at the end of the report (see Annexure A). These workshops were extended to line departmental joint follow up meetings, organized by Directorate of UP&SP on 9th and 14th of July 2014. In addition to the priority, project technical description, justification, salient benefits, responsible agencies, execution duration, estimated cost, and funding sources were also assessed. Eventually, the whole exercise was translated into short-term and long-term action plans.

In the short-term actions plan, the focus is on rehabilitation, improvements of utility services with high services delivery indicators. During this phase, the basic aim would be to enhance the urban service delivery and the first impression of Sukkur city. In short-term action plan, following priority projects are proposed for the period 2014-2020.

Table 6-1: Short-term action plan

DEVELOPMENT SECTOR	PROJECT
ECONOMIC DEVELOPMENT	Development / Urban Re-Generation Of Sukkur CBD and Selected Surrounding Areas within SMC Limits
	Construction of New Slaughterhouse
	Relocation of Iron / Building Material Market
	Revitalization and Expansion of Industrial Estates
	Shifting / Development of Fish and Vegetable Market
HOUSING, DETAILED PLANNING, FEASIBILITY PROJECT	Detailed Planning Feasibility of Identified Functional Zones
	Detailed Planning Feasibility of Office Complex
	Ground Water Study
	Feasibility Study of regeneration / renewal of area under Katchi Abadis
	Feasibility Study of Surface Drainage Network
	Feasibility for remodeling, extension and widening of existing road network
	Feasibility study of Construction of Proposed Iconic Bridge on River Indus
	Master Planning of Railway Land within SMC Limited
	Feasibility study of renewable energy production
	Feasibility study of River Indus Green Zone
	Feasibility study of Sukkur Zoo and Botanical Garden
	Feasibility Study and detailed master planning of Rohri Education City
	Feasibility study and detailed master planning of Healthcare City
	Feasibility study of Low Income Housing Projects
SOCIAL DEVELOPMENT PROJECTS	Construction and Rehabilitation of Primary Schools and allied Infrastructure
	Construction and Rehabilitation of Higher Secondary Schools / Colleges
	Development and improvement of public amenities including construction of Public Toilets and Emergency Health Centers
	Rehabilitation of historical monuments and public parks
INFRASTRUCTURE DEVELOPMENT PROJECTS	Improvement of Water Intake Works
	Improvement / New Construction of settling tanks at Rizvia, Bunder Road and Numaishgah
	Rehabilitation / Constructions of Over-Head Tanks
	Installation of Water Meters
	Extension of Existing Stabilization Ponds and construction of Sewage Treatment Plant and Disposal Works
	Proposed Primary Trunk Sewer
	Rehabilitation of Existing Force Main
	Solid Waste Management and Waste to Energy Conversion Feasibility Study
	Addition of Rising Main from Intake at River Indus to Numaish Gah Treatment Plant
	Establishment of Testing laboratories and Monitoring mechanism
	Disposal System of Effluent from Treatment Plants
	Improvement/ rehabilitation of existing lined and un-lined drainage system/ Covering of open drains
ROADS AND COMMUNICATION NETWORK	Rehabilitation and Improvement of Bunder Road
	Rehabilitation and Improvement of Numaishgah Road
	Rehabilitation and Improvement of Site Area Road
	Rehabilitation and Improvement of Shikarpur Road
	Rehabilitation and Improvement of Society Road
	Rehabilitation and Improvement of Station Road
	Rehabilitation and Improvement of Workshop Road

DEVELOPMENT SECTOR	PROJECT
ENVIRONMENT & DISASTER MANAGEMENT PROJECTS	Improvement of Road Hierarchy by Construction of Missing Links and Rehabilitation of Existing Links
	Traffic Management of CBD Area
	Street Lighting on road corridors and key intersections
	Rehabilitation and expansion of Sukkur power plant and Expansion of electric supply to newly developed areas
	Rehabilitation of the gas supply distribution network/ Expansion of gas supply network to newly developed housing schemes
	Detailed Urban risk Assessment of Sukkur and Rohri
	Establishment of EOC (Emergency Operation center)
	Strengthening of Rescue and Response Capacity
	Awareness Campaign on Environment and Disaster Reduction
	Improvement of microclimate of Sukkur City.

The long-term action plan for next fifteen years from 2020 to 2035 is translated from the long term Urban Development Strategy for Sukkur. It is focusing on sustainability and incremental development in all sectors. It would also correspond to the emerging needs of the residents and the economy of the area. It would also ensure the continuity of initiatives started in the short-term action plan period. In long-term action plan following major projects are proposed for the period 2020-2035.

Table 6-2: Long-term action plan

DEVELOPMENT SECTOR	PROJECT
ECONOMIC DEVELOPMENT	Development / Urban Re-Generation Of Sukkur CBD and Selected Surrounding Areas within SMC Limits
	Development of Indus River Green Zone
	Revitalization and Expansion of Industrial Estates
	Establishment of Dates and Dry Dates Dehydration Plant
	Development of Sukkur Export Processing Zone
	Development of Sukkur Dry Port
HOUSING, DETAILED PLANNING, FEASIBILITY PROJECT	Low-Income Housing Projects / Schemes
	Expansion of Sukkur Cattle Colony (Bhains Colony)
	Construction of Office Complex
	Renewal of Katchi Abadis / Slums area
SOCIAL DEVELOPMENT PROJECTS	Development of Sukkur – Rohri Education City
	Construction and Rehabilitation of Primary Schools and allied Infrastructure
	Construction and Rehabilitation of Higher Secondary Schools / Colleges
	Construction of 500 Beds General Teaching Hospital
	Sukkur Zoo and Botanical Garden
	Construction of Cancer Diagnostic and Treatment Centre
INFRASTRUCTURE DEVELOPMENT PROJECTS	Construction of Main Drain
	Proposals for Secondary Drainage Systems
	Improvement of Water Intake Works on Bukkur Island
	Improvement of Pumping Stations
	Construction and Rehabilitation of Primary Trunk Sewer System

DEVELOPMENT SECTOR	PROJECT
	Establishment of Sewage Testing Laboratories at each STP and Monitoring Mechanism
	Construction / Design Of New Drainage System
	Construction of New Drainage Pumping Stations
	Construction of Landfill site in Sukkur
	Construction of solar energy park near Salehpat and Hydropower generating units at irrigation canals
	Rehabilitation / constructions of overhead tanks / underground reservoirs
	Expansion of Solid waste management and waste to energy conversion
	Expansion of electric and gas supply networks for future development
	Rehabilitation and Improvement of Workshop Road
ROADS AND COMMUNICATION NETWORK	Widening / Rehabilitation of Bagarji Road and link with Existing Sukkur Bypass
	Rehabilitation and Improvement of Shikarpur Road
	Construction of Ring Road
	Widening / Rehabilitation of New Pind Road
	Truck Terminal
	New link between Sukkur and Rohri with new Bridge over River Indus
ENVIRONMENT & DISASTER MANAGEMENT PROJECTS	Strengthening of Rescue and Response Capacity
	Awareness Campaign on Environment and Disaster Reduction
	Development of DRM Plan based on multi-hazard urban risk assessment for Sukkur and Rohri also taking into account the impacts stemming from the phenomena of climate change

## 6.2 FINANCIAL PLAN

Table 5-1 provides priorities urban development projects as proposed under the urban development plan of Sukkur. It also includes proposed projects priority ranking (high, medium, low) along with its implementation timeframe or action plan to be completed either in the short run (2014-20) and/or in the long run (2020-35). The priority ranking and implantation timeframe are proposed and finalise by the consultants in consultation with Sukkurites/stakeholders in various meetings and seminars held in Sukkur city and in Karachi. These proposed projects are to be completed in three phases (phase I, phase II during 2014-20 period) and phase III during 2020-35). The numeric numbers under the table heading "Consultation with Stakeholders" represents the number of seminar participants who gave their affirmation in favor of a proposed timeline / priority ranking (Higher the numeric value higher the project ranking). The estimated cost of each project is ballpark estimates and generally takes into account rate of inflation and domestic taxes, and of sources of financing of the project keeping in consideration of interest rate and changes in the exchange rates.

The proposed priority projects are from sectors of Economic Development, Detailed Planning Feasibilities, Social Development, Infrastructure, Roads and Communication Network, Environment and Disaster Management Sectors.

The consultant altogether suggests 71 priority projects after detail assessment of the city existing infrastructure based on available data and inspection, level and quality of services and environment including elaborative consultation with the stakeholders. In total 52 high priority projects at a cost of PKR. 14.1 billion are proposed to be completed during the short run period i.e. 2014-20. The remaining

39 projects with estimated costs of PKR 51.1 billion are to be implemented in the long run i.e. 2020-35.

Based on the proposed development plan high priority projects, which requires detailed Planning and Feasibility, may be taken up in the phase I, as it will reap the maximum economic and financial benefits after completion. Following this, other high priority projects of social and economic infrastructure including projects, which fall under high, local and higher levels government priorities, are to be completed. In particular economic infrastructure development projects are more likely to start in the first phase that provides monetary returns in the form of revenue earnings through taxes and user charge recoveries; additionally it provides non-monetary benefits including leisure for the resident population. Remaining projects can be implemented in 10 to 20 year perspective.

### 6.2.1 BUDGETARY PROJECTIONS

Earlier analysis as mentioned in section 2 examines the federal and provincial budgetary data, own source revenues, recurring and development expenditure, and federal fiscal transfers, based on the available information. However, detailed and reliable baseline data on SMC own source revenues (taxes, non-taxes and user charges) and expenditures is not accessible to the consultant due to continuous strikes and lockouts in SMC offices during the survey phase of this project. In the absence of reliable budgetary data as well as effective local government system, and non-clarity in local government functional assignments after 2008 make us difficult to forecast future budgetary stream even in the presence of proposed reform of local resource mobilization in SMC.

On the contrary, federal transfer receipts to the provincial government are relatively clear but given the recently cropped up political crises in Islamabad badly hampered the national economic growth and onwards in federal revenue collection and transfers. Dr. Mifta Ismail, Chairman, Federal Board of Investment<sup>17</sup> states, “The economy has so far braved mammoth loss of Rs. 700 billion because of the current political instability that lasted almost for one month (This crises have now entered in to third month)”. This significant loss in economic growth and revenue collection is more likely to cut the PSDP allocations and onwards provincial shares in NFC transfer receipts and to local government transfers from the provincial government. Apart from this a new NFC award is likely to be announced in 2015 that will more likely to alter the future share of provincial revenue transfer receipts. Thus, revenue projection is not appropriate at this moment that would otherwise have significant variations in the expected and actual outcome.

It is also found earlier that the annual growth rates are exceptionally high for the PSDP allocations and revenue collection for Sukkur region, which is above 15%. It suggests that by 2020, Sukkur will have PSDP allocations of more than 8 billion and tax collection of more than 1.6 billion, which seems unrealistic. If this trend continues, Sukkur will not require any other financing resource for the proposed projects completed by the end of 2035<sup>18</sup>. Moreover, large differences exists between the allocated and released amount of PSDP. The released amount is the disbursement after taking the impact of various issues, which influence revenues. Hence, it is again for an academic interest if the

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<sup>17</sup> The News article, “Political Stalemate inflicts loss of Rs. 700 billion to economy” on 27<sup>th</sup> August 2014

<sup>18</sup> The PSDP allocation will reach above PKR 65 billion and revenue collection above PKR 12 billion by 2035.

projection based on such a limited data and relatively high budgetary growth is undertaken. However, it is possible to suggest indicative financing sources for proposed Sukkur urban priority projects. These sources of finance are discussed in financing options in section 4.3.4.

## 6.2.2 TAX REFORMS

In the light of above preposition, it is really challenging to devise a comprehensive financing plan for urban development projects of Sukkur. Once the appropriate budgetary data and provincial transfer receipts position from PFC award is clear, the detail urban financing plan may be devised. As earlier budgetary analysis of provincial and local government revenues identifies structural rigidities related to existing own source revenues, including tax, non-tax and user charges and fees. It is clearly suggested that there is a significant potential for revenue growth in provincial and local taxes particularly in the following taxes:

- Professional, trade and calling tax,
- Motor vehicle tax,
- Infrastructure cess,
- GST on services,
- Property tax

Also the suggested reforms in local and provincial governance and taxation structure can help increase the provincial and local revenues for UDS implementation:

- Improve tax administration by the Sindh Board of Revenue, provincial Excise and Taxation department and Sindh Revenue Board by building their capacity on modern tax administration and collection methods and practices either by imparting training to the existing staff or by recruiting highly skilled staff. Besides this local tax administration capacity also requires to be built to strengthen the revenue collection capacity to large urban councils like SMC
- Development of a system of rewards and penalties to increase tax collection efficiency of the administrative staff
- Provision of equipment and tools for automation and furnishing offices,
- Computerization and automation of various databases,
- Creation of linkages of sharing common tax bases among federal, provincial and local tax collecting agencies and departments,
- Setting up and rationalization of taxes, and user charges for local and provincial services subject to improvement in service levels with cost recovery to cover at-least, O & M cost of service provision,
- Revision in various tax rates, especially in municipal and provincial services, user charges and fees.

These reforms need to be addressed holistically and its effective implementation would significantly enhance the own tax, non-tax and user charge yield of provincial and local government which could be used to finance prioritized investment plan of Sukkur.

It is also expected that the local government system would be implemented soon with clear cut delineation of functional assignments and revenue power at all levels of local governments and provincial government. This is necessary because of transfers of 41 functional assignments out of 46 of the concurrent list from the federal government to the provincial government following approval of the 18<sup>th</sup> constitutional amendment. Downloading of functional assignments to the local

government will also increase the level of efficiency of public services in the functions that will fall in their domain.

With the reforms in expenditure assignments among provincial and local government there is a need to develop provincial finance commission (PFC) award for disbursement of provincial consolidated fund to various layers of local government based on the criteria of efficiency and equity for meeting local government expenditure obligation as well as it will guarantee transfers.

### 6.2.3 PRIVATE INVESTMENTS

Private sector plays an important role in the economic and social development of a country. One of the prerequisite to increase the private sector confidence is to create an effective regulatory and judicial framework to protect their investment and returns. It is also important that cost of doing business should be low for the private sector to efficiently operate and invest. The provincial government policy to increase the private sector confidence includes but not limited to laying down procedures to acquire land, its pricing, tax, tariff and fee structure and policy of service provision, law and order and security and all other necessary measures, which will restore their confidence on the government and allied institutions.

In Sukkur, one of the critical issue which highlighted by the Sukkur Chamber of Commerce Trade and Manufacturing bodies and other stakeholders is the vulnerable situation of law and order in the area which is the key impediment to the private sector investment. The deteriorating law and order situation is not particular to a specific area but all across Pakistan including Karachi where significant investment potential already exists due to its locational advantage and agglomeration of economic activities but investment is not coming forward to the level of its real potential.

It is therefore necessary for the provincial government to significantly improve the law and order and security situation in the area through regular police patrolling and by building security check post at various investment locations if government like to accelerate the pace of economic development through increased private sector role.

Another important avenue to increase private sector role is the elaborative development of public private partnership (PPP) regulatory framework and governance structure. Government of Sindh has prepared a formal regulatory framework to provide guaranteed protection of private sector investment. The public private partnership encourage by government for financing urban and regional development of various cities. However, the regulatory framework approved by the government needs to be widely disseminated as of a very limited funding has come forward using PPP framework. Both provincial and local government should take effective measures to promote investment opportunities through widespread dissemination of PPP rules to the larger audience and investors.

### 6.2.4 FINANCING OPTIONS

In the light of the above discussion and the problems highlighted in the budgetary and tax reforms section, an indicative financing plan is prepared for urban development strategy. The indicative financing plan identifies the potential sources of financing of urban infrastructure projects as consultant proposed in tables 4-4 and 4-5. These indicative sources include financing of urban development projects through inclusion of schemes in federal public sector development program (PSDP), by its inclusion in provincial Annual Development Programme (ADP), through SMC own source revenues, donor financing and public private partnership and/ or debt financing or by exercising other options including municipal development fund and local bond financing. For financing these projects

multiple source, financing options may also be exercised, which are indicated, in the above-referred table.

It is appropriate that few projects in Sukkur city proposed master plan are to be prioritized to include in the provincial ADP. As a policy, provincial government of Sindh may consider inclusion of various SMC master plan schemes in future ADP as these are finalized based on comprehensive analysis and after consultation with the local community and other important stakeholders thus reflect local area priorities. The projects which are proposed to be included in the future ADP budget of provincial government for Sukkur are Construction and Rehabilitation of Primary Schools, Higher secondary Schools and Colleges, Development of Sukkur Rohri Education City, Construction of 500 Beds General Teaching Hospital, Construction of Cancer Diagnostic Centre.

Another potential source of finance is to include some priorities schemes of SMC master plan to be financed through federal PSDP allocations on a regular basis.

There is already very limited own source revenues of SMC at present as opposed to relatively higher recurring expenditure needs. However, Sukkur may likely to receive their share from PFC allocations if local government institutions become vibrant again. It is still to be seen that whether the provincial transfers to SMC would be enough to meet some of the development expenditure requirements or only cater to finance their recurring budget. However, one would expect a positive revenue surplus with the SMC to finance their development budget.

It is assumed that approval of Sukkur Urban Development Strategy Plan and proposed reforms would generate enough confidence among private investors to participate in the financially feasible projects of economic infrastructure development. PPP projects may also be considered as a likely option.

It is expected that approval of the proposed Master Plan of Sukkur will increase the chances of donor funding (ADB) as better governance and improve management of cities falls under their priority sector as well as at all levels of governments in Pakistan. It is anticipated that the ADB loan financing of another \$ 500 million may come forward after three to five years for further financing of SCIP. Out of this, a minimum 7.5 percent of this loan would be earmarked for Sukkur city (\$ 37.5 million) for financing the proposed projects. The repayment period of donor loans would be 32 years including a grace period of 8 years.

There are some other options, which could be considered for financing urban development projects including establishment of Municipal Development Fund where donor and provincial government should seed funding of about \$1 billion to finance particularly economic infrastructure projects of large local councils. The loan should be available to various local governments for priority projects after their wetting through credit rating agencies of international repute. The fund is in the nature of revolving fund to be utilized on regular basis by refinancing through repayments of loan installments by the local councils who decided to acquire loan from this source.

At present not all local government are permitted to acquire loan or float their own bonds in the market, which are practiced in many developed and developing countries. This option may also be exercised for meeting accelerated growth targets. Similar, credit rating agencies would again wet their credit worthiness and repayment capacity.

The above-proposed indicative financing from SMC on own source revenues from federal and provincial governments, private sector, public private partnership, loan and donor financing may likely to be considered with stringent monitoring and evaluation framework in place.

Table 6-3: Short Term Financial Plan\*

DEVELOPMENT SECTOR	PROJECT	ESTIMATED COST MILLION PKR		Sukkur Municipal Corp. SMC	Provincial Govt.	Federal Govt.	Donors Funding	Public Private Partnership
		Phase 1	Phase 2					
ECONOMIC DEVELOPMENT	Development / Urban Re-Generation Of Sukkur CBD and Selected Surrounding Areas within SMC Limits	175	525	Y	-	Y	-	Y
	Construction of New Slaughterhouse	500	-	-	Y	-	-	Y
	Relocation of Iron / Building Material Market	500	-	-	Y	-	-	Y
	Revitalization of Industrial Estates	250	250	-	-	Y	-	Y
	Shifting / Development of Fish and Vegetable Market	500	-	-	Y	-	-	Y
HOUSING, DETAILED PLANNING, FEASIBILITY PROJECT	Detailed Planning Feasibility of Identified Functional Zones	100	-	-	Y	-	-	-
	Detailed Planning Feasibility of Office Complex	100	-	-	Y	-	-	-
	Ground Water Study	20	-	-	Y	-	-	-
	Feasibility Study of regeneration / renewal of area under Katchi Abadis	30	-	-	Y	-	-	-
	Feasibility Study of Surface Drainage Network	50	-	-	Y	-	-	-
	Feasibility for remodeling, extension and widening of existing road network	30	-	-	Y	-	-	-
	Feasibility study of Construction of Proposed Iconic Bridge on River Indus	50	-	-	Y	-	-	-
	Master Planning of Railway Land within SMC Limited	20	-	-	Y	-	-	-
	Feasibility study of renewable energy production	30	-	-	Y	-	-	-
	Feasibility study of River Indus Green Zone	30	-	-	Y	-	-	-
	Feasibility study of Sukkur Zoo and Botanical Garden	30	-	-	Y	-	-	-
	Feasibility Study and detailed master planning of Rohri Education City	50	-	-	Y	-	-	-
	Feasibility study and detailed master planning of Healthcare City	50	-	-	Y	-	-	-
	Feasibility study of Low Income Housing Projects	50	-	-	Y	-	-	-
SOCIAL DEVELOPMENT PROJECTS	Construction and Rehabilitation of Primary Schools and allied Infrastructure	500	-	-	Y	-	-	-
	Construction and Rehabilitation of Higher Secondary Schools / Colleges	500	-	-	Y	-	-	-
	Development and improvement of public amenities including construction of Public Toilets and Emergency Health Centers	150	-	-	Y	-	-	-
	Rehabilitation of historical monuments and public parks	100	-	-	Y	-	-	-
INFRASTRUCTURE DEVELOPMENT PROJECTS	Improvement of Water Intake Works	300	-	Y	Y	-	-	-
	Improvement / New Construction of settling tanks at Rizvia, Bunder Road and Numaishgah	750	-	Y	Y	-	-	-
	Rehabilitation / Constructions of Over-Head Tanks	100	-	Y	Y	-	-	-
	Installation of Water Meters	100	-	Y	Y	-	-	-

DEVELOPMENT SECTOR	PROJECT	ESTIMATED COST MILLION PKR		Sukkur Municipal Corp. SMC	Provincial Govt.	Federal Govt.	Donors Funding	Public Private Partnership
		Phase 1	Phase 2					
	Extension of Existing Stabilization Ponds and construction of Sewage Treatment Plant and Disposal Works	2000	-	Y	Y	-	-	-
	Proposed Primary Trunk Sewer	500	-	Y	Y	-	-	-
	Rehabilitation of Existing Force main	500	-	Y	Y	-	-	-
	Solid Waste Management and Waste to Energy Conversion Feasibility Study	30	-	Y	-	Y	-	-
	Addition of Rising Main from Intake at River Indus to Numaish Gah Treatment Plant	500	-	Y	-	-	-	-
	Establishment of Testing laboratories and Monitoring mechanism	500	-	Y	-	-	-	-
	Disposal System of Effluent from Treatment Plants	175	-	Y	-	-	-	-
	Improvement/ rehabilitation of existing lined and un-lined drainage system/ Covering of open drains	300	-	Y	-	-	-	-
ROADS AND COMMUNICATION NETWORK	Rehabilitation and Improvement of Bunder Road	150	-	-	Y	-	-	-
	Rehabilitation and Improvement of Numaishgah Road	180	-	-	Y	-	-	-
	Rehabilitation and Improvement of Site Area Road	150	-	-	Y	-	-	-
	Rehabilitation and Improvement of Shikarpur Road	50	-	-	Y	-	-	-
	Rehabilitation and Improvement of Society Road	400	-	-	Y	-	-	-
	Rehabilitation and Improvement of Station Road	40	-	-	Y	-	-	-
	Rehabilitation and Improvement of Workshop Road	60	-	-	Y	-	-	-
	Improvement of Road Hierarchy by Construction of Missing Links and Rehabilitation of Existing Links	900	-	-	Y	-	-	-
	Traffic Management of CBD Area	500	-	-	Y	-	-	-
	Street Lighting on road corridors and key intersections	250	-	-	Y	-	-	-
	Rehabilitation and expansion of Sukkur power plant and Expansion of electric supply to newly developed areas	500	-	-	Y	-	-	-
	Rehabilitation of the gas supply distribution network/ Expansion of gas supply network to newly developed housing schemes	200	-	-	Y	-	-	-
ENVIRONMENT & DISASTER MANAGEMENT PROJECTS	Detailed Urban risk Assessment of Sukkur and Rohri	200	-	-	-	Y	-	-
	Establishment of EOC (Emergency Operation center)	50	-	-	-	Y	-	-
	Strengthening of Rescue and Response Capacity	100	-	-	-	Y	-	-
	Awareness Campaign on Environment and Disaster Reduction	10	-	-	-	Y	-	-
	Improvement of microclimate of Sukkur City.	50	-	-	-	Y	-	-

\* Y = Yes, Likely financing source

“-“ = Unlikely financing source

Table 6-4: Long Term Financial Plan\*

DEVELOPMENT SECTOR	PROJECT	ESTIMATED COST MILLION PKR	Sukkur Municipal Corp. SMC	Provincial Govt.	Federal Govt.	Donors Funding	Public Private Partnership
		Phase 3					
ECONOMIC DEVELOPMENT	Development / Urban Re-Generation Of Sukkur CBD and Selected Surrounding Areas within SMC Limits	1800	Y	-	Y	-	-
	Development of Indus River Green Zone	9970	-	-	Y	-	-
	Expansion of Industrial Estates	500	-	-	Y	-	Y
	Establishment of Dates and Dry Dates Dehydration Plant	500	-	Y	-	-	Y
	Development of Sukkur Export Processing Zone	1000	-	-	Y	-	Y
	Development of Sukkur Dry Port	200	-	-	Y	-	-
HOUSING, DETAILED PLANNING, FEASIBILITY PROJECT	Low-Income Housing Projects / Schemes	950	-	-	Y	-	Y
	Expansion of Sukkur Cattle Colony (Bhains Colony)	500	-	Y	-	-	-
	Construction of Office Complex	700	-	Y	-	-	-
	Renewal of Katchi Abadis / Slums area	170	-	Y	-	-	-
SOCIAL DEVELOPMENT PROJECTS	Development of Sukkur – Rohri Education City	9950	-	Y	-	-	-
	Construction and Rehabilitation of Primary Schools and allied Infrastructure	500	-	Y	-	-	-
	Construction and Rehabilitation of Higher Secondary Schools / Colleges	500	-	Y	-	-	-
	Construction of 500 Beds General Teaching Hospital	5000	-	-	Y	-	-
	Sukkur Zoo and Botanical Garden	470	Y	-	Y	-	-
	Construction of Cancer Diagnostic and Treatment Centre	500	-	-	Y	-	-
INFRASTRUCTURE DEVELOPMENT PROJECTS	Construction of Main Drain	5000	Y	-	Y	-	-
	Proposals for Secondary Drainage Systems	500	Y	Y	-	-	-
	Improvement of Water Intake Works on Bukkur Island	750	Y	-	Y	-	-
	Improvement of Pumping Stations	300	Y	-	Y	-	-
	Construction and Rehabilitation of Primary Trunk Sewer System	1000	Y	-	Y	-	-
	Establishment of Sewage Testing Laboratories at each STP and Monitoring Mechanism	300	Y	-	Y	-	-
	Construction / Design Of New Drainage System	450	Y	-	Y	-	-
	Construction of New Drainage Pumping Stations	400	Y	-	Y	-	-
	Construction of Landfill site in Sukkur	1000	Y	-	Y	-	-
	Construction of solar energy park near Salehpat and Hydropower generating units at irrigation canals	1000	Y	-	Y	-	-
	Rehabilitation / constructions of overhead tanks / underground reservoirs	400	Y	-	Y	-	-
	Expansion of Solid waste management and waste to energy conversion	220	Y	-	Y	-	-
	Expansion of electric and gas supply networks for future development	1000	Y	-	Y	-	-
ROADS AND COMMUNICATION NETWORK	Rehabilitation and Improvement of Workshop Road	80	-	Y	-	-	-
	Widening / Rehabilitation of Bagarji Road and link with Existing Sukkur Bypass	450	-	Y	-	-	-
	Rehabilitation and Improvement of Shikarpur Road	100	-	Y	-	-	-
	Construction of Ring Road	1700	-	-	Y	-	-
	Widening / Rehabilitation of New Pind Road	160	-	Y	-	-	-

DEVELOPMENT SECTOR	PROJECT	ESTIMATED COST MILLION PKR	Sukkur Municipal Corp. SMC	Provincial Govt.	Federal Govt.	Donors Funding	Public Private Partnership
		Phase 3					
ENVIRONMENT & DISASTER MANAGEMENT PROJECTS	Truck Terminal	200	-	Y	-	-	Y
	New link between Sukkur and Rohri with new Bridge over River Indus	2500	-	-	Y	-	-
	Strengthening of Rescue and Response Capacity	200	-	-	Y	-	-
	Awareness Campaign on Environment and Disaster Reduction	125	-	-	Y	-	-
	Development of DRM Plan based on multi-hazard urban risk assessment for Sukkur and Rohri also taking into account the impacts stemming from the phenomena of climate change	100	-	Y	-	-	-

\* Y = Yes, Likely financing source

“-“ = Unlikely financing source

Table 6-5: Existing Sources of Revenue for Local Governments

Union Council	Town Administration	City District
Fees for licensing of professions and vocations	Education tax Health tax Fees related to educational and health facilities	Education tax Health tax Fees related to educational and health facilities
Fees for birth, marriage and death certificates, charges for specific Union Council services	Rents on land, buildings, equipment	Rents on land, buildings, equipment
Rate for remuneration of village and neighbourhood guards	Service fees Tolls on roads, bridges and ferries (other than national and provincial highways and roads)	Service fees Tolls on roads, bridges, and ferries (other than national and provincial highways and roads)
Charges for execution and maintenance of public works	Fees for fairs, exhibitions and other public events	Fees on advertisements hoardings
Rents on land, buildings, equipment	Collection charges on taxes assessed by other levels of government	Fees for approval of building plans and construction permits
Collection charges on taxes assessed by other levels of government	Any other tax authorized by the government	Charges for execution and maintenance of public works
		Collection charges on taxes assessed by other levels of government
		Any other tax authorized by the government

## 7 IMPLEMENTATION FRAMEWORK

The Urban Development Strategy for Sukkur aims in undertaking the well planned and regulated urban development in Sukkur Municipal Area during the next 21 years, as under:

- A. **MACRO DEVELOPMENT PLAN** for 21 years to implement a major urban development intervention, and comprising of two Parts:

**Part-I:** Sukkur City Development Master Plan, focusing on the:

- 1) Implementation of infrastructure development projects along with provision of sustainable Socioeconomic facilities focusing on local economic development (LED), and vibrant support services, with particular focus on the provision of basic civic utilities in line with the national and international standards leading towards enhanced quality of life.
- 2) Up gradation of River Indus Banks on both sides of Sukkur and Rohri Cities (River Indus Green Zone) to develop a scenic recreation and tourist spot.
- 3) Construction of one bridge to connect Sukkur with Rohri City.

**Part-II:** Rohri City Strategic Development Plan, to bring it at-par with the Sukkur City by the year 2035.

- B. **MICRO DEVELOPMENT PLAN**, indicating all sectoral development plans and targets based programs, indicating specific projects; prioritized on a need basis for immediate implementation during next six years, followed by long-term schemes up to the year 2035.

### 7.1 REALITY BASE FOR THE PROPOSED IMPLEMENTATION FRAMEWORK

In order to implement the Macro and Micro Development Plans in an effective manner, it is necessary to understand the following institutional set-up and urban development constraints in Sukkur City:-

- Sukkur Division was notified in 1974, comprising three Districts of Sukkur, Khairpur and Nawabshah
- Sukkur District has four Tehsils namely Sukkur, Rohri, Pano Aqil and Salehpat.
- District Headquarter of Sukkur and Rohri are based in Sukkur City, where the offices of the Commissioner and Deputy Commissioner are also located.
- The Head-office of Northern Sindh Urban Services Corporation (NSUSC) is located in Sukkur City.
- Both cities of Sukkur and Rohri are located opposite to each other just across River Indus and apart at a distance ranging from 700 to 1100 meters.

Despite the presence of all urban management and local administrative headquarters located in same City of Sukkur, this urban center lacks the essential characteristics of a vibrant urban center. Immediate interventions are required to improve the existing Socioeconomic and physical infrastructure therein. Major areas requiring attention in Sukkur from the urban development point of view include the following, but not limited to these:

1. Weak institutional set-up to undertake urban development works in an effective, efficient and integrated manner.
2. Poor observance or compliance of Sukkur Municipal Corporation regulations and building control (now building controls lies with SBCA).

3. Stagnant and waste water ponding in depressed areas, having no drainage or outlet provisions
4. Poorly planned road network and traffic congestion
5. Absence of parking spaces, public toilets, open green areas and solid waste collection points
6. High population density, i.e. the 70% of the total Sukkur City population live in the CBD, which covers just 15 % of total built-up area of Sukkur.
7. Dumping of untreated wastewater into River Indus and Canals
8. Apparent disparity visible in case of existing municipal services and maintenance of infrastructure in two adjoining cities of Sukkur and Rohri.
9. Non-implementation or partial-implementation of earlier prepared Sukkur Development Plans, firstly during 1986 by a Consultant and then in 2000 by the Government of Sindh.
10. Limited funding as well as non-availability of professionally qualified town planners and trained staff with Sukkur Municipal Corporation.

Future urban development planning of Sukkur City had to be the both exclusive and inclusive of its immediate neighbor, i.e. sister Rohri City. This means that the Sukkur urban growth strategy should accommodate the perspective planning provision for Rohri City, as well. Such mutual concentrating of the potentials of both cities would enable the Government of Sindh to simultaneously reinforce the Socioeconomic capabilities and undertake urban development projects in an integrated manner, and to avail concurrent advantage due to the presence of National Highway and Railway Line passing nearby both Cities, and thus promote the anticipated trade and commerce activities with Punjab in the north, Karachi in southern, and Baluchistan in the west. Besides, the joint oversight development unit, proposed here in the UDS-Sukkur for Rohri and Sukkur would ensure protection as well as improve the natural environment and habitat of River Indus, traversing in between the both cities.

The integrated implementation of development activities in two adjoining Cities will also ensure the effective control of future expansion, while accommodating the urban growth needs of over one million population of Sukkur and Rohri after 26 years. The combined development of Sukkur and Rohri Cities will certainly be in the larger interest of the Provincial Government and particularly beneficial for the population of Northern Sindh, as stipulated hereunder:

- Sukkur and Rohri can become a gateway of goods and commodities trade, retail services and transportation in north of Sindh, serving both the Punjab and Baluchistan, as noted during the SWOT survey conducted for UDS-Sukkur. Both cities have the potential to develop as medium size commerce and trade centers.
- Limited availability of quality educational facilities in Northern Sindh, and the proximity of both cities along national transportation corridors (road, railway and air), both Sukkur and Rohri can become a nucleus hub in the region where in the high standard universities, colleges, schools and vocational training institutions can be established with necessary infrastructure on public-private partnership basis.
- Increase in trade and transportation facilities in both Cities will develop the immediate availability of essentially required services necessary to efficiently transact the small-scale industrial and commercial activities, like banking, trade-houses, IT service centers, stores and warehouses etc.
- Both Cities will be able to jointly ensure the environmentally safe and supportive maintenance of River Indus; preserve the local habitat like Blind Dolphins, flora and fauna historical / cultural heritage, besides providing a recreation cum tourism spot with theme park on both sides of the River.

## 7.2 STRATEGIC OBJECTIVES FOR THE IMPLEMENTATION FRAMEWORK

The strategic vision for future growth of Sukkur City is envisioned as developing a sustainable and well managed urban settlement, providing better Socioeconomic facilities, both within its periphery, as well as undertaking such initiatives in sister City Rohri. The following specific objectives are necessary to be achieved along with effective administrative and institutional set-up on the ground:

1. Develop adequate infrastructure capacity to implement new development activities for upgrading both cities of Sukkur and Rohri while fulfilling the planning, zoning and regulatory requirements for developing the secondary cities, in line with the Sindh Local Government Act 2013.
2. Area development for expansion of existing commercial and industrial uses and attraction of new establishments and projects, along the trade-corridor proposed to be developed along the Shikarpur Road.
3. Improvement in municipal services delivery and sanitation control to avoid deteriorating health conditions of the dwellers and visitors.
4. Equitable sharing between the public and private sectors of the costs of public improvements and services, specifically and uniquely attributable to individual new developments.
5. Revitalize the declining commercial and industrial areas and obsolete facilities through redevelopment, rehabilitation etc.
6. Increase cooperation and coordination between the public and private sectors in the formulation of feasible economic development plans and programs.
7. Retention and expansion of small businesses and enterprises to make them trade and commerce hubs in Northern Sindh.
8. Adaptive reuse of older commercial structures, along with complementary and compatible new developments of superior quality, at- par with national standards.
9. Develop such urban growth opportunities, which result in minimal adverse impacts of the City's environment and housing supply.
10. Establish a higher education infrastructure and technology learning centers for attraction of high technology industry, in order to enhance the local economy and build Sukkur and Rohri city's image as new research and development centers, besides accommodating the structural changes occurring in the national economy.
11. Improve the law and order situation besides raising the corruption free City Administration with an example of 'Good Governance' for securing the businesses of investors and industrialists.
12. Increase municipal tax revenues through the expansion of the municipal tax base and increase in the quality of municipal services.
13. Arrange a wide range of diversified employment opportunities for Sukkur and Rohri residents, based on professional job categories and skill levels.
14. Remove the impediments to gainful employment such as lack of transportation, training centers, job information, childcare etc.
15. Preservation of Sukkur and Rohri cultural assets and trading cities character, which make them attractive as both quality residential community and economic investment centers.

## 7.3 THE PROPOSED INSTITUTIONAL MECHANISM

The preceding discussion calls for a well-coordinated institutional mechanism, to effectively and efficiently implement the projects as proposed in UDS-Sukkur. In this connection, it is to be noted that the SMC has been recently re-instated after rolling back TMA under the new Local Government Legislation 2013 in Sindh. The current capacity and even the scope of SMC though are limited and it

can only look after or manage the local level municipal functions. Due to its very weak financial position and almost zero professional expertise, the SMC is not at all capable to undertake most of the activities proposed to be undertaken according to UDS-Sukkur. The poor applicability and acceptability of Zoning and Building Regulations. The absence of a broad institutional base of SMC for proper enforcement of such regulations besides having no experience of the public-private partnership or community- participation initiatives and poor services cost recovery status, limit the operational efficiency of SMC in its present set-up.

The above stated limitations of the SMC call for an efficient institutional framework to execute UDS - SUKKUR within the given timelines, in close collaboration with Rohri Municipality to fully implement the Macro Urban Development Strategy. Moreover, to develop revenue generation capacity it is necessary that an independent autonomous organization within the existing setup of the Directorate of UP&SP, Government of Sindh be established under the Provincial P&D Department. It will be named as "Sukkur-Rohri Urban Development Strategy Implementation Unit" (SRIU).

GoS will establish the SRIU through legislation (Bill/Act/Ordinance) as admissible under the Sindh Local Government Act 2013. Initially, the validity of SRIU has been recommended to be approved for five years duration. Thereafter, the Provincial Government will review the performance and capacity of SRIU, and can upgrade it as "Sukkur Rohri Development Authority" (SRDA), subject to approval of the Sindh Provincial Assembly.

At the onset, the Chairman or CEO will be the incumbent Commissioner of Sukkur Division, in ex-officio capacity. After the local government election, the elected Mayer of Sukkur will become the CEO of SRIU. This unit will take its operational policy guidelines and report its implementation progress to the Directorate of UP&SP. The proposed organizational set-up of the SRIU has been presented in Figure 7-1.

In order to enable the SRIU to perform its functions and implement the proposed projects at local level, the fulfillment of following pre-requisites by the Provincial Government would be necessary:

1. The Sindh Government should issue a notification to establish a Sukkur Rohri Urban Development Strategy Implementation Unit (SRIU), immediately after local government election.
2. The institutional set-up of SRIU will be inclusive of the existing establishments of Sukkur and Rohri Municipal Corporation/Committee, besides the provision to engage/employ new, professionally competent Staff for the efficient performance of all functions to be assigned to this Unit.
3. The Provincial Local Government Department should formulate a Committee to examine the responsibilities and functions of Sukkur and Rohri Municipal Corporation/Committee with reference to the objectives and requirements of both Cities' Strategic Development Plans. Accordingly, establish an institutional framework to join the two municipal bodies and form a joint SRIU under promulgation.
4. Give the new Unit specific responsibilities as admissible under the Provincial Local Government Act, Building Control Regulations, Zoning Laws, Urban Planning Standards, Building Codes and Seismic Provisions, Environment Protection etc.
5. Sukkur and Rohri Local Administrations be directed to drastically improve the local law and order situation in Sukkur and Rohri urban areas, on immediate basis.
6. The financial capacity of SRIU must be immediately enhanced, based on improving self-generation of the required revenue on a sustainable basis. This is necessary, as the ADB / SCIP will cease its funding for Project 2499-PAK from the year 2016 and onwards.

7. Mandate the SRIU to immediately finalize and seek approval of separate Zoning and Building Regulations for both Sukkur and Rohri Cities with special provisions of the CBD / down-town areas.
8. The SRIU functions should also include the provision for Disaster Risk Management capacity building and necessary support infrastructure, for both Cities.
9. In case of Sukkur and Rohri Cities, the SRIU should develop joint working mechanism with Northern Sindh Urban Services Corporation (NSUSC), Sukkur Municipal Corporation, and other relevant agencies to take over the management, operation of services of municipal water supply, sewerage, drainage, solid waste management, sewage treatment and disposal.
10. A vigilance committee may be constituted to monitor the progress of the proposed development projects. This committee may include local representatives (MNAs, MPAs, City Mayor/Nazim), Civil Society, Government line departments etc. This committee monitors and ensure the rationalized use of public funds and quality of the projects.

The Sindh Government provide specific policy guidelines to the SRDSIU, for tactfully handling the Katchi Abadis issue in Sukkur and Rohri, and separately budgetary allocation be made in Sindh ADP to develop Low-Income Residential Areas in both Cities.

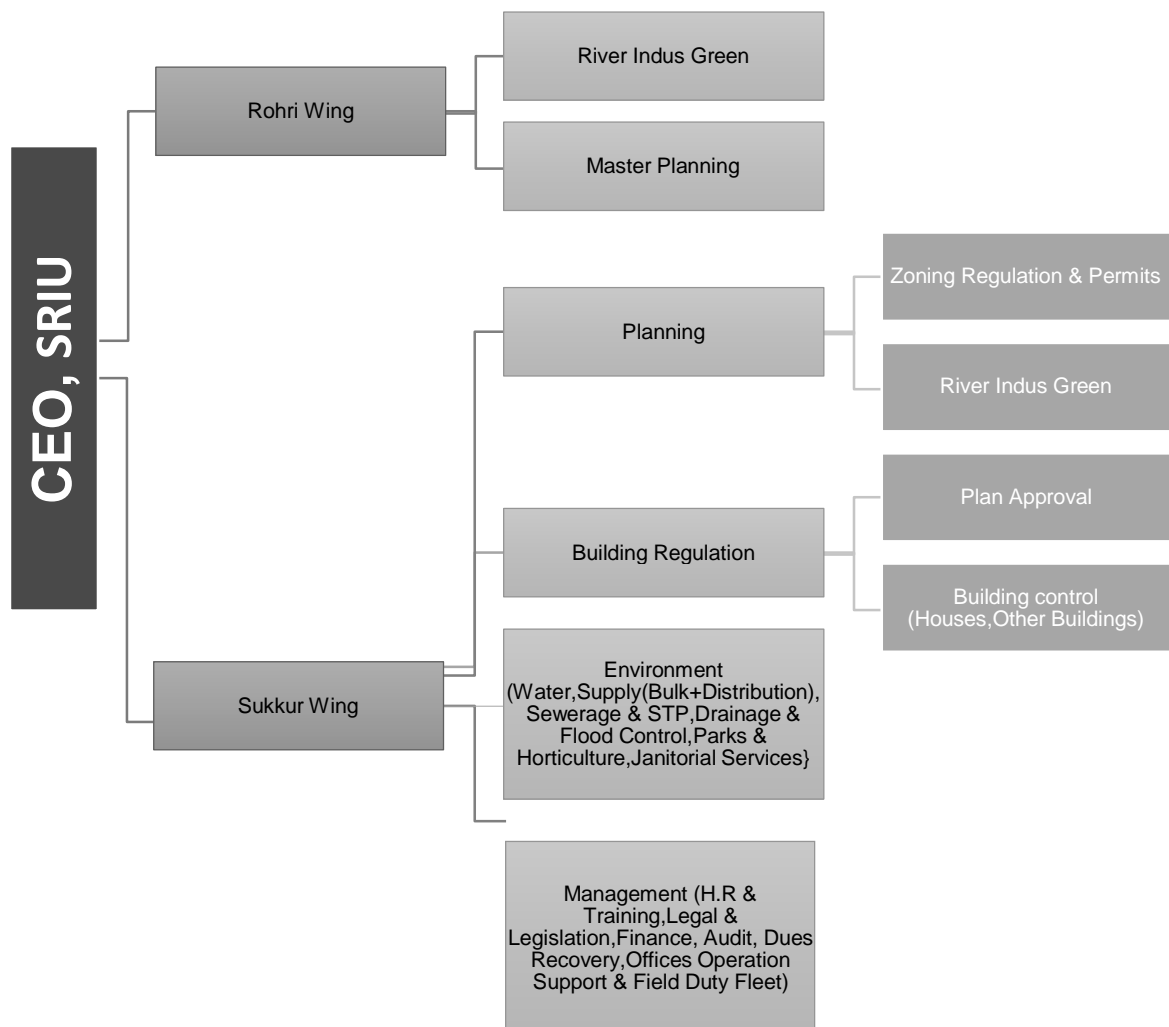


Figure 7-1: Proposed Organogram of Sukkur-Rohri Urban Development Strategy Implementation Unit (SRI)

## 7.4 MONITORING AND EVALUATION

Monitoring and evaluation is an effective tool to oversee the implementation of projects, policies, and sectoral investment. Its effective design ensures the achievement of objectives of projects and policies. The objective of monitoring and evaluation is to make a standardized format for analyzing the project performance including overseeing physical targets and financial flows. Since, public sector organizations use public funds it needs to be ensured that these funds are used efficiently and therefore are accountable. In Pakistan and for that matter in most of the provinces it is generally observed that a large proportion of budget is being allocated during the last budgetary quarter of each fiscal year. In the absence of effective monitoring and evaluation framework the fund utilization and target achievement efficiency are mostly unanswered.

As a first step there is a need to establish public financial management information system, (PFMIS) at all levels of government in Pakistan. The PFMIS primarily looked into inflows and outflows of funds and their utilization and physical achievement of targets. Its prerequisite is to have a elaborative and computerized database on historical basis containing information of sectoral level physical indicators comprises of input, process, output, outcome and impact as well as financial allocations made to achieve these targets.

Institutional structure need to be created first at a province level and second at a local government level which would design to establish the effective PFMIS by assembling all appropriate database. It is proposed to be housed in provincial planning and development department, which would at least quarterly monitor the progress on utilization of fund including expenditure on various projects. At a second stage, it needs to be established at least initially in the large urban councils (metropolitan and Municipal Corporation) in the finance and planning department. However, capacity needs to be developed both human and provision of appropriate equipment and system development, which comply with monitoring and evaluation objectives. For effective compliance a system of reward and penalty need to be developed to incentivize better performing local government for example if funding is to raise primary enrollment rate by 1% in a given year then all those who achieve higher targets should be rewarded proportionately out of the earmarked amount set for this purpose.

However, the best alternative is to undertake third party validation periodically by involving either the research and teaching department of universities and/or from some established private sector consultancy firms. As a first step, it is proposed that as a part of approval of the annual development program some percentage (1-2 % of cost) of the project cost should be mandatory allocated for monitoring and evaluation of the project at the time of approval of budget. If this system is established it will ensure accountability and effective utilization of the public fund which is the prime responsibility of any accountable government.

## 8 DISASTER RISK MANAGEMENT PLAN

### 8.1 STRATEGIES FOR DISASTER RISK MANAGEMENT

#### 8.1.1 INSTITUTIONAL MECHANISM FOR DISASTER RISKS

The Hazard and Vulnerability Analyses show that Sukkur is vulnerable to flood disasters at different degrees. In view of this, the plans for mitigation and preparedness will have to be evolved. The implementation has to be monitored locally at the Union Committee's level to reduce the impact of disasters. A community based monitoring scheme will be more effective nevertheless this has to be established in relation to the development of capacities of the Union committees and villages.

Accomplishing this requires formulation of proper mechanism by establishing District Disaster Management Authority (DDMA), following the National disaster Risk Management Act 2010, comprising representatives from all relevant government departments, civil society and community groups, trade, corporate sector and prominent activists. This DDMA is such a framework, which aims to provide policy plus procedural guidelines and defines roles and responsibilities of the key stakeholders. Broadly speaking, all stakeholders are expected to execute the functions mentioned below:

- Incorporate risk assessment in the planning and design phases of all new infrastructure.
- Assess sectoral susceptibility of people, infrastructure, assets and services.
- Develop disaster risk management plans at union committee's level.
- Incorporate vulnerability reduction measures for future safety.
- Develop technical capacities of the departments/sectors to implement disaster risk management strategies.
- Conduct post disaster damage and recovery needs assessment.
- Organize emergency response as per the mandate of the department.
- Organize recovery and rehabilitation as per the mandate.

#### 8.1.2 HAZARD AND VULNERABILITY ASSESSMENT

Hazard Vulnerability Capacity Assessment (HVCA) needs to be undertaken at Village, Union Committee, *Taluka* and District levels. To facilitate this, there is a need to develop a mechanism and system for collecting available information and continuous monitoring of hazard risks and vulnerabilities. Various departments regularly collect data on departmental concerns (i.e. Agriculture Department on agricultural statistics Revenue Department on land and taxes etc.). These existing systems need to be reviewed to incorporate hazard and disaster risk analysis. Instruments thus developed would enable decision makers at all levels to take effective decisions to formulate risk reduction policies, strategies and programs.

Village, union committee and *Taluka* level maps should include analysis on vulnerability of settlements, housing stock, important infrastructure and environmental resources. They will indicate location of key settlements within hazard-prone areas. Such an analysis will describe the types of existing housing stock in hazard-prone areas, and the potential of damage to various housing categories. This vulnerability analysis will identify key infrastructure and environmental resources in each local area that are prone to damage and loss due to hazards. Vulnerabilities of various social groups in hazard prone areas will also be analyzed.

The HVCA will inform development of Damage, Needs and Capacity Assessment (DNCA) during actual disasters. There will be separate DNCA formats and procedures at various tiers of the government.

A central database should be developed and located at the District Emergency Operations Centre (DEOC), which is proposed in the short-term plan. The database will be made available to all stakeholders for access for some of the following purposes:

- Review of existing data gathering methods and tools of various departments to include disaster risk analysis.
- Develop HVCA tools and assessment methodologies.
- Identify HVCA facilitators from the district personnel and from priority *Tehsil*, UCs and villages as well as from NGOs/CBOs.
- Conduct Facilitator's Training of HVCA facilitators.
- Collation of HVCAs.
- Develop Damage Needs and Capacity Assessment forms / formats / questionnaires.
- Set-up, review, upgrades / update database of district.

### 8.1.3 PRIORITY AREAS WORK MECHANISM FOR DISASTER RISK MANAGEMENT

The priority areas provide broad descriptions of key strategies to achieve the overall goal of reducing disaster risk and vulnerability. The DDRMP refers to the National Disaster Management System and has adopted a set of these component objectives to support the District Administration and to enhance its capacity at all levels. The priority areas endow concrete elaborations regarding required specific and relevant policies, institutions / departments, which formulate strategies for systematic mechanism to achieve the overall goal of minimizing disaster risk and vulnerability. This plan refers to the National Disaster Management Plan 2012-22 and National DRR Policy 2013 formulated by NDMA and has espoused set of these constituent objectives to facilitate the District Administration of Sukkur in establishing and enhancing its basic capacities at different levels about DRM. Subsequent to consultative process in the course of regular interaction and meetings with different stakeholders, following strategies have been proposed and planned with comprehensively detailed activities targeting priority areas for reducing the risk and vulnerability in the district. Setting period initially of two years as it will provide space for supplementary adaptations and adoptions through across-the-board appraisals, evaluations, and view and amendment process incorporating lessons learned.

#### 8.1.3.1 INSTITUTIONAL MANAGEMENT ARRANGEMENTS

- Consultation on NDMA, PDMA and the DDMA set-up.
- Formation of DDMA in District Sukkur.
- DDMA orientation sessions for each District Line Department.
- Orientation workshops for District Assembly about the DDMA.
- Workshops on DDMA structure, roles and responsibilities at district, Talukas, towns, UCs and village levels.
- Establishment and arrangements of resources at functionalized District Emergency Operations Centre (EOC).
- Training and facilitation to the *Taluka*, Union Committees and Village Administration in formulation of their own DRM plans in line with DDMA mandate.

#### 8.1.3.2 HAZARD AND VULNERABILITY ASSESSMENT

- Access and review of existing data collection practices of district departments to be included for Disaster Risk Analysis.
- Facilitators' Training of HVCA facilitators.
- Initiate and develop accurate and authentic database of district regarding DRM, DRR.
- Mechanism to update district database on regular basis.

#### **8.1.3.3 TRAINING, EDUCATION AND AWARENESS**

- Develop Training Needs Assessment tools for DDMA and its supplementary tiers.
- Identify and enlist relevant trainers from the District preferably but in case of non-availability flexibility to hire from other areas
- Training of Trainers
- In the context of HVCA of the district, development of training materials and modules preferably in local languages
- Design and implementation of Mass Awareness-Raising Campaigns regarding DRM and DRR.
- Systematic and timely review of training curricula, materials, and impact assessment of trainings and awareness campaigns.
- Monitoring and evaluation of activities and follow up for having feedback for future alterations.

#### **8.1.3.4 COMMUNITY AND LOCAL RISK REDUCTION PROGRAMMING**

- Identification, training and delegation of roles and responsibilities of focal persons at *Taluka*, Union Committee and village levels.
- In collaboration and consultation / facilitation of DDMA, development of Local Planning Framework.
- Identification, utilization and sustainability of local resources (time, talent, treasure) such as fiscal and human resources etc.
- Development of school-based disaster awareness and preparedness training modules and materials.
- Organization of schools, colleges and other educational institutes based disaster awareness and preparedness seminars and activities.
- Mechanism defining roles and responsibilities of all stakeholders at grass root level to ensure maximum active participation promoting decentralization.

#### **8.1.3.5 MULTI-HAZARD EARLY WARNING SYSTEM**

- Identifying and appointment of focal persons at *Taluka*, Union Committee and village levels for early warning.
- Devise Early Warning System from village, union Committee, Taluka and District level.
- Develop Standard Operating Procedures (SOPs) on the use and maintenance of communication equipment.
- Call media meetings to develop coordination mechanisms regarding Early warning System (EWS).
- Media Training on EWS developed and conducted.
- Establish Community EW teams for priority hazard and disaster prone areas.
- Resource inventory of available communications equipment.

#### **8.1.3.6 MAINSTREAMING DISASTER RISK REDUCTION INTO DEVELOPMENT**

- Workshops to develop mechanism to integrate DRR in ADP planning.
- Training on DRR Integration Planning.
- Integration Planning Workshops.
- Approval of recommended mechanism.
- Monitoring regarding practical implementation of recommendations in Development Planning of different departments.

## 8.2 DDMA ORGANIZATIONAL STRUCTURE AND MEMBERS

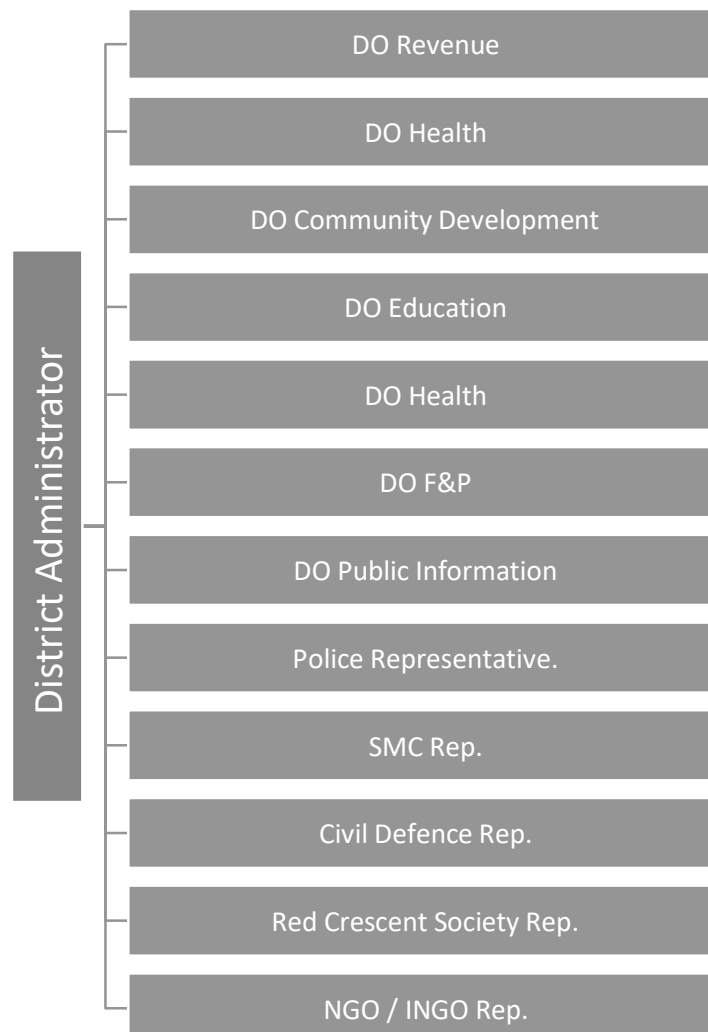
### 8.2.1 ORGANIZATIONAL STRUCTURE AND MEMBERS

The DDMA is the focal organization and authority in the conduct and implementation of activities and actions on disaster management in Sukkur District. In pre, during and post disaster stages the DDMA holds primary importance. Along with its Taluka, Municipal Corporation / Committee and UC tiers, the DDMA is responsible for three main objectives. They are:

- Pre disaster preparedness / DRR
- During the disaster, immediate response and rescue
- Post disaster rehabilitation activities

The DDMA will comprise the District Administrator, District Police Officer and the District Officer Health. Where appropriate, the District Administrator can appoint other senior officers as members of the DDMA. They may include District Officers from the education, social welfare, community development, meteorology department, revenue department, environment and agriculture departments, Army, Red Crescent, NGOs, media, private sector, civil Defense services, or any other district stakeholders. The proposed structure of the DDMA in the District Sukkur is mentioned below, however more member can be added according to ground realities and need by the Authorities.

### 8.2.2 DDMA STRUCTURE



#### 8.2.2.1 THE DDMA SECRETARIAT

- A Secretariat shall be established to support the DDMA in its day-to-day activities. In district Sukkur, the Revenue Office under the DCO will be delegated to perform the tasks of secretariat for the DDMA.
- The Secretariat shall be composed of the District Coordination Officer, who shall serve as the Chairperson, a District Disaster Officer as Executive Officer and a minimum of three staff who will be in-charge of three tasks / functions namely: Technical Support (training and education), Operations Group, Finance, and Administrative Support.
- The number of staff, procedures and terms of reference of the Secretariat will be further developed and approved by the DDMA.
- Development of Warning System for the communities in identified Hazard prone areas in the District Sukkur.
- Organization of communities and training in emergency response for hazards.
- Come up with a District mapping identifying actual and potential hazard prone areas in coordination with the Town Administration and revenue department, appropriate line departments and NGOs.
- Design Action Plan for emergency response that will include population, details of threatened areas, evacuation routes, campsites for temporary use, and selected areas for permanent shifting of families, livelihood assistance, and the like.
- With the police and transport offices, document and monitor transport situation to include vehicular accidents, number of dead, injured, location of accident, cause of accident, etc., and develop a trend analysis for use in development of a transport hazard reduction plan.
- Other mitigation activities to be listed in the IMMEDIATE category of activities identified for implementation by the District Disaster Management Authority.

#### 8.2.2.2 FUNCTION OF DDMA

After the approval of plan, the officers and members of the DDMA shall do the following without any delay:

- To prepare a disaster management plan including district response plan for the district;
- To coordinate and monitor the implementation of the District Plan in line with National Policy, Provincial Policy, National Plan, and Provincial Plan;
- To ensure that the areas in the district vulnerable to disasters are identified and measures for the prevention of disasters and the mitigation of its effects are undertaken by the departments of the governments at the districts level as well as by the local authorities;
- To ensure that the guidelines for prevention, mitigation, preparedness and response measures as laid down by the National and Provincial Disaster Management Authorities are followed by all departments of the government at the district level and the local authorities in the district;
- To give directions to different authorities at the district level and local level authorities to take such other measures for the prevention or mitigation as may be necessary;
- To lay down guidelines for preparation of disaster management plans by the departments of the government at the districts level and local authorities in the district;
- To monitor the implementation of disaster management plans prepared by the departments of the government at the district level;
- To lay down guidelines to be followed by the departments of the government at the district level;

- To organize and coordinate specialized training programs for different levels of officers, employees, and voluntary rescue workers in the district;
- To facilitate community training and awareness programs for prevention of disaster or mitigation with the support of local authorities, governmental and non-governmental organizations;
- To set up, maintain, review and upgrade the mechanism for early warnings and dissemination of proper information to public;
- To prepare, review and update district level response plan and guidelines;
- To coordinate with, and give guidelines to, local authorities in the district to ensure that pre-disaster and post-disaster management activities in the district are carried out promptly and effectively;
- To review development plans prepared by the departments of the government at the district level, statutory authorities or local authorities with a view to make necessary provisions therein for prevention of disaster or mitigation;
- To identify building and places which could, in the event of disaster situation be used as relief centers or camps and make arrangements for water supply and sanitation at such buildings (places);
- To establish stockpiles of relief and rescue materials or ensure preparedness to make such materials available at a short notice;
- To provide information to the provincial authority relating to different aspects of disaster management;
- To encourage the involvement of non-governmental organizations and voluntary social-welfare institutions working at the grassroots level in the district for disaster management;
- To ensure communication and disaster management systems are in order;
- To perform such other functions as the provincial government or provincial authority may assign to it as it deem necessary for disaster management in the district.

### 8.2.3 MUNICIPAL AREA DISASTER MANAGEMENT COMMITTEE

Institutions at this level are the frontline for DRR and response. For many departments, this is the lowest level of administration where they interface directly with communities, agriculture, education, health, police, revenue and other departments. Extension workers of abovementioned departments could play a significant role in promoting disaster risk reduction. For example, agriculture extension workers could promote awareness of drought, flood or cyclone resistant crops. Health workers could raise people's awareness about potential diseases that may occur after flood or drought and how to prepare for them. Education officials could work on school disaster preparedness. Similarly, Municipal Corporations / Committees (MCs) have an important role in organizing emergency response and relief such as damage and loss assessment and recovery needs assessment. Under Sindh Local Government Act 2013, the Municipal Corporations and Committees are to facilitate, provide, manage, operate, maintain and improve the municipal infrastructure and services including water supply, control and development of water sources, other than systems maintained by union and village council, sewerage, vector control, sewage treatment and disposal, storm water drainage and firefighting.

#### 8.2.3.1 MUNICIPAL ADMINISTRATION

Responsibilities of Municipal Administration (Corporation / Committee) are as follows:

- The officials of the Municipal Administration shall establish round the clock *Control Rooms* during the emergency.

- The officials of the Municipal Administration shall ensure that dewatering pumping machines are in proper order for emergency.
- The officials of the Municipal Administration shall ensure proper cleaning of 'Mohalla' (neighborhoods) for draining out the rainy water during monsoon season.
- The officials of the Municipal Administration shall identify the dangerous buildings and take necessary action in accordance with Municipal Buildings Laws.
- The officials of the Municipal Administration shall ensure round the clock availability of fire brigade vehicle and concerned staff
- The officials of the Municipal Administration shall declare it essential for the staff to be present during the emergency in order to ensure the availability of staff.
- The officials of the Municipal Administration shall assist the concerned Revenue Officers for arranging labor and establishing Relief Camps in case of any emergency.
- The officials of the Municipal Administration shall arrange the required labor force and assistance from locals in case of emergency.

#### WITHIN 24 HOURS

- Declare the emergency, convene meeting with stakeholders for information and mobilization/ Coordination.
- Convene a meeting with stakeholders; create an Emergency Cell and an operations room.
- Activate the Contingency Plan.
- Activate the Clusters/ District Coordination Groups.
- Deploy a joint rapid needs assessment (RNA) Team to the affected areas.
- Start emergency relief based on rapid assessment.
- Submit information/ situation report to NDMA, relief agencies/ donors, INGOs and main relief actors.

#### WITHIN 48 HOURS

- Mobilize emergency funds / stocks available.
- Decide on resource mobilization options such as pooled funding.
- Present rapid needs assessment results to NDMA.
- Revise the strategic intervention plan and the division of roles and responsibilities.
- Convene Coordination meetings
- Deploy required additional staff
- Establishment of a multi-sectoral response according to identified properties.
- Suspend ongoing non-priority / essential programs.
- Collect and consolidate data for information bulletins (needs analysis)
- Send Funding Proposal to PDMA / NDMA / Donors.
- Evaluate the Security situation.

#### FIRST 2 WEEKS

- Consolidate information; analyze gaps and material assistance flow.
- Conduct through evolutions, plan 6 months intervention, identification of immediate consequences, and induced effects.
- Media briefings and press releases.

- Facilitate administrative procedures for the procurement of humanitarian equipment and goods.
- Identifications of reception sites for the affected population.

#### 8.2.4 PRIMARY RESPONSIBILITIES OF THE DISTRICT DEPARTMENTS

##### **Health Department**

- Plan and organize emergency stations for first aid and medical care to those who suffer injuries because of disaster.
- Assist in the evacuation and hospitalization of the disaster victims. Institute preventive and curative measures to prevent occurrence and spread of disease.
- Establish system of high readiness.
- Establish an emergency cell (medical) to ensure centralized planning, coordination and direction in disaster situation as well as an efficient planning and administration.
- Organize and equip medical teams to be sent to the disaster-hit areas. Ensure communication link between hospital and DDMA.
- Coordinate with district authorities in all matters of evacuation of the victims.

##### **Social Welfare and Community development**

- Organize coordination of all aid giving agencies in provision of relief goods to victims.
- Assist the designated department in rescue, evacuation and relief operations.
- Manage relief camps under the DDMA.
- Devise the criteria of victims for rehabilitation program.
- Collect public and private donations for relief of victims under the authorization of DDMA.

##### **Education Department**

- Make available school building near or within the areas likely to be affected by disaster to serve as temporary shelter or even for emergency operation center.
- Assist in survey of damage assessment.
- Organize relief teams to support the DDMA relief distraction teams.

##### **Communication and Works Department**

- Supervise, direct and control flood protection of roads, bridges and buildings etc.
- Coordinate survey, investigation of the extent of damage of roads, bridges and buildings etc.
- Organize emergency repairs for restoration of public means of communication.
- Survey and inspect vulnerable sites.
- Plan and possession adequate bridging equipment near vulnerable locations.

##### **Police**

- Ensure law and order during emergency.
- Provide assistance in warning, rescue, relief and evacuation operations.
- Take security measures at evacuation points, in evacuated areas, in relief centers.
- Effective use of "15" information calling service.

### **Civil Defense**

- Provision of search and rescue and evacuation services.
- Provide personnel for disaster training in rescue and relief works.
- Train the personnel in the operation of motor boats, first aid and lifesaving operations.

### **Irrigation Department**

- Supervise, direct and control flood prevention measures and *bunds* protection activities, such as strengthening, maintenance, repair and construction of additional embankments.
- Coordinate survey, investigations of extent of damage to *bunds* (embankments), canals and irrigation tube wells.
- Assist and coordinate emergency repair and subsequently restore damaged works under the control of irrigation department.
- Supervise and coordinate actions to save departmental stock and equipment.
- Complete repairs of the flood protection works in pre flood season.
- Review the plan for regulation of water supply.

### **Army**

- Assist the District Administration in relief, rescue and evacuation.
- Nomination of liaison officer to the DDMA.
- Organize delivery of food to affected persons including airdrops where essential.
- Provide engineering assistance in emergency repair work on damaged protective structure and vital installations.
- Train civil/military powerboat operators in case of flood disaster.
- Organize evacuation of households.

### **Pakistan Metrological Department**

- Collect metrological and climate data.
- Timely information dissemination to DDMA and other concerned departments
- Prepare and issue daily weather and forecast report.

### **Food Department**

- Ensure adequate availability of food stocks.
- Organize food supply center at locations required by the District Government.
- Shift food stocks from vulnerable zones to safer areas.

### **Finance Department**

- Provide timely funds for disaster response / operations.

### **Information Department**

- Disseminate information through mass media after verification to assist people.
- Proper information sharing with rural population on meeting disaster situations.
- Establish information cell in District emergency operation Center.
- Issue to the press and local TV and Radio Channels, the official handouts for clarification or contradiction of any disaster news / information appearing in the media.
- Assist DDMA in regular briefings to the press / media during emergency.

### Oil Companies

- Make available fuels, oils and lubricants at normal rates during emergency

### Radio FM Channel

- Close coordination with District Emergency Operation Center and Information Department.
- Disseminate the information about the early warning and hazard prone areas.
- Arrangement of the awareness-raising program during the disaster situations.
- Special news bulletin in collaboration with the DDMA.

### 8.2.5 MC AND UC LEVEL ACTIVITIES

During disaster emergencies, the MC and UC representatives will be involved in the delivery of the following activities within their jurisdiction:

- Send Initial Damage and Need Assessment Report to District EOC.
- Search and rescue operations in coordination with the Civil Defense and Police.
- Corpse disposal.
- Assistance to other agencies for mobility/transport of staff including rescue parties, Relief Personnel and Relief Materials.
- Communicate to the DEOC additional resources required by various control rooms.
- Establish communication links with DEOC, Union Council Disaster Management Committees (DMCs), NGO coordinating committee and Private donors.
- Issue passes and identity cards to relief personnel including the persons from NGOs operating in the affected area.
- Coordinate NGO activities through necessary support to ensure community participation by establishing coordination mechanisms among NGOs.
- Mobilizing and coordinating work of volunteers ensuring community participation.

### 8.2.6 NON-GOVERNMENTAL ORGANIZATIONS (NGO) AND VOLUNTARY AGENCIES

The Non-Governmental Organizations and voluntary agencies play an important role in disaster management and provide a strong band of committed volunteers with experience in managing the disasters. Their strength lies in the choice of their labor, the informality in operations and flexibility in procedures. These organizations enjoy a fair degree of autonomy and hence can respond to changing needs immediately.

However, in order to maintain uniformity in operations and effective co-ordination, it is desirable that they follow the standards of services (as given in the Guidelines), information exchange and reporting to enable the DEOC to have a total picture of resource availability, disbursements and requirements. NGOs therefore have been assigned specific tasks by the District Administration to undertake relief work within the overall institutional framework. As and where possible, NGOs may also be able to improve the quality of delivery of services. In addition, CBO Committees have been operating at the community level, especially in times of emergencies like building collapse, fires, and floods. Such committees have been identified at the UC / ward level. Specific activities in which NGOs/ Private Sector can be involved during disaster management operations are:

- Search and rescue operations
- Information dissemination
- First aid

- Disposal of dead bodies
- Damage assessment
- Management of information centers at temporary shelters
- Mobilization and distribution of relief supplies including finances
- Manpower for community mobilization, crowd control, rumor control, traffic management
- Specialized services (psychiatric and mental health assistance)
- Management of transit camps
- Rehabilitation activities

The following agencies will be associated with relief and rehabilitation activities. Most of these agencies have the capacity to mobilize required resources and have assisted the administration in the past in managing relief and rehabilitation activities. These agencies include:

- District Level NGOs
- INGOs
- UN Agencies
- WHO
- NCHD
- District Red Crescent Society
- CCBs and CBOs at Union Councils and Village level
- Others

### 8.2.7 COMMUNITY BASED ACTIVITIES

In partnership with NGOs already involved in risk reduction activities at the community level, the Union Councils and Village leaders should develop the Union's and Villages Disaster Management Plans based on the DEOC's Plans regarding actions during emergencies and disasters. The information mechanism systems should be devised as of ensuring the involvement of the local communities' role so that appropriate actions can be taken in time to reduce the risks and impacts of the disaster to the targeted areas.

## 8.3 ROLES AND RESPONSIBILITIES OF DISTRICT STAKEHOLDERS

### 8.3.1 GENERAL RESPONSIBILITY FOR EACH DEPARTMENT

Pre disaster preparedness

- Assign representatives for DDMA, .Participate in DDMA meetings .Capacity building of department regarding disaster
- Plan and identify potential resources
- Information sharing regarding capacities and needs of department

During

- Co-ordinate with District DEOC
- Mobilize the human resources for intervention during disaster.

Post disaster rehabilitation activities

- Cooperate with DDMA
- Facilitation to institutions / NGOs/ INGOs, which focus on rehabilitation activities.
- Capacity building of department regarding Disaster management

- Development of contingency plan in the light of lesson learned
- Preparation of impact assessment surveys covering strengths and weaknesses of interventions and impact on affected victims and dissemination learning to DDMA and other concerned institutions
- Prepare overall report of the department regarding intervention and disseminate to DDMA and other GOs / NGOs/INGOs

### 8.3.2 POLICE DEPARTMENT

#### Pre disaster preparedness

- Information dissemination through 15 helpline service to local residents
- Capacity building regarding disaster
- Prepare team for emergency intervention

#### During the disaster, immediate response

- Prohibits overloading goods in trucks.
- Shifting the rescued/affected people to hospitals
- Providing easy access to rescue and relief personnel/vehicles
- Corpse disposal
- Maintain law and order
- Provide warning / instruction to travelers
- Divert traffic on alternate routes as and when necessary.
- Ensure security to workers of NGOs and INGOS who perform duties for emergency response.
- Rescue
- Provide food services.

#### Post disaster rehabilitation activities

- Ensure security to workers of NGOs and INGOS who perform duties for rehabilitation of the victims.
- Development of contingency plan in the light of lesson learned
- Provide security in the safe area

### 8.3.3 REVENUE DEPARTMENT

#### Pre disaster preparedness

- Assessment of high prone areas and estimation of possible damage and needs for recovery in case of emergency
- Arrangements of financial resources (bloc-grants)
- Facilitation in getting tax exemptions to institutions/NGOs/INGOs focus on disaster management

#### During the disaster, immediate response

- Establish relief distribution centers
- Accept relief donations and relief support
- Timely release of funds
- Request assistance from the DEOC, as needed
- Submit financial reports to the DEOC of the operations for onward circulation to all stakeholders

#### Post disaster

- Assessment of damage of industry/business, crops and livestock and settlement of applicable taxes accordingly in coordination with industry, agriculture and irrigation departments.
- Facilitation to institutions / NGOs/ INGOs, which focus on rehabilitation activities.

### 8.3.4 HEALTH DEPARTMENT

#### Pre disaster preparedness

- Monitor the general health situation, e.g. monitor outbreak of diseases
- Provide specific information required regarding precautions for epidemics
- Establish a health mobile team in district & town headquarter hospital
- Set-up an information center to organize sharing of information for public information purposes
- Prepare first aid kits, medicines, water test kits, chloramines and anti-snake venom serum.
- Conducted training for medical staff and health personnel/community groups regarding preventive health care especially in disaster prone areas
- Collaboration with relevant organizations / partner NGOs for participation and support through financial and technical resources
- Up-gradation and smooth functioning of hospitals, BHUs, equipped with required staff and equipment
- Data base and linkages with ambulance services/blood banks
- Provision of the safe drinking water.
- Health Education (a never ending task)
- Early detection of cases.
- Ongoing Surveillance
- Facilitate education department and institutions regarding preparation of health related curriculum
- Facilitation to water management department in treatment and disposal of industrial and urban waste
- Ensure proper disposal of hospital waste

#### During the disaster, immediate response

- Prepare first aid kits, medicines, water test kits, chloramines and anti-snake venom serum.
- Facilitation & collaboration with all NGOs / INGOs and civil society organization working during the emergency response in health
- Mobile medical teams available.
- Providing emergency treatment for the seriously injured
- Ensure emergency Supplies of medicines and first-aid .Supervision of food, water supplies, sanitation and disposal of waste
- Assess and Co-ordinate provision of ambulances and hospitals where they could be sent, (public and private); .Provide special information required regarding precautions for epidemics
- Set-up an information center to organize sharing of information for public info purposes
- Communicate to DEOC any additional resources required

#### Post disaster

- Conduct impact assessment on Health

- Intervene immediately when there is a disease outbreak
- Medical camps and vaccination
- Facilitation to institutions / NGOs/ INGOs which focus on rehabilitation of health facilities
- Rehabilitation of health infrastructure affected during disaster
- Facilitate education department and institutions regarding preparation of health related curriculum
- In collaboration with water management department conduct impact assessment and monitoring to inspect treatment and disposal of industrial, urban waste and hospital waste

### 8.3.5 EDUCATION AND LITERACY

#### Pre disaster preparedness

- Teachers and students are informed about the disaster prone areas of the district
- Teachers and students are informed of their responsibilities to take care of materials and documents to safe places during disaster.
- In facilitation and collaboration with Health and environment department preparation of health & environment related curriculum
- In collaboration with Civil Defense systemize volunteers

#### During the disaster, immediate response

- Mobilize the human resources for intervention during disaster.
- Inform the schools situated in high risk areas on flood information (flood level)
- Arrangements for evacuees to set up relief & temporary shelter camps in educational institutes
- Facilitate health department in medical camps, blood donations and provision of medical aid
- In coordination with civil defense & community development department assign volunteers for emergency response.

#### Post disaster rehabilitation activities

- Assessment of damages occurred to educational institutes
- Assist to teachers & students and other staff who are victimized by disasters (lack of food, shelter, etc.)
- Need assessment of damaged educational institutes
- Rehabilitation and reconstruction of affected educational facilities
- Facilitation to institutions / NGOs/ INGOs which focus on rehabilitation of educational facilities

### 8.3.6 AGRICULTURE AND LIVESTOCK

#### Pre disaster preparedness

- Provide recommendation on changing/rescheduling of cropping patterns
- Create Community Seed Bank at Union Council level
- Provide live stock vaccination
- Assessment of high prone areas and estimation of possible damage and needs for recovery regarding livestock, crops, irrigation facilities in case of emergency
- Mass awareness regarding epidemics and diseases to live stock and crops
- Regular surveillance of rivers, canals, barrages and head works, other watercourses, which are most likely to be in flood.

- Close coordination with Meteorology department & media, especially during monsoon

During the disaster, immediate response

- Immediate transfer of current situation to DDMA and media to be spread for mass awareness
- Facilitate other departments to set up relief camps, temporary offices in canal rest houses and other buildings on need.
- Vaccination of livestock.

Post disaster rehabilitation activities

- Prepare report on damages and needs submit to DDMA
- Upgrade Community Seed Bank (CSB)
- Mass awareness regarding epidemics and diseases to live stock and crops
- Repair and rehabilitation of canals, barrages and head works, other watercourses, which damaged during flood.
- Close coordination with Meteorology department & media, especially during monsoon
- Timely compensation to affected farmers
- Vaccination of live stock

### 8.3.7 PLANNING DEPARTMENT

Pre disaster preparedness

- Get statistical data regarding possible damage and recovery needs from other departments such as Health, education, social welfare, agriculture.
- Plan and identify potential resources
- Facilitate other departments in planning

During the disaster, immediate response

- Prepare materials and equipment for emergency response.
- Responsible team distributes fuel to the affected areas

Post disaster rehabilitation activities

- Get statistical data regarding actual damage and recovery needs from other departments such as Health, education, social welfare, agriculture.
- Plan and identify potential resources
- Facilitate other departments in planning and execution of rehabilitation in cost effective manner.
- Coordinate with all line Departments

### 8.3.8 ARMY

Pre disaster preparedness

- Prepare necessary equipment, labor, transportation mean and other materials for emergency intervention
- Assist in evacuation of people to safe places before the disaster
- Providing training to soldiers and determined the role of the soldiers who are stationed in flood prone areas. Protect roads from getting flooded (i.e. sand bagging and enforcement of embankments)

During the disaster, immediate response

- Installation of temporary bridges, Bunds etc.
- Provide rescue services.
- Collate information and warn appropriate Army units
- Establish communications of disaster and supplement the civil communication set up if required
- Coordinate all military activity required by the civil administration.
- Provision of medical care with the help of the medical teams and treatment at the nearest armed forces hospital.
- Transportation of Relief Material
- Provision of logistic back up (aircrafts, helicopters, boats, etc.).
- Establishment of Relief Camps
- Assist in evacuation of people to safe places during the disaster

Post disaster rehabilitation activities Construction and Repair of Roads and Bridges

- Cooperate and coordinate with District authorities.
- Facilitate other departments in capacity building in sectors such as road construction, telecommunication, medical facilities and other infrastructural development

### 8.3.9 CIVIL DEFENSE

Pre disaster preparedness

- Information sharing regarding technical and personnel expertise with DDMA
- Conduct trainings for Volunteers' regarding first aid and other relevant expertise in collaboration with health and community development department
- Create awareness regarding rescue, evacuation and first aid
- Affectively establish, train and systemize volunteers initiatives in collaboration with education department / institutions

During the disaster, immediate response

- Fire fighting
- Rescue and evacuation
- In coordination with community development and education department assign volunteers for emergency response.
- Communicate to DEOC any additional resources required for performing the above tasks
- Facilitate on demand in disaster response.

Post disaster

- Identify gaps, make plan for future to overcome weakness of department.
- Capacity building of Civil Defense department, Volunteers regarding Disaster management

### 8.3.10 METEOROLOGICAL DEPARTMENT

Pre disaster preparedness

- Update and upgrade forecast equipment
- Timely and authentic forecast of rains, windstorms etc.

- Timely transfer of information regarding abnormal weather conditions to media

During the disaster, immediate response

- Timely and authentic forecast of rains, windstorms etc.
- Timely transfer of information regarding abnormal weather conditions to media and other concerned departments such as environment, agriculture & irrigation, civil defense, police and army

Post disaster rehabilitation activities

- In coordination with environment department conduct study of factors which cause abnormal weather changes

### 8.3.11 MEDIA

Pre disaster preparedness

- Publish, broadcast /telecast plans of DDMA regarding disaster management and also voice public opinion
- Close coordination with meteorology, irrigation, civil defense departments for announcing warnings and updates
- Awareness raising in collaboration with departments such as health, education, environment

During the disaster, immediate response

- Close coordination with meteorology, irrigation, civil defense departments for announcing warnings and updates
- Awareness raising in collaboration with departments such as health, education, environment and information.
- Publish, broadcast /telecast programs of safety measures during disaster

Post disaster

- Awareness raising in collaboration with departments such as health, education, environment
- Publish, broadcast /telecast programs highlighting strengths, weaknesses and scams in emergency response

### 8.3.12 NGOS AND INGOS

Pre disaster preparedness

- Facilitate DDMA member departments for capacity building regarding Disaster management
- Capacity building of community groups regarding disaster preparedness and management
- Linkages with concerned departments and institutions for providing technical and financial resources regarding diverse sectors related to disaster
- Resource mobilization at local and international level

During the disaster, immediate response

- Collaborate and facilitate in relief operations
- Incorporate local and international expertise in emergency response
- Establishment of temporary shelters & camps

- Facilitation in overall disaster response in collaboration with concerned departments (e.g. medical aid with health department)
- Updates and alerts to local & international partners
- Utilization of existing resources and further mobilization at local and international level

#### Post disaster rehabilitation activities

- Collaborate and facilitate in rehabilitation activities
- Incorporate local and international expertise in rehabilitation activities
- Facilitation in overall rehabilitation in collaboration with concerned departments (e.g. medical aid with health department)
- Conduct audit
- Linkages with partners for sustainable resource mobilization

## **Annexure A: Stakeholder's Consultation Workshops**

### **FIRST CONSULTATION WORKSHOP ON URBAN DEVELOPMENT STRATEGY FOR SUKKUR (2014 – 2035)**

**Held on 24 February 2014 at IBA - Sukkur**

The first Seminar on “Urban Development Strategy for Sukkur (2014-2035) held on 24 February, 2014 at main auditorium of IBA, Sukkur. The purpose of this seminar was to share salient features of the devised strategy and plans to pave a way for sustainable development of Sukkur, and to engage the dwellers of Sukkur for their valuable inputs on the strategy and the proposed development projects.

The participants (see Annexure A2) came from various sects of the city like District Administration, social and utility services departments, academia, traders association, industrialists, NGOs, CSOs etc. The speakers included Dr. Niaz Ahmed Abbasi, Commissioner of Sukkur, representatives of the Directorate of Urban Policy & Strategic Planning, P&D Department, Government of Sind, and the senior experts of the Osmani & Company Pvt. Ltd. Mr. Irfan Ahmed Ansari, Deputy Director Planning, Mr. Nabesh Akhter Memon, Deputy Director Municipal Services, Mr. Zulfikar Ali Kumber, Deputy Director Housing were representing the Directorate of UP&SP, Dr. Zahid Hussain, Registrar IBA Sukkur, Mr. Mubushar Hussain, Dr. M H Arsalan and Ms. Sajida Perveen were representing the Consultants of the project, Osmani & Company (Pvt.) Ltd.

“Involvement of stakeholders & public participation in the process of development strategic plan is essential and will ultimately help decision makers to implement the plan as per identified projects,” said Dr. Niaz Ahmed Abbasi, Commissioner of Sukkur.

In SWOT analysis, we found that there are more strengths than weakness and more opportunities than threats to the Sukkur city. There is a strong need to sincerely target the problem areas and get solution of these problems stepwise,” said by the Consultant’s team leader, Mr. Mubushar Hussain.

The speakers identified two important overarching challenges: understanding the interconnectedness of the infrastructure related problems with the management failures, and the importance of sufficient resources and capacity at every stage of the development plan,” continued Irfan Ahmed Ansari, Deputy Director Planning of the Directorate of UP&SP. The speaker’s objective was to highlight the identified problems and to share the strategic solutions and outline of development plan and its implementation through concerned authorities.

Opening remarks were delivered by the Commissioner of Sukkur, Dr. Niaz Ahmed Abbasi in detail in which he highlighted the important problems of the city and compare the Sukkur City with the other developed cities like London and Paris. He wisely gave valuable suggestions on how to improve the infrastructure related problems in the city. He also suggested that to avoid congestion in the city, the concept of satellite town should be introduce around the Sukkur City, and the inner city zone may be revitalize through the concept of smart development. On his turn, Dr. Zahid Hussain, shared his thoughtful remarks with participants on behalf of IBA Sukkur and highlighted the need to promote higher education through establishing public universities in Sukkur.

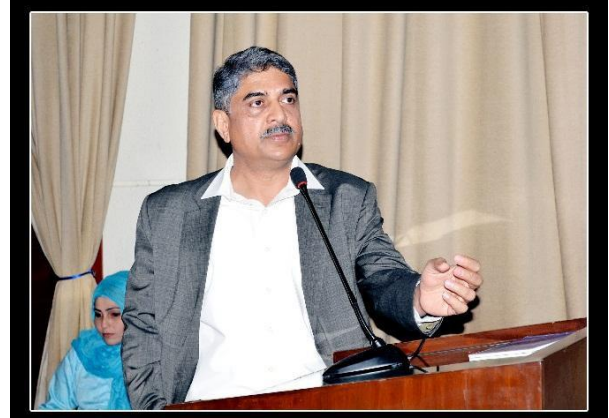
Mr. Mubushar Hussain and Dr. Mudassar Hassan Arsalan presented the existing situation of the city and the planning process followed in developing strategies for Sukkur. Additionally, they presented and shared the identified projects with the participant to get their inputs. For this purpose, a form for

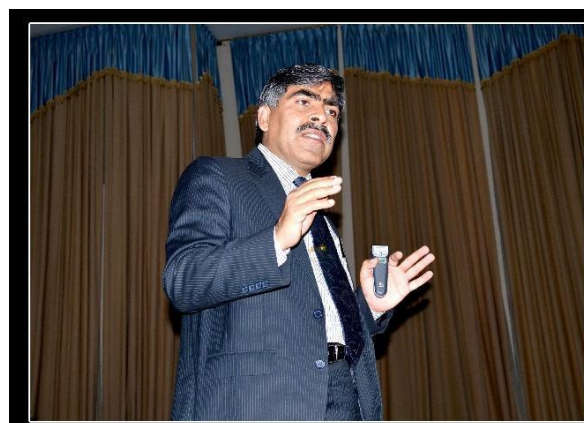
ranking the list of priority development projects was distributed to the participants to get the feedback on setting the priority as per the need identified by the locals of the city.

The question / answer session was a fruitful discussion due to active participation. Participants showed their interest very optimistically for the betterment of their city via verbal and written communications (see Annexure A4). Overall, this was a remarkable event to follow the concept participation of actual stakeholders. Following main points highlighted by the participants, which had been already incorporated while finalizing the Urban Development Strategy for Sukkur:

1. The proposed urban development strategy should cover the regional aspects
2. Development of satellite towns around Sukkur
3. Construction of alternate new bridge linking Sukkur with Rohri
4. Provision of adequate open spaces
5. Traffic management, parking space provision and removal of encroachments
6. Removing congestion in the CBD / old Sukkur and conservation of heritage
7. Provision of university and other higher education institutions
8. Efficient urban drainage
9. Shifting of market to new locations with adequate facilities
10. Reservation of additional land for future needs
11. Risk assessment particularly due to floods and potential breach of river embankments
12. Taking into account the environmental issues like noise, air and water pollution and exposure to sunlight / heat waves
13. Provision of graveyards and their proper maintenance
14. Waste water disposal and solid waste management on land fill sites

## ANNEXURE A1: SELECTED GLIMPSES OF FIRST WORKSHOP





## ANNEXURE A2: LIST OF PARTICIPANTS OF FIRST WORKSHOP

S. No	Name	Department/Designation	Email	Contact No.
1	Dr. Niaz Ahmed Abbasi	Commissioner Sukkur	Fax: 071-9310837	0313-3668455
2	Fayaz Ahmed	XEN S.M.C		0300-9310125
3	Muhammad Azam	AEN S.M.C		0300-3142291
4	Mashood ul Hassan	Asst. S.M.C	mh-memon24@yahoo.com	0346-3414956
5	Mir Akhtar Hussain	Sindh Wild Life		0300-3137841
6	Ghulam Mustafa Gopang	Deputy Director Fisheries		0300-3155854
7	Mr. Wajid Ali Abbasi	AD. Population Welfare Office	Wajid_ali3212@yahoo.com	0300-3112952
8	M. Islam	Fire Bridge Sukkur		0300-3132297
9	Sadho Khan	F.M.W.W F.I.B.R		0303-2494710
10	Shafiullah	W.W Bandar Road		0314-7738703
11	Sattar Sario	Irrigation Sukkur Branch	Sattarsario@gmail.com	0300-8316167
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14	Bharat Kumar	NAH-2T Larkana	bkrajpat4@gmail.com	0332-3003440
15	Ashraf Ali	OCL S.Surveyor		0321-2767487
16	Almas Jamil	OCL L.T.H.P		0346-3357204
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19	Mohammad Mithal	Surveyor Osmani(Consultant)		0302-4579256
20	Hamid Iqbal	Osmani Company Q.S		0300-9871060
21	Ghulam Shabbir	PMC-FERP-Sukkur	Shabbir.ali.mallah@gmail.com	0345-7000656
22	Najeebullah Mahesad	PMC-FERP-Sukkur	najeeb440@yahoo.com	0333-7550486
23	Ahmed Ali	T.M.A New Sukkur		0300-3105245
24	Zubair Ahmed	T.M.A New Sukkur (Clerk)		0322-3980550
25	Eidank	T.M.A New Sukkur		0302-2306490
26	M.asgar	T.M.A New Sukkur		0302-3615719
27	M.Arif Khan	T.M.A New Sukkur	asifb134@gmail.com	0315-2400997
28	Shahid Ali	T.M.A New Sukkur		0315-3900997
29	Majid Ali	T.M.A New Sukkur		
30	Khalid Lashir	T.M.A New Sukkur		0333-7175729
31	Abdul Hadi	P.B.S		0346-3673338
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34	Shoukat Chachar	IBA Sukkur	skoukat.ali@iba.sukkur.edu.pk	0333-7171055
35	Muhammad Ali	DEO Education Sukkur		0300-0218766
36	Tofique Ahad	On Behalf DEO Sukkur		0300-3135437
37	Roshan Ali	SBCA-Sukkur		0334-0025779
38	Kamran Korai	SBCA-Sukkur	Kamrankorai@hotmail.com	0345-3147777
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40	Dr. Mudassar.H.Arsalan	OCL	mharsalan@gmail.com	0321-2594300
41	Ashfaq Bhatti	AC SEPCO		0300-8313846
42	Sajida Perveen	OCL		0333-2170492
44	H.M jawed	President Sukkur Small Trader		0300-9315321
45	Abdul Sallar	Sukkur Small Trader		0300-3046262
46	Syed Qureshi	General Secretary SST		0300-8921216
47	Barkat Ali	Media Coordinator		0300-3131466
48	Pervaiz Chana	Sr. Vice President		0300-3131203
49	Nabesh Akhtar	UP & SP P&D Gos	nabesh786@yahoo.com	0300-3025256
50	Gulib Tanwair	Directorate of UP & SP		021-34300555
51	Khawaja Jalil	Vice President Sukkur Small trade Cottage Industries		0300-9310615
52	Zulfiqar Kumbhar	DD Housing DUP & SP	zulfi_13@hotmail.com	0307-2525349
53	Engr. Bhoro Lal	M/s Osmani (RE)	bhorolal@yahoo.com	0346-3842992
54	Engr.AhsanAli Goraho	M/s Osmani (ARE)	ahsanali_goraho@yahoo.com	0300-3414868
55	Saeed Ahmed Qureshi	Teacher		0333-7102587
56	Zulfiqar Ali Qureshi	Businessman		0301-3463878
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58	khalid Cheema	SMAD		0345-6243707
59	M.Arshad Shaheen	Umer Janzco		0301-6687755
60	Barkatullah	Surveyor Osmani		0310-1588868
61	Wajd Shah	L.T A.CC		0315-3637544
62	Masood Hussain	Student		0334-2964510
63	Muhammad Rehan	Trainee Engineer		0333-1337751
64	A.Sami Shaikh	L.T Osmani(Consutant)	A.sami634@yahoo.com	0312-3489584
65	Qurban Ali Kalwar	Director P&D		0300-9316369
66	Israr Hussain	Secretary General		0300-9314948
67	Naveed Shehzad	M/s Osmani Larkana		0346-8485285
68	A.Ghafoor Memon	Osmani-ME		

## ANNEXURE A3: ATTENDANCE SHEET OF 1<sup>st</sup> WORKSHOP

### URBAN DEVELOPMENT STRATEGY FOR SUKKUR

Seminar on Urban Development Strategy for Sukkur (2014 - 2035) 24

February 2014, Sukkur

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2	Abdul Sattar	Corvice Pr dw	AbdulSattar@gmail.com	03003046262
3	Shahid Qureshi	G.Sc SST-d	—do—	03008921276
4	Borhal Ali	Medical Coordinator	—do—	03003131466
5	Pervez Chana	Joint Secretary	—do—	03003131203
6	Nabesh Atchala	UPSR P&D CoS	nabesh786@yahoo.com	03003025256
7	Gulab Tinnawa	Director of UPSP	gulab_sindh@yahoo.com	021-3430555
8	Khawaja Talib	Vice President All Sindh Small Industries	KhawajaTalib@gmail.com	0300-9310615
9	Zulfiqar Khubree	DD Housing UPSP	zulfi_13@hotmail.com	0307-2525349
10	Engr. Bhuro Lal	M/S Osmami (RE)	bhuro_lal@yahoo.com	0346-3842992
11	Engr. Ahsan Ali Gado	M/S Osmami (ARE)	ahsanali.gado@yahoo.com	0300-3414868
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13	Saeed Ahmed Qureshi	Teacher	Sm. Qureshi@AIZ	03337102887
14	Zulfiqar Ali Qureshi	Businessman	—	03013463878
15	Faiz As	M/S Osmami (CM)	faizmangji@yahoo.com	0345-3900064
16	Khalid Cheema	SMAD Belawan / Lilly	—	0345-6243707
17	M. Arshad Shaban	umer Jan 20	—	0201-6687755
18	Badriddin	Secretary Osmami	—	0301588868
19	WASID Shah	L.T A.CC	—	03153637544
20	Masood Hussain	Student	—	03342964510
21	Muhammad Raza	Trainee Engineer	m.Rahandaya@gmail.com	0333-733701
22	A. Sami Shaker	L.T Osmami	A.Sami634@yahoo.com	0312-3489584
23	Qurban Ali Khan	Director P & D	—	0300-9316369
24	Israr Hussain	Sec-general chamber of commerce	—	0300-9314948
25	Naveed Sheikhzad	M/S Osmami Larkana	—	0346-8485285
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**URBAN DEVELOPMENT STRATEGY FOR SUKKUR**  
**Seminar on Urban Development Strategy for Sukkur (2014 - 2035) 24**  
**February 2014, Sukkur**

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35	Topuzar Ahmad	on Behalf DEP. Sukkur C/S Socialis		03003135437
36	Roshan Ali	SBCA - Sukkur	Kali.ali.kumbhar@gmail	03340025779
37	Kamran/Korai	SBCA - Sukkur	Kamran/Korai@hotmail	03453147777
38	Mubushar Hussain	OCL	mubushar@gmail.com	0300-9425447
39	Dr. Mudassar H. Ansari	OCL	mhassalan@gmail.com	0321-2594300
40	Ashfaq Bhatti	AC SEPCO	-	0300-8313846
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42	Dair Ahmed	Commissioner Sukkur	-	0313-3668455
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**URBAN DEVELOPMENT STRATEGY FOR SUKKUR**  
**Seminar on Urban Development Strategy for Sukkur (2014 - 2035) 24**  
**February 2014, Sukkur**

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5	Ghulam Mustafa Gopang	Deputy Director Fishing		0300-3155854
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7	M. Islam	Fire Brigadier SMC		03003132297
8	Sadha Khan	F.M.W.W. P.T.B.R		0303-2494710
9	Shafiqullah	W.W. Bunder Road		0314-7738703
10	SAT TAR SARD	Irrigation, Sukkur Br.	Satish Sard@gmail	0300-8316167
11	Eyo Abid Syal	NSCIC, Sukkur	raisaabid15@gmail	0331-3088899
12	Naseer Samra	Highway Sukkur	Ansari N. Samra	0333-7260579
13	Bharat Kumar	NAH-2T Larkana	bkrjainput@gmail	0332-3003440
14	Ashraf Ali	OCL S. Supervisor	ashraf	0321-2767487
15	Almas Jamil	OCL LTHP	Almas	03463357201
16	Najeeb Khan	A.Q.S	najeeb477@yahoo.com	03003131140
17	Taj Muhammad	Q.S. ALL (Contract)	+rokalwar@live.com	0300-3194431
18	Mohammad Mithal	Surveyor "Osmani (Contract)"	m.mithalamin@yahoo.com	0302,4579286
19	HAMID IDBAL	OSMANI COMP. Q.S	hammad-surveyor	0300-9871060
20	Ghulam Shabbir	PMC - FERP, Sukkur	shabbir.ali.mallik@gmail.com	0345-7000656
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23	Zulqais. Ahmed	T.M.A New Sukkur office clear		0322-3980550
24	Ejaz Ali	T.M.A New Sukkur		03022306490
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26	M. Arif Khan	T.M.A New Sukkur	Arif134@gmail	0315-2400997
27	Shehzad Ali	T.M.A New Sukkur		03153900987
28	Mawid Ali	T.M.A New Sukkur		
29	Khalid Lashari	T.M.A New Sukkur		0333-7175729
30	ABDUL HANIF	P.B.G		03463673338

ANNEXURE A4: LETTER FROM SUKKUR SMALL TRADERS OF 1<sup>st</sup> WORKSHOP

# SUKKUR SMALL TRADERS



## سکھر اسمال ٹریڈرز

24-02-2014 مورخہ

S.S.T: 56/02/14 حوالہ نمبر

محترم جناب عزت مآب ڈاکٹر نیاز علی عباسی صاحب کمشنر سکھر ڈویژن  
جناب مبشر حسین صاحب

جناب ڈاکٹر مدثر حسین صاحب، و دیگر معززین

ہمارے لئے آپ حضرات کا سکھر میں آنا اور شہر کی تعمیر و ترقی کیلئے ماسٹر پلان ترتیب دینا انتہائی خوش  
آئندہ اقدام ہے۔ 2014-2035 تک کی پلاننگ کرنے کے بجائے بڑھتی ہوئی آبادی اور مسائل کو دیکھتے  
ہوئے کم از کم 50 سال کی منصوبہ بندی کی جائے تو زیادہ بہتر ہے۔ اس سے قبل سکھر اسمال ٹریڈرز کی جانب سے  
سکھر شہر کے مسائل اور ان کے حل کیلئے آپ سے گفتگو کے دوران تحریری طور پر تجاویز دیں تھیں اور کمشنر سکھر کی  
کوششوں کی بدولت آج سندھ گورنمنٹ نے دلچسپی لیتے ہوئے کمشنر سکھر ڈاکٹر نیاز علی عباسی کی صدارت میں  
سیمینار کا انعقاد کیا ہے۔

پاکستان کے اہم ترین صوبہ سندھ کا تیسرا بڑا تاریخی، تجارتی اور صنعت کے اعتبار سے بڑا شہر سکھر بنیادی شہری  
مسائل کے ساتھ ساتھ تعلیم، صحت، ٹریفک جام، پینے کے صاف پانی کی فراہمی، نکاسی آب کے نظام کی خرابی،  
مختلف محلوں میں رابطوں کے فقدان سمیت دیگر مشکلات سے دوچار ہے۔ سکھر شہر کو اس کی آبادی، رقبہ اور  
اہمیت کے حساب سے کوئی بہتر سہولیات میسر نہیں۔

1۔ شہر کو درپیش مسائل پر ترتیب وار روشنی ڈالی جائے تو ان میں سرفہرست پینے کے صاف پانی کا مسئلہ شامل ہے،  
اکثر و بیشتر گنجان آبادی والے علاقوں میں پینے کے پانی کا بحران رہتا ہے جبکہ فلٹر شدہ پانی کی فراہمی نہ ہونے کے  
باعث شہری اور بچے مختلف امراض میں بھی مبتلا ہو رہے ہیں جس کیلئے ضروری ہے کہ ماسٹر پلان کے منصوبے میں  
پینے کے صاف پانی کی فراہمی کو یقینی بنانے کو بھی مد نظر رکھا جائے۔

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رابطہ معلومات: تاجریکریٹ گولڈ سینٹر صرفہ بازار سکھر (فون: 5622825, 5625260)  
E-mail: sukkursmalltraders@gmail.com (web: www.facebook.com/sukkursmalltraders)

# SUKKUR SMALL TRADERS



## سکھر اسمال ٹریڈرز

مورہ

S.S.T:

حوالہ نمبر

2- صحت سے متعلق سرکاری اسپتالوں میں دل کے امراض، برنس وارڈ، ڈائلاسیز، ہیپاٹائٹس سمیت دیگر موزی امراض کے ماہر معالجین اور طبی سہولیات کا فقدان ہے جس کے باعث شہریوں کو بھاری رقوم ادا کر کے مجبوری کی حالت میں بیرون شہر جا کر علاج کرانے پر مجبور ہیں۔ اس لیے ضروری ہے کہ یہاں پر رسول اسپتال سکھر کو اپ گریڈ کر کے صحت کی تمام تر سہولیات میسر کرنے کو بھی یقینی بنایا جائے۔

3- سکھر شہر کی آبادی 10 لاکھ سے زائد ہونے کے باوجود سکھر شہر میں کوئی جنرل یونیورسٹی، اپنا میڈیکل کالج، انجینئرنگ یونیورسٹی سمیت کوئی بڑا سرکاری تعلیمی ادارہ موجود نہیں ہے۔ جس کے باعث صاحب ثروت افراد اپنے بچوں کو بیرون شہر بھیج کر بھاری اخراجات برداشت کر کے اعلیٰ تعلیم دلانے پر مجبور ہیں جبکہ غریب اور متوسط طبقے سے تعلق رکھنے والے شہری اپنے بچوں کو اخراجات کی استطاعت نہ رکھنے کے باعث انہیں اعلیٰ تعلیم نہیں دلا سکتے۔ لہذا ضروری ہے کہ سکھر شہر میں جنرل یونیورسٹی سمیت مذکورہ درگاہیں قائم کرنے کی منصوبہ بندی کی جائے۔

4- سکھر شہر گنجان آباد ہونے کی وجہ سے شہری علاقوں میں ٹریفک جام کا مسئلہ گھمبیر ہو چکا ہے۔ جس کیلئے گزشتہ 30 سال سے اناج و آئرن مارکیٹ کی شہر سے باہر منتقلی معہ بنی ہوئی ہے۔ اس کے ساتھ ہی ڈینٹر پیٹرکالونی آباد ہونے کے باوجود شہر میں موٹر ملکینک اور مستری کی دکانیں تاحال قائم ہیں مکمل طور پر ملکینک ڈینٹر پیٹرکالونی میں منتقل نہ ہونے کی وجہ سے ٹریفک جام کا مسئلہ ہر آئینوالے دن کے ساتھ سنگین ہوتا جا رہا ہے۔ اس کی اصل وجہ یہ ہے مارکیٹ کی منتقلی کیلئے شہر سے باہر جو دکانیں الاٹ کی گئی ہیں وہ صرف اور صرف من پسند افراد کو الاٹ کی گئی ہے جبکہ اناج و آئرن کا کاروبار کرنیوالے اصل تاجر تاحال دکانوں کی الاٹ منٹ سے محروم ہیں۔ لہذا اناج و آئرن مارکیٹ کی شہر سے باہر منتقلی کیلئے ضروری ہے کہ پرانی الاٹ منٹ کو کینسل کر کے از سر نو حقیقی اناج و آئرن کا کاروبار کرنے والے تاجروں کو دکانیں الاٹ کی جائیں تو مذکورہ مارکیٹیں منتقل ہو سکتی ہیں۔ جس سے ٹریفک جام کے مسائل میں خاصی مدد ملے گی۔ جبکہ شہر میں چھوٹی، بڑی گاڑیوں کو کھڑا کرنے کیلئے کوئی پارکنگ ایریا موجود نہیں

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رابطہ و معلومات: تاجر سیکریٹریٹ گولڈ سینٹر صرافہ بازار سکھر (فون: 5622825, 5625260)

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# SUKKUR SMALL TRADERS



## سکھر اسمال ٹریڈرز

مورخہ

S.S.T:

حوالہ نمبر

جس کے باعث سڑکوں کے کنارے گاڑیاں کھڑی کرنے، خود ساختہ ٹرانسپورٹ اڈوں کے باعث شاہراہیں سکڑ چکی ہیں جس سے ٹریفک جام کے مسائل کے ساتھ ساتھ بیدل چلنے والے راہگیروں کو بھی مشکلات کا سامنا ہے جس کے حل کیلئے پارکنگ ایریا بنانے کی منصوبہ بندی بھی انتہائی ضروری ہے۔

5۔ شہر کی بڑی آبادی کو ملانے کیلئے بینظیر بھٹو اور ہیڈ برج جسے نیو پنڈ پل کے نام سے بھی پکارا جاتا ہے۔ غلط منصوبہ بندی اور پروجیکٹ کے نقشے کے مطابق تعمیر نہ کرنے کے باعث ریس کورس روڈ سکڑ کر آدھا رہ گیا ہے۔ یہ بھی ٹریفک جام کے مسئلے کی بڑی وجہ ہے۔ لہذا نیو پنڈ پل کو اپنے اصل نقشے کے مطابق جس میں پل کا ایک روڈ ایکسپانژ آفس کے قریب اترنا تھا تعمیر کیا جائے جس سے ٹریفک جام کے مسئلے کے حل میں مدد مل سکتی ہے۔ لہذا نیو پنڈ پل کو اصل نقشے کے مطابق تعمیر کر کے ہی پل کی افادیت حاصل کی جاسکتی ہے۔ بصورت دیگر نیو پنڈ پل بننے سے فائدہ کم اور مشکلات زیادہ ہو چکی ہیں۔

6۔ صفائی ستھرائی، فراہمی و نکاسی آب کیلئے گزشتہ کئی سالوں کے دوران بڑے منصوبے، پلاننگ، اربوں روپے کے بجٹ خرچ کرنے کے باوجود صفائی، ستھرائی کا نظام بہتر ہونے کے بجائے مزید ابتر ہو چکا ہے۔ منصوبے، اعلانات، سیمینار، تقاریر، مشورے، تجاویز لینے کے باوجود اس کے ثمرات تاجروں اور شہریوں تک نہیں پہنچ رہے۔ شہر کے اندر صفائی ستھرائی کو بہتر بنانے کیلئے مستقل بنیادوں پر بہتر منصوبہ بندی کی اشد ضرورت ہے۔

7۔ سندھ، پنجاب، بلوچستان کے درمیان صنعتی حب کا درجہ رکھنے والے تاریخی، تجارتی اہمیت کے حامل سکھر شہر میں سرمایہ کاری کے بے شمار مواقع موجود ہیں لیکن بد قسمتی سے بہتر سہولیات نہ ہونے، انفراسٹرکچر کی خستہ حالی، پانی، بجلی، گیس کے بحران کی وجہ سے سرمایہ داروں کی دلچسپی میں کمی ہوتی جا رہی ہیں۔ گزشتہ 20 سال سے زائد کا عرصہ گزر گیا لیکن آج تک یہاں پر ڈرائی پورٹ، ایکسپورٹ پروسسنگ زون کا منصوبہ مکمل نہیں ہو سکا ہے۔ لہذا ماسٹر پلان کے منصوبے میں ڈرائی پورٹ کے قیام کو بھی شامل کیا جائے تاکہ یہاں پر سرمایہ کاری اور تجارتی سرگرمیوں کو فروغ دیا جاسکے۔

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# SUKKUR SMALL TRADERS



## سکھر اسمال ٹریڈرز

مورخہ

S.S.T:

حوالہ نمبر

8۔ اکثر و بیشتر مختلف رابطوں میں فقدان کے باعث خطیر رقم کی لاگت سے نئی تعمیر شدہ سڑکیں چند روز بعد ہی کھودی دی جاتی ہیں جس سے ایک جانب شہر کے حسن میں بگاڑ پیدا ہوتا ہے تو دوسری جانب خطیر رقم کا بھی ضیاع ہو جاتا ہے۔ پلاننگ کرتے وقت ایسا سسٹم بنایا جائے کہ سڑک کی تعمیر سے قبل ہی پینے کے پانی کی فراہمی کی پائپ لائنیں، نکاسی نظام کی لائنیں، محکمہ پی ٹی سی ایل سمیت دیگر کمپنیاں اپنی ٹیلی فون لائنیں بچھانے کا کام مکمل کریں اور سڑک کی تعمیر کے بعد اس کی کھدائی کی ہرگز اجازت نہیں دی جائے۔ جس سے شہر کی تعمیر و ترقی میں خاصی مدد مل سکتی ہے۔

9۔ سکھر شہر اور اس کے آس پاس کے علاقوں کے رہائشیوں اور تاجروں کو تفریحی سہولیات کی فراہمی کو یقینی بنانے کیلئے پارکوں کی حالت زار کو بہتر بنانے کی بھی ضرورت ہے، شہریوں کو تفریحی کی بہتر سہولیات فراہم کرنے کیلئے لب مہران، قاسم پارک سمیت سکھر بیراج کے قریب دریائی حصہ پر چیئر لفٹ اور بہترین تفریحی گاہ کی منصوبہ بندی بھی انتہائی ضروری ہے اور بہتر منصوبہ بندی کر کے شہریوں کو اس مقام پر بہتر تفریحی کے مواقع فراہم کیے جاسکتے ہیں۔ جیسا کہ سکھر اسمال ٹریڈرز کی جانب سے شہر کے بہتر مفاد میں چند تجاویز پیش کی گئی ہیں۔ امید ہے کہ انہیں مد نظر رکھتے ہوئے ماسٹر پلان ترتیب دیا جائے گا تاکہ تاجروں اور شہریوں کو مسائل سے نجات دلا کر سکھر شہر کی خوبصورتی میں اضافہ کیا جاسکے۔ شکریہ۔

حاجی محمد جاوید میمن

محمد جاوید

صدر

سکھر اسمال ٹریڈرز

PRESIDENT  
SUKKUR SMALL TRADER

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## **SECOND CONSULTATION WORKSHOP ON URBAN DEVELOPMENT STRATEGY FOR SUKKUR (2014 – 2035)**

**Held on 9<sup>th</sup> June 2014 at Interpark inn Hotel, Sukkur**

The second stakeholder workshop on “Urban Development Strategy for Sukkur (2014-2035)” held on 9<sup>th</sup> June, 2014 at Interpark Inn Hotel Sukkur. The purpose of this consultation workshop was to share salient features of the devised strategy and plans to pave a way for sustainable development of Sukkur and to engage the stakeholders of Sukkur for their valuable inputs on the strategy and the proposed development projects.

The participants (see Annexure A6) came from various sects of the city such as representatives from Provincial Government, District Administration, social and utility services departments, academia, traders association, industrialists, NGOs, CSOs etc. The speakers included Syed Abdul Qadir Shah, Chairman, PEC, M. Saleem Bandhani, MPA-Sukkur, representatives of the Directorate of Urban Policy & Strategic Planning, Planning & Development Department, Government of Sindh, and the senior experts of the Osmani & Company Pvt. Ltd. Mr. Mudassar Iqbal, Director General, Mr. Mumtaz Ali Halepoto, Director Planning, Mr. Mehtab Ahmed, Deputy Director, Mr. Nabesh Akhter Memon, Deputy Director Municipal Services, Mr. Zulfiqar Ali Kumber, Deputy Director Housing were representing the Directorate of Directorate of Urban Policy & Strategic Planning. Mr. Haider Abbas Zaidi, Executive Director, Mr. Mubushar Hussain, GM (Planning) Dr. M H Arsalan, GM (Planning & GIS) and Ms. Sajida Perveen, Executive Manager (Planning & GIS) were representing the Consultants, Osmani & Company (Pvt.) Ltd.

“Once approved from Government of Sindh, urban development strategy for Sukkur will be implemented through Commissioner Sukkur,” said Syed Abdul Qadir Shah, Chairman, Pakistan Engineering Council (PEC).

“There is strong need for public-private partnership and Rohri should be treated as “shareholder” rather than part of the Urban Development Strategy of Sukkur,” said M. Saleem Bandhani, MPA-Sukkur.

“Water supply and solid waste management issues of Sukkur city needs to be resolved on immediate basis,” said by the representative, Sukkur Chamber of Commerce and Industry.

Opening remarks were delivered by the Mudassar Iqbal, Director General, Directorate of Urban Policy & Strategic Planning in detail in which he highlighted the important problems of the city and give suggestions for urban development of the Sukkur City similar as other developed cities of the world. He wisely gave valuable suggestions on how to improve the infrastructure related problems in the city. He also give his valuable insight on the project and the implementation of it through the identified projects via concerned authorities.

The speakers identified two important overarching challenges: understanding the interconnectedness of the infrastructure related problems with the management failures, and the importance of sufficient resources and capacity at every stage of the development plan,” continued Mr. Mumtaz Ali Halepoto, Director Planning, Directorate of Urban Policy & Strategic Planning. The speaker’s objective was to highlight the identified problems and to share the strategic solutions and outline of development plan and its implementation through concerned authorities.

On his turn, Mr. Shakeel Ahmed Mukhtar, Vice President of the Federation of Chamber of Commerce and Industry, shared his thoughtful remarks with participants on behalf of Sukkur Chamber of Commerce and industry and highlighted the need to promote stakeholder's involvement in the urban development plan and policies.

Mr. Mubushar Hussain and Dr. Mudassar Hassan Arsalan presented the existing situation of the city and the planning process followed in developing strategies for Sukkur. They suggested that to avoid congestion in the city, the concept of satellite town should be introduced around the Sukkur City and the inner city zone may be revitalized through the concept of smart development. Additionally, they presented and shared the identified projects with the participant to get their inputs. For this purpose, a form for ranking the list of priority development projects was distributed to the participants to get the feedback on setting the priority according to the need identified by the locals of the city.

The question / answer session was a fruitful discussion due to active participation. Participants showed their interest very optimistically for the betterment of their city via verbal and written communications. Overall, this was a remarkable event to follow the concept participation of actual stakeholders. Following main points were highlighted by the participants, which have been already incorporated while finalizing the Urban Development Strategy for Sukkur:

1. The concerned authorities on efficient basis should implement the devised urban development strategy.
2. Representative of the Chamber of Commerce and Industry should be part of the vigilance team of stakeholders to monitor the projects implementation
3. The proposed urban development strategy should cover the regional aspects
4. Removal of Encroachments along roads
5. Development of satellite towns around Sukkur
6. Construction of alternate new bridge linking Sukkur with Rohri
7. Provision of adequate open spaces
8. Traffic management, parking space provision and removal of encroachments
9. Removing congestion in the CBD / old Sukkur and conservation of heritage
10. Provision of university and other higher education institutions
11. Efficient urban drainage
12. Shifting of market to new locations with adequate facilities
13. Reservation of additional land for future needs
14. Risk assessment particularly due to floods and potential breach of river embankments
15. Taking into account the environmental issues like noise, air and water pollution and exposure to sunlight / heat waves
16. Provision of graveyards and their proper maintenance

## 17. Waste water disposal and solid waste management on land fill sites

## ANNEXURE A5: SELECTED GLIMPSES OF THE SECOND SEMINAR





## ANNEXURE A6: LIST OF PARTICIPANTS OF SECOND WORKSHOP

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## ANNEXURE A7: ATTENDANCE SHEET OF 2<sup>nd</sup> WORKSHOP

### URBAN DEVELOPMENT STRATEGY FOR SUKKUR Workshop on Urban Development Strategy for Sukkur (2014 - 2035) 9th June 2014, Sukkur

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**URBAN DEVELOPMENT STRATEGY FOR SUKKUR**  
**Workshop on Urban Development Strategy for Sukkur (2014 - 2035)**  
**9th June 2014, Sukkur**

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**URBAN DEVELOPMENT STRATEGY FOR SUKKUR**  
**Workshop on Urban Development Strategy for Sukkur (2014 - 2035)**  
**9th June 2014, Sukkur**

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106	Ghulam Mustafa	Deputy Director		0300-3155854
107	Munir Ahmad	Registrar		03133153722
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**URBAN DEVELOPMENT STRATEGY FOR SUKKUR**  
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## Annexure B: Meetings with line department of Government of Sindh



**DIRECTORATE OF URBAN POLICY & STRATEGIC PLANNING**  
**PLANNING & DEVELOPMENT DEPARTMENT**  
**GOVERNMENT OF SINDH**



### ATTENDANCE SHEET

**Meeting on “Preparation of Urban Development Strategies for Sukkur & Larkana” Held on 9<sup>th</sup> July, 2014 at Conference Room of Directorate of Urban Policy & Strategic Planning, Karachi.**

S. No	Name	Designation	Organization
1	Shaista Mubarak	Additional Director (Dev.)	Health Deptt. Govt. of Sindh
2	Dr. Saeed Ahmed	Commissioner Larkana	GoS
3	Mumtaz Ali	Larkana Director UP & SP	UP & SP
4	Faisal Ahmed Uagili	Director (Afm) UP & SP	UP & SP
5	Muhammad Faraz Khan	Deputy Director Planning & UP&SP	UP & SP
6	Muhammad Abbas Baksh	Commissioner Sukkur	GoS
7	Feru Mal. Rohra	S.E (Wts) LRK Focal Person Wts Deptt.	W&S Deptt. Larkana
8	Khalil Ahmed Soomro	S.E	PHED Sukkur
9	Abdul Wahab Sahito	XEN	PHED Larkana
10	Aleem Ullah Rajput	Assistant Director Agriculture	Agriculture Deptt.
11	Mubushar Hussain	GM (Urban Planning)	Osmani & Co. (Pvt.) Ltd.
12	Dr. Mudassir H. Arsalan	GM (Planning & GIS)	Osmani & Co. (Pvt.) Ltd.
13	Badruz Zaman	XEN Warah Div. Larkana	Irrigation Deptt. Larkana
14	Abdul Jabbar Kazi	Deputy Scy. Technical	Forest & Wild Life
15	Prem Chand Talreja	S.E	W&S Sukkur
16	Naveed Agro	Senior Urban Planner	EA Consultant

## **MEETING NOTES**

**(9<sup>th</sup> July 2014 at Directorate of UP&SP)**

Consultation meeting with line department of Government of Sindh was held in the Directorate of UP&SP at 10:00 AM. Mr. Mudassir Iqbal (Director General – Directorate of UP&SP, P&D Dept. and Govt. of Sindh) chaired the meeting with co-chaired by Muhammad Abbas Baloch (Commissioner – Sukkur) and Dr. Saeed Ahmed (Commissioner – Larkana). The main agenda was to discuss and finalize the Report on Urban Development Strategy for Sukkur and associated challenges and issues.

In this meeting most of the time was devoted for Larkana District. However, Commissioner Sukkur gave his views and observations in detail. He commented that the Report is very important, comprehensive, and very useful for the planners. He also mentioned that after implementation of the devised Urban Development Strategy, Sukkur would become well developed. He gave his detailed observations and proposals as under:

- i. To get the effective and fruitful results the Urban Development Strategy Plan for Sukkur may increase for 30 years instead of 20 years by distributing them as Short, Medium & Long Term Development Plans of Sukkur City.
- ii. To attract the tourists following historical public places must be added in your report for rehabilitation & renovation. This project may take with Public Private Partnership, policy of Sindh Govt. Muhammad Bin Qasim Masjid at Arore Rohri, ii) Mir Masoom Shah Minara, iii) Pir Illahi Bux Tower, iv) Victoria Clock Tower, v) Tomb of Adam Shah Kalhoru, vi) Tomb of Shah Khairuddin, vii) Tomb of Shah Saddarudin, viii) Masjid & Tomb at War Mubarak Rohri, ix) Sattian jo Astano, x) Bukkur Fort, xi) Lloyd Barrage Sukkur, xii) Ayub & Lansdowne Bridge Rohri and xiii) Sadho Bello in River Indus Island.
- iii. Proposed to develop Island in River Indus by connecting with Lab-e-Mehran as a tourist spot.
- iv. To develop scenic recreation & tourist spot it has been proposed a cable chair lift across River Indus in addition to construction of one more bridge over River Indus to connect Sukkur with Rohri city and up-gradation of River Indus banks on both sides.
- v. To develop an archaeological site of Lakhueen-jo-Daro located in SITE area Sukkur, enabling to attract the tourists. This site is also contemporary to Mohen-jo-Daro and excavated in 1994.
- vi. Proposed for rehabilitation of available historical public parks of Sukkur city in addition to develop green belts along both sides of River Indus: i) Muhammad Bin Qasim Park at Minara road Sukkur, ii) Ghazi Abdul Rasheed Park at Minara road Sukkur, iii) Shah Abdul Latif Park in old Sukkur, iv) Lab-e-Mehran Park, v) Gaznavi Park at Miani road Sukkur, vi) Hawai Park near Masoom Shah Minara Sukkur, vii) Tek Chand Bal Chand Park, Bunder road Sukkur and other old parks of Sukkur and Rohri.

At the end meeting was adjourned until 14<sup>th</sup> July 2014 with the comments for more deliberations of line departments.

## ATTENDANCE SHEET



**DIRECTORATE OF URBAN POLICY & STRATEGIC PLANNING**  
**PLANNING & DEVELOPMENT DEPARTMENT**  
**GOVERNMENT OF SINDH**



**Meeting on “Preparation of Urban Development Strategies for Sukkur & Larkana” Held on 14<sup>th</sup> July, 2014 at Conference Room of Directorate of Urban Policy & Strategic Planning, Karachi.**

S. No	Name	Designation	Organization
1	Abdul Jabbar Kazi	Deputy Scy.(Technical) Forest, Environment & Wildlife Department	Forest, Environment & Wildlife Department
2	Sheeraz Akhtar	Manager (Mapping & Planning)	Osmani & Co. (Pvt.) Ltd.
3	Imran Khan	Manager (GIS)	Osmani & Co. (Pvt.) Ltd.
4	Masood Jafri	Director	EA Consultant
5	Naveed Agro	Senior Urban Planner	EA Consultant
6	Hyder Raza Khan	Conservator Forest, Social Forestry Sukkur Circle	Sindh Forest Dept.
7	Mohammad Ali Mir	DFO SF Larkana	Sindh Forest Dept.
8	Waqar Hussain	Director Technical	SEPA
9	Dr. Ashique Ali Langah	Director ROK	SEPA
10	Fariha Zubair	Urban Planner	EA Consultant

## **MEETING NOTES**

**(14<sup>th</sup> July 2014 at Directorate of UP&SP)**

Consultation meeting with line department of Government of Sindh was held in the Directorate of UP&SP at 3:00 PM. Mr. Abdul Jabbar Kazi (Deputy Scy chaired the meeting. (Technical) – Forest, Environment & Wildlife Department). The main agenda was to discuss and finalize the Report on Urban Development Strategy for Sukkur and associated challenges and issues. Following are the main points, their resolution / decision and actions to be taken.

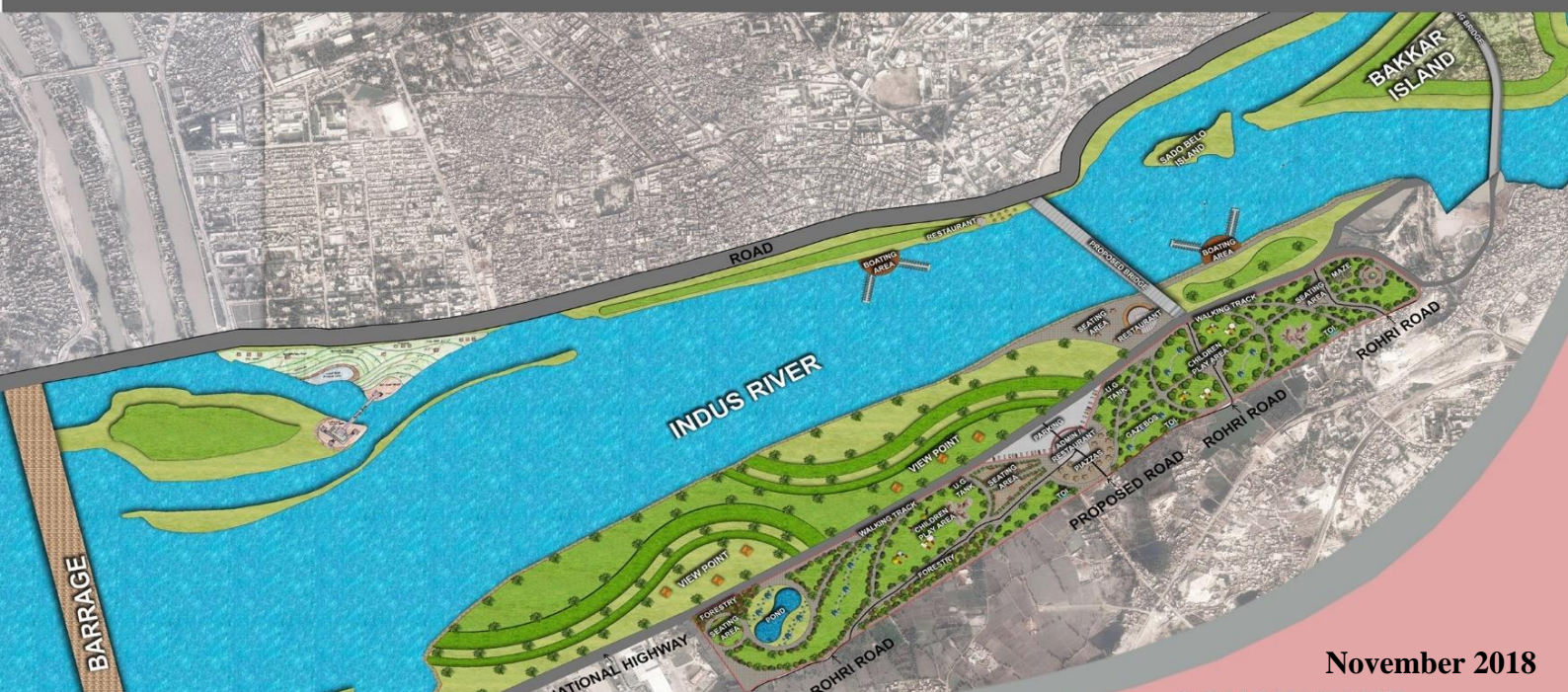
1. Consultant will analyze the provided data for social forestry development.
2. Project focused area should be the Municipal Limits.
3. Anything that can influence urban environment should be analyzed.
4. Parks, green spaces and other recreational activities management should give preference.
5. Roadside Parks and landscaping should be proposed (ROW for major Roads must kept as protected forest site.)
6. Areas available at bank side can be suggested for plantation.
7. Indus Dolphin Conservation should be prioritized.
8. Area available (2 acres) near Lab-e-Mehran & Indus Dolphin Conservation Centre may be proposed for a park.
9. Construction, Development and Maintenance Authority preferably work as one unit.
10. Preference should be given to waste to energy projects for solid waste management instead of landfill site.
11. Treatment of sewage must be planned on practical ground before ultimate disposal (River).  
Treated sewage can also be used for some other purposes.
12. Local Indigenous species should be proposed for landscaping.

DIRECTORATE OF URBAN POLICY & STRATEGIC PLANNING  
PLANNING & DEVELOPMENT DEPARTMENT  
GOVERNMENT OF SINDH

## ***ADDENDUM – 2018***

### **REVISED FINAL STRATEGIC DEVELOPMENT PLAN REPORT**

**PREPARATION OF URBAN DEVELOPMENT STRATEGY FOR  
SUKKUR, SINDH (2014 - 2035)**



## **PREAMBLE**

Worthy Chief Minister approved Urban Development Strategies for Sukkur on 30-10-2018 for their notification and subsequent implementation with the following observations:

- (i) Data is of 2013 and needs to be updated
- (ii) Census numbers are of 1998 and should be updated for latest census

2. The Directorate of Urban Policy and Strategic initiated the process to update the data and census numbers in view of observations of Honorable Chief Minister by approaching Pakistan Bureau of Statistics for official Census 2017 data on population and housing, and other relevant government departments and organizations for latest data for various socio-economic and physical infrastructure and services sectors.

3. Pakistan Bureau of Statistics supplied population data for Sukkur on District and Tehsil levels detailing urban and rural population composition and number of households. The remaining details of population census data and all the details of housing data have not been shared by Pakistan Bureau of Statistics arguing that Final Results of Census 2017 are in approval stage and as soon as the same are approved, these will be released accordingly.

4. Based on Census 2017 data received from Pakistan Bureau of Statistics and latest data received for various socio-economic, and physical infrastructure and services sectors from a number of official sources including the relevant line departments and Bureau of Statistics, Government of Sindh, the Census numbers and data for Demography and Social services including Education and Health; Infrastructure including Water supply. Sewerage and Drainage, Solid Waste Management and Roads and Transport; Ecology, Environment and Disaster Management; and Economic Development Encompassing Agriculture, livestock, Fisheries, Dairy, Tourism, Industries and development portfolio expenditure have been updated and made part of an Addendum to Urban Development Strategy for Sukkur subsequent to approval of the Competent Authority.

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## **Demography, Health and Education**

REVISED FINAL STRATEGIC DEVELOPMENT PLAN REPORT  
PREPARATION OF URBAN DEVELOPMENT STRATEGY FOR SUKKUR, SINDH (2014 - 2035)

## 2.1.1 DEMOGRAPHIC CHARACTERISTICS

### SUKKUR DISTRICT

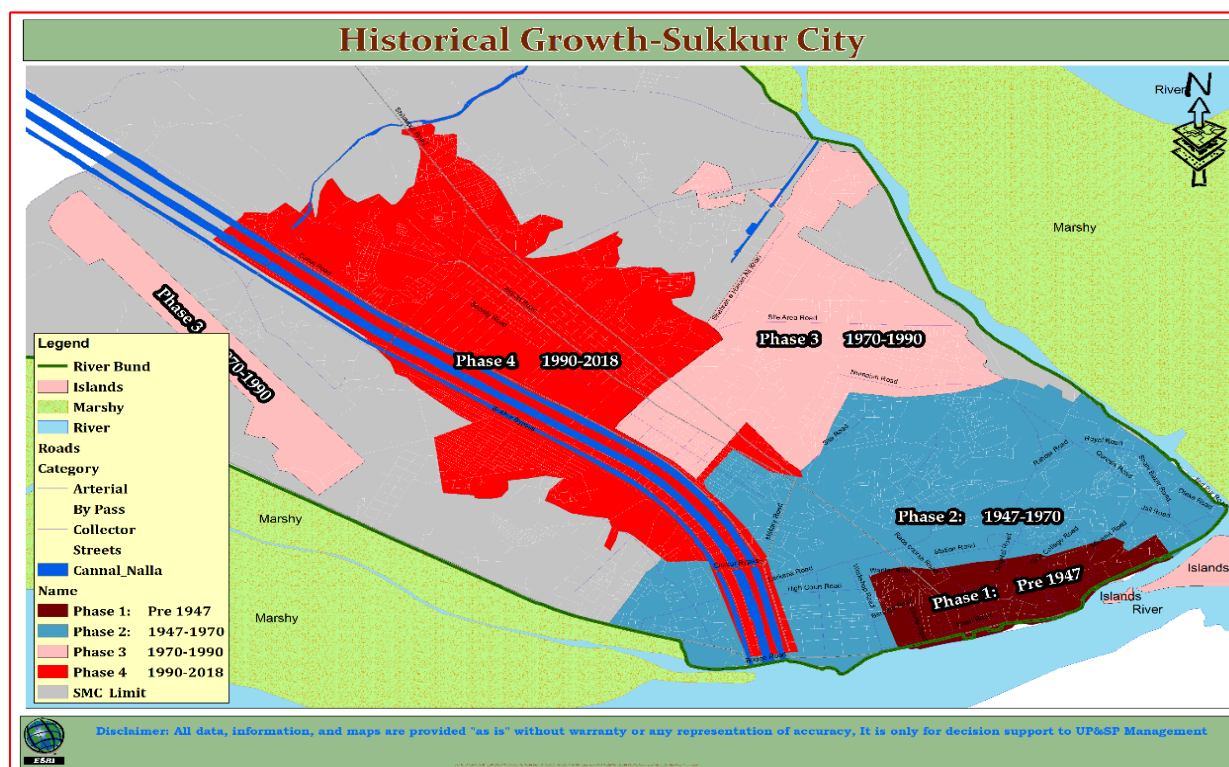
According to Census 2017, Population of Sukkur District (comprising five Taluka) in 2017 was 1.48 million, which is growing at an Annual Growth Rate (AGR) of 2.49% and is estimated at 1.52 million in 2018

**Table 1-2: Estimated Population Characteristics of Talukas in 2018**

Administrative Unit	Male	Female	Transgender	Total	Number of Households	Average Household Size	Total	Number of Households
Census 2017				2018 (Projected)				
Sukkur District	776,259	711,587	57	1,487,903	263,042	5.65	1,524,951	269,599
New Sukkur Taluka	-	-	-	319,768	55,477	5.76	326,579	56,659
Pano Aqil Taluka	-	-	-	435,823	74,172	5.87	448,287	76,295
Rohri Taluka	-	-	-	371,104	66,265	5.6	381,717	68,160
Salehpat Taluka	-	-	-	129,619	24,630	5.26	133,326	25,334
Sukkur City Taluka	--	-	-	231,589	42,498	5.44	236,521	43,404

**Source:** Population Census 2017 and Directorate's Estimates

### SUKKUR CITY AND NEW SUKKUR



**REVISED FINAL STRATEGIC DEVELOPMENT PLAN REPORT**  
**PREPARATION OF URBAN DEVELOPMENT STRATEGY FOR SUKKUR, SINDH (2014 - 2035)**

According to census 2017, population of Sukkur City and New Sukkur Taluka was 507,704. AGR for these two talukas was 2.13. Applying the latest census AGR, the combined projected population of Sukkur City and New Sukkur would reach up to 741,942 by year 2035.

As per Census 2017 there are a total of 90,347 households in Sukkur (47,849 in New Sukkur Urban and 42,498 in Sukkur City) which results in the average household size of 5.61.

**Table 2-1: Population Forecasts for Sukkur City and New Sukkur**

Population years	Population (Persons)	Incremental Population	AGR
1998	335,551		
2013	552,467	216,916	3.38
2015	590,445	37,978	3.38
2017	507,704	Nil	-
2018	518,518	10,814	2.13
2020	540,842	22,324	2.13
2025	600,948	60,106	2.13
2030	667,734	66,786	2.13
2035	741,942	74,208	2.13

**Source:** Population Census 2017, Directorate's estimates

## 2.1.3 HEALTHCARE FACILITIES

Situation regarding overall health indicators of District Sukkur is given as under;

**Table 2-10: District Health Indicators**

Indicator	Value 2013	MICS 2014
Antenatal Care Received at Public sector facility	26%	90.80%
Pregnant Women who received TT vaccine	55%	
Deliveries taking place in public sector facilities	10%	70.30%
Deliveries conducted by a skilled birth attendant	48%	
Postnatal care received at public sector facility	13%	90%
Children 12-23 months old fully immunized	71%	27.90%

**Source:** MICS 2014, Bureau of Statistics, P&DD Govt of Sindh

### 2.1.3.1 PUBLIC HEALTHCARE FACILITIES

The details of public healthcare facilities in District Sukkur are as under:

**Table 2-10 -1: District Health facilities**

Health facilities	Govt, Semi Govt and Local Bodies Health Facilities	Beds
Total	104	895

Source: Health Profile of Sindh 2016, Bureau of Statistics Planning & Development Department, Government of Sindh

Overall situation regarding availability of hospital beds in Sukkur District is shown as under:

**Table 2-10-2: Details of hospital beds**

Population	BED Capacity	Available Beds	Present Need	Required Beds
2017		895	2,976	2,081
1,487,903				
Future Population		Available no beds	Future Need of Beds	Required no of beds for Future*
2035				
2,048,491		895	4,097	1,121

\* After filling present Gap

Source: Health Profile of Sindh (District wise) 2016, Bureau of statistics, P&DD Govt of Sindh

**REVISED FINAL STRATEGIC DEVELOPMENT PLAN REPORT**  
**PREPARATION OF URBAN DEVELOPMENT STRATEGY FOR SUKKUR, SINDH (2014 - 2035)**

Following are details of existing availability of doctors and future requirements for Sukkur District

**Table 2-10-3: Details of Doctors**

Table 2 To 3: Details of Doctors				
Population	Doctors Capacity	Available Doctors	Present Need	Required Doctors
2017				
1,487,903		434	1488	1054
Future Population		Available no of Doctors	Future Need of Doctors	Required no of Doctors For Future*
2035				
2,048,491				
		434	2048	561
* After filling present Gap				

Source: Health Profile of Sindh (District wise) 2016, Bureau of Statistics, P&DD Govt of Sindh

### 4.3.2 LONG TERM DEVELOPMENT STRATEGY PLAN (UP TO 2035)

The long-term plan (upto 2035) stipulated in UDS Sukkur sufficiently caters for demand up to plan period.

### 5.3 SOCIAL DEVELOPMENT PROJECTS (HEALTH)

Short term and long term development projects proposed in UDS Sukkur for all relevant socio economic and physical infrastructure development projects are given in table no 5-1 (pages 75-78)

Details of last five years ADP of Health sector are given below.

### DETAILS OF LAST FIVE YEAR ADP OF HEALTH SECTOR SUKKUR

**Table 5.2 District ADP**

S. No.	Gen. Sr. No.	Sector / Sub-Sector/ Name of Scheme	Status Date of Approval	Target Date for completion	Estimated Cost
		<b><u>2013-14</u></b>			
1	372	Establishment of 50 bedded Medical & Surgical ICU and expansion of Casualty & OPD Department with strengthening of other units at GMMMCH, Sukkur.	Approved 02.03.2012	June-14	178.530

**REVISED FINAL STRATEGIC DEVELOPMENT PLAN REPORT**  
**PREPARATION OF URBAN DEVELOPMENT STRATEGY FOR SUKKUR, SINDH (2014 - 2035)**

2	376	Provision of C.T Scan & MRI, Telephone Exchange 100 Lines & Mortuary Refrigerator and Hepatology and Dental Units at GMMMC Hospital, Sukkur	Approved 15.03.2012	June-14	166.501
3	501	Establishment of Health Care Center for Non-Communicable Diseases at Sukkur including Cardio Vascular Diseases Urological Diseases Cancer Diseases Hypertension Diseases Diabetic Diseases Mental Diseases Blood disorder Diseases	Un- Approved	June-15	1000.000
4	510	Estt: of Institute of Allied Health Sciences at Sukkur under Dow University of Health Sciences	Un- Approved	June 15	500.000
5	515	Establishment of Ghulam Muhammad Mahar Medical College Sukkur.	Approved 24.02.11	June 15	1911.980
6	516	Provision of Library & purchase of Instruments / Equipment & Furniture for 2nd & 3rd professional Department at GMMMC Sukkur.	Approved 12.09.11	June 14	11.836
7	542	Establishment of Child Health Care Institute Sukkur \$ 46 Million (Korean)	Un- Approved	June-16	100.000
		TOTAL :-			3868.847

**2014-15**

			.	.	.
1	627	Establishment of 50 bedded Medical & Surgical ICU and expansion of Casualty & OPD Department with strengthening of other units at GMMCH, Sukkur. (C. 59.185+R. 119.345) (Rs. 79.962m. to be funded out of 10% Royalty share)	Approved 02.03.12	June-15	178.530
2	747	Provision for Head & Neck / Throat Cancer Treatment Centre at Sukkur.	Un- Approved	June-17	500.000
3	762	Purchasing Of Surgical and Medical Instruments of Anwar Paracha Hospital In Sukkur City	Un- Approved	June-16	200.000

**REVISED FINAL STRATEGIC DEVELOPMENT PLAN REPORT**  
**PREPARATION OF URBAN DEVELOPMENT STRATEGY FOR SUKKUR, SINDH (2014 - 2035)**

4	771	Sindh Institute of Urology and Transplantation (SIUT) Medical Complex, Sukkur	Un-Approved	June-16	750.000
5	795	Establishment of Ghulam Muhammad Mahar Medical College Sukkur. (C.1690.952+R.221.028).	Approved 24.02.11	June-15	1911.980
6	825	Establishment of child Health care Institute Sukkur \$ 46 million (Korean)	Un-App	June-18	1000.000

**2015-16**

1	597	Establishment / Construction of 50 bedded Medical & Surgical ICU and expansion of Casualty & OPD Department at Ghulam Mohammad Mahar Medical College Hospital, Sukkur (Revised) (C: 134.688+R:147.520)	Approved 27.01.15		282.208
2	675	Renovation and rehabilitation with provision of equipment for Anwar Paracha Hospital, Sukkur.	Approved		80.000
3	707	Establishment of Ghulam Muhammad Mahar Medical College, Sukkur (Revised). (C: 2859.372+R: 463.342)	Approved 22.01.16		3322.714
4	728	Establishment of Child Health Care Institute, Sukkur. (GoS:162.792+Korean soft loan: 4646.198=T: 4808.99)	Approved 13.05.15		162.792

**2017-18**

1	663	Establishment / Construction of 50 bedded Medical & Surgical ICU and expansion of Casualty & OPD Department at Ghulam Muhammad Mahar Medical College Hospital, Sukkur (Revised) (C: 134.688+R:147.520) (SDG #3)	Approved 27.01.15		282.208
2	672	Construction of Operation Theatre Complex & Wards at GMMMC Hospital Sukkur	Un-Approved (Deferred)		300.000

**REVISED FINAL STRATEGIC DEVELOPMENT PLAN REPORT**  
**PREPARATION OF URBAN DEVELOPMENT STRATEGY FOR SUKKUR, SINDH (2014 - 2035)**

3	673	Establishment of 200 Bedded Hospital & Operation Theatre at GMMM College Hospital Sukkur (SDG #9)	Un-Approved (Deferred)	600.000
4	759	Construction of Divisional Warehouse at Sukkur	Approved 27.09.17	100.000
5	760	Renovation and rehabilitation with provision of equipment for Anwar Paracha Hospital (SDG #3)	Approved 27.11.17	50.000
6	832	Establishment of Ghulam Muhammad Mahar Medical College, Sukkur (Revised). (C: 2859.372+R: 463.342) (SDG #3)	Approved 22.01.16	3322.714
7	852	Establishment of Child Health Care Institute, Sukkur. (GoS:162.792+Korean soft loan: 4646.198=T: 4808.99) (SDG #3)	Approved 13.05.15	162.792

## **2.1.4 EDUCATION**

As per Sindh Education Profile 2016-17, there are a total of 1187 schools in Sukkur district. There are 1027 Primary Schools, 33 middle Schools 49 elementary schools, 66 Secondary schools and 12 Higher Secondary schools. Following table gives details of schools, enrollment and number of teachers posted in Sukkur district;

**Table 2.1.4.1: Numbers of Schools in Sukkur District**

S. No	Type of Schools	No. of Schools
1	Primary Schools	1027
2	Elementary Schools	49
3	Middle Schools	33
4	Secondary Schools	66
5	Hi. Secondary Schools	12
	Total	1,187

As per Sindh Education Profile, following table depicts present status of class rooms and shortage of class rooms;

**REVISED FINAL STRATEGIC DEVELOPMENT PLAN REPORT**  
**PREPARATION OF URBAN DEVELOPMENT STRATEGY FOR SUKKUR, SINDH (2014 - 2035)**

**Table 2.1.4.2: Present Need of Classrooms in Sukkur District**

S. No	Description	Results
Present Need assessment of Schools (2017)		
1	Total present enrolments	169,232
2	Classrooms available at present	3,798
3	Students per classroom at present	45
4	Classrooms required for present need @ 30 students per classroom	5,641
5	Present shortage of classrooms	1,843

Source: Sindh Education Profile (2016-2017), Sindh Education & Literacy Department, Govt of Sindh

Details of enrollment are as under:

**Table 2.1.4.3: Future Requirement of Classrooms in Sukkur District**

S.No	Description	Results
Future Need assessment of Schools (2035)		
1	Expected total enrolment by 2035 @ 100% enrolment	232,992
2	Total classrooms requirement in 2035	7,766
3	Additional classrooms requirement in 2035(After filling present Gap)	2,125

Source: Sindh Education Profile (2016-2017), Sindh Education & Literacy Department, Govt of Sindh

**REVISED FINAL STRATEGIC DEVELOPMENT PLAN REPORT**  
**PREPARATION OF URBAN DEVELOPMENT STRATEGY FOR SUKKUR, SINDH (2014 - 2035)**

**Table 2-13: List of Primary Schools in Sukkur City and New Sukkur**

#	DISTRICT	TEHSIL	UC	SEMIS CODE	SCHOOL	ENROLLMENT	TEACHERS POSTED
1	Sukkur	New Sukkur	SMALL INDUSTRIES	41805 0086	GBPS DILDAR SHAH COLONY	189	6
2	Sukkur	New Sukkur	Tamachani	41805 0001	GBPS PIR FAZUL SHAH JILANI	128	3
3	Sukkur	New Sukkur	20-TAMACHANI	41805 0044	GBPS AZMAT PIRZADO AT KALO QADRANI	0	0
4	Sukkur	New Sukkur	Nasirbad	41805 0050	GGPS SOOMAR GOTH	0	1
5	Sukkur	New Sukkur	Tamachani	41805 0077	GBPS KALADI	239	3
6	Sukkur	New Sukkur	Tamachani	41805 0115	GBPS QAZI SACHAY DINO	183	1
7	Sukkur	New Sukkur	PIR MURAD SHAH	41805 0015	GBPS AZIZ ABAD	619	10
8	Sukkur	New Sukkur	PIR MURAD SHAH	41805 0104	GBPS GULSHER CHOHAN	176	4
9	Sukkur	New Sukkur	ADAM SHAH	41805 0075	GGPS NEW GOTH	251	11
10	Sukkur	New Sukkur	SOCIETY	41805 0096	GBPS A.D.C. COLONY	496	11
11	Sukkur	New Sukkur	SOCIETY	41805 0085	GBPS HAYAT KHAN PATHAN AT HAMDARD SOCIETY	181	7
12	Sukkur	New Sukkur	RAHOOJA	41805 0123	GBPS ALAN KHAN KHOSO	0	0
13	Sukkur	New Sukkur	HUSSAIN ARIAN	41805 0023	GBPS OLD SHAH PUR	236	6
14	Sukkur	New Sukkur	HUSSAIN ARIAN	41805 0084	GBPS AQIL SHAR	82	3
15	Sukkur	New Sukkur	RAHOOJA	41805 0107	GBPS ASGHAR ABAD	167	4
16	Sukkur	New Sukkur	Ghumra	41805 0098	GBPS KHUDA BUX JATOI	225	3
17	Sukkur	New Sukkur	SOCIETY	41805 0081	GBPS BIHAR COLONY	343	7
18	Sukkur	New Sukkur		11166 9001	GBPS MAINI	0	0



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19	Sukkur	New Sukkur	RAHOOJA	41805 0063	GGPS MIAN DAD KHOSO	96	2
20	Sukkur	New Sukkur	20- TAMACHANI	10000 0049	GBPS Jamal Khan Lashari	40	0
21	Sukkur	New Sukkur	BAGARJI-Tc	41805 0038	GBPS RESOURCE CENTER	106	6
22	Sukkur	New Sukkur	Nasirbad	41805 0082	GBPS ABDULLAH SHAR SUKKUR	43	1
23	Sukkur	New Sukkur	Tamachani	41805 0116	GBPS VEERAM ABAD	25	1
24	Sukkur	New Sukkur	Tamachani	41805 0122	GBPS JUMANI	101	3
25	Sukkur	New Sukkur	RAHOOJA	41805 0019	GBPS MIANDAD KHOSO SUKKUR	90	2
26	Sukkur	New Sukkur	RAHOOJA	41805 0056	GGPS LAL MASHAIKH	95	4
27	Sukkur	New Sukkur	HUSSAIN ARIAN	41805 0100	GBPS A.D.C WORKSHOP	50	3
28	Sukkur	New Sukkur	BACHAL SHAH	41805 0080	GBPS SHAH KHALID COLONY SUKKUR	83	4
29	Sukkur	New Sukkur	BACHAL SHAH	41805 0087	GBPS HAJI MURAD ALI KHAROS	442	7
30	Sukkur	New Sukkur	Nasirbad	41805 0083	GBPS ABBAS ABAD	46	2
31	Sukkur	New Sukkur		11166 9002	GBPS KHANO PUR	33	0
32	Sukkur	New Sukkur	Ghumra	41805 0045	GBPS MIRZA PUR	150	5
33	Sukkur	New Sukkur	Tamachani	41805 0047	GGPS GOSARJI	0	2
34	Sukkur	New Sukkur	Nasirbad	41805 0094	GBPS HOOT KHAN DHAREJO	36	2
35	Sukkur	New Sukkur	SOCIETY	41805 0066	GGPS BASHIR ABAD	59	9
36	Sukkur	New Sukkur	SOCIETY	41805 0114	GGPS SHAH KHALID COLONY	276	6
37	Sukkur	New Sukkur	RAHOOJA	41805 0055	GGPS NEHAL KHAN KHOSO	115	3
38	Sukkur	New Sukkur	RAHOOJA	41805 0110	GBPS ESSA KHAN LAKHAN	44	2



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39	Sukkur	New Sukkur	DARGHA BADAL FAQEER	41805 0030	GBPS GUL LABANO	123	4
40	Sukkur	New Sukkur	BACHAL SHAH	41805 0088	GBPS SHARAF ABAD SUKKUR	237	7
41	Sukkur	New Sukkur	SAEEDABAD	41805 0101	GBPS SAEED ABAD	143	2
42	Sukkur	New Sukkur	BACHAL SHAH	41805 0129	GGPS BACHAL SHAH MIANI	319	9
43	Sukkur	New Sukkur	20-Tamachani	91800 0007	GBPS BRANCH MIDDLE SCHOOL NASEERABAD	0	0
44	Sukkur	New Sukkur	HUSSAIN ARIAN	41805 0099	GBPS NEW SHAH PUR AT AIR PORT ROAD	155	2
45	Sukkur	New Sukkur	PIR MURAD SHAH	41805 0057	GGPS AZIZ ABAD	333	9
46	Sukkur	New Sukkur	Tamachani	41805 0037	GBPS ABAD MAHAR	132	2
47	Sukkur	New Sukkur	Tamachani	41805 0124	GBPS NACHAN PUR	348	7
48	Sukkur	New Sukkur	PIR MURAD SHAH	41805 0105	GBPS PIR MURAD SHAH COLONY	134	5
49	Sukkur	New Sukkur	CHAOONA BHATTI	41803 0001	GBPS SHAH FAISAL COLONY	315	7
50	Sukkur	New Sukkur	RAHOOJA	41805 0018	GBPS SITE AREA SUKKUR	340	9
51	Sukkur	New Sukkur	SMALL INDUSTRIES	41805 0109	GBPS ABDUL SATTAR MAKO	294	4
52	Sukkur	New Sukkur	RAHOOJA	41805 0093	GBPS LAL MASHAIKH SUKKUR	152	4
53	Sukkur	New Sukkur	RAHOOJA	41805 0032	GBPS BILAWAL KHAN KHOSO	58	3
54	Sukkur	New Sukkur	SAEEDABAD	41805 0117	GBPS MAKI SHAH @ MUSTAFA ABAD SUKKUR	351	6
55	Sukkur	New Sukkur	Ghumra	41805 0003	GBPS GHUMRA	605	10
56	Sukkur	New Sukkur	BAGARJI-Tc	41805 0004	GBPS BAGERJI	389	13
57	Sukkur	New Sukkur	RAHOOJA	41805 0043	GBPS KHAIR MUHAMMAD KHOSO	64	1



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58	Sukkur	New Sukkur	Nasirbad	41805 0108	GBPS SOOMAR GOTH KOHRI	51	2
59	Sukkur	New Sukkur	NEW PIND	41805 0112	GBPS GOAL TAKRI NEW PIND	93	7
60	Sukkur	New Sukkur	SOCIETY	41805 0022	GBPS BASHIR ABAD	202	9
61	Sukkur	New Sukkur	RAHOOJA	41805 0033	GBPS MOALAM KHAN KHOSO	82	4
62	Sukkur	New Sukkur	RAHOOJA	41805 0007	GBPS HYDER SHAH AT SAHIB KHAN KHOSO	43	2
63	Sukkur	New Sukkur	BACHAL SHAH	41805 0013	GBPS BACHAL SHAH MIANI	367	12
64	Sukkur	New Sukkur	BACHAL SHAH	41805 0072	GGPS GUL LABANO	98	5
65	Sukkur	New Sukkur	CHAOONA BHATTI	41803 0024	GBPS AGHA BADARUDDIN COLONY	429	11
66	Sukkur	New Sukkur	BACHAL SHAH	41805 0031	GBPS DINPUR	258	3
67	Sukkur	New Sukkur	12-New Pind	91800 0002	GBPS KGM @ LAIQ MAKKA	0	0
68	Sukkur	New Sukkur	16-Rahooja	91800 0005	GGHS QADRIA RIZVIA	321	28
69	Sukkur	New Sukkur	Nasirbad	41805 0035	GBPS BHAI KHAN GHANGHRO	139	1
70	Sukkur	New Sukkur	PIR MURAD SHAH	41805 0016	GBPS NUMAISH ROAD	531	9
71	Sukkur	New Sukkur	SMALL INDUSTRIES	41805 0069	GGPS LAIQUE MAKKA	547	14
72	Sukkur	New Sukkur	RAHOOJA	41805 0020	GBPS NIHAL KHAN KHOSO SUKKUR	181	2
73	Sukkur	New Sukkur	RAHOOJA	41805 0064	GGPS RAHOOJA	19	2
74	Sukkur	New Sukkur	HUSSAIN ARIAN	41805 0010	GBPS ALI WAHAN	97	3
75	Sukkur	New Sukkur	HUSSAIN ARIAN	41805 0070	GGPS MODDLE COMMUNITY CENTRE SHAH PUR	0	1
76	Sukkur	New Sukkur	HUSSAIN ARIAN	41805 0089	GBPS SULTAN UMRANI	0	2



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77	Sukkur	New Sukkur	BACHAL SHAH	41805 0036	GGPS BACHAL SHAH MIANI O C	301	3
78	Sukkur	New Sukkur	Ghumra	41805 0118	GBPS ALLAHANDO KHAROS	49	1
79	Sukkur	New Sukkur	Nasirbad	41805 0005	GBPS MUBARAK SHAR	123	2
80	Sukkur	New Sukkur	Tamachani	41805 0008	GBPS HYDER SHAH	42	1
81	Sukkur	New Sukkur	Nasirbad	41805 0028	GBPS JAFFAR ABAD	299	9
82	Sukkur	New Sukkur	Tamachani	41805 0076	GBPS WARAYO GOTH	168	2
83	Sukkur	New Sukkur	Tamachani	41805 0092	GBPS R.T.T.S COLONY SUKKUR	27	1
84	Sukkur	New Sukkur	HUSSAIN ARIAN	41805 0060	GGPS KANDO WAHAN	149	2
85	Sukkur	New Sukkur	HUSSAIN ARIAN	41805 0068	GGPS ALI WAHAN	0	0
86	Sukkur	New Sukkur	RAHOOJA	41805 0113	GBPS POSTAL COLONY	139	5
87	Sukkur	New Sukkur	20-TAMACHANI	10000 0048	GBPS Meani	76	0
88	Sukkur	New Sukkur	SMALL INDUSTRIES	41805 0017	GBPS LAIQUE MAKKA SUKKUR	375	11
89	Sukkur	New Sukkur	Ghumra	41805 0039	GBPS KALHORI GHUMRA	330	8
90	Sukkur	New Sukkur	Nasirbad	41805 0006	GBPS CHUTTO LAKHAN	0	3
91	Sukkur	New Sukkur	Tamachani	41805 0040	GBPS GOSARJI	172	5
92	Sukkur	New Sukkur	Nasirbad	41805 0079	GBPS KAREEM BUX MAHAR	49	0
93	Sukkur	New Sukkur	PIR MURAD SHAH	41805 0009	GBPS PIR MUHAMMAD SHAH	376	8
94	Sukkur	New Sukkur	NEW PIND	41805 0106	GBPS PATHAN COLONY	347	12
95	Sukkur	New Sukkur	NEW PIND	41803 0043	GBPS GHOUSIA RIZVIA AT ISLAM COLONY NEW PIND	213	6



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96	Sukkur	New Sukkur	PIR MURAD SHAH	41805 0078	GBPS ISLAM COLONY NEW PIND	315	9
97	Sukkur	New Sukkur	PIR MURAD SHAH	41805 0111	GBPS SHAHEED GHULAM HAIDER	358	8
98	Sukkur	New Sukkur	SMALL INDUSTRIES	41805 0012	GBPS JEA LAL COLONY	441	9
99	Sukkur	New Sukkur	RAHOOJA	41805 0059	GGPS ALI KHAN KHOSO	66	2
100	Sukkur	New Sukkur	RAHOOJA	41805 0097	GBPS BAHAWAL KHAN LAKHAN	28	2
101	Sukkur	New Sukkur	HUSSAIN ARIAN	41805 0025	GBPS FARASH	73	3
102	Sukkur	New Sukkur	RAHOOJA	41805 0026	GBPS ALI KHAN KHOSO	90	2
103	Sukkur	New Sukkur	SAEEDABAD	41805 0014	GBPS ALLAH WADHAYO KHAROS	165	2
104	Sukkur	New Sukkur	BACHAL SHAH	41805 0090	GBPS SADDIQIA AT SADORO SHAIKH	244	7
105	Sukkur	New Sukkur	DARGHA BADAL FAQEER	41805 0102	GBPS NOONARI	50	2
106	Sukkur	New Sukkur	BAGARJI-Tc	41803 0045	GBPS PIARO KHAROS @ SABA	150	3
107	Sukkur	Sukkur City	PIR ILLAHI BUX	41803 0042	GBPS DISTRICT JAIL	155	13
108	Sukkur	Sukkur City	JEAY SHAH	41805 0071	GGPS WASPUR (B) OLD SUKKUR	183	12
109	Sukkur	Sukkur City	CLOCK TOWER	41803 0029	GBPS NUSRAT COLONY NO.6	200	11
110	Sukkur	Sukkur City	ADAM SHAH	41803 0032	GBPS ADAM SHAH COLONY	310	12
111	Sukkur	Sukkur City	CLOCK TOWER	41803 0034	GBPS NATIONALIZED ISLAMIA	213	9
112	Sukkur	Sukkur City	SHAIKH SHEENH	41803 0036	GBPS SHOUKAT UL ISLAM	125	5
113	Sukkur	Sukkur City	PIR ILLAHI BUX	41803 0041	GBPS MODEL THERMAL COLONY	209	12



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114	Sukkur	Sukkur City	JINNAH CHOWK	41803 0003	GBPS QADRIA RIZVIA	22	4
115	Sukkur	Sukkur City	MIR MASOOM SHAH	41803 0018	GGPS QADIR RIZVIA	35	11
116	Sukkur	Sukkur City	MAKKI SHAH	41803 0033	GBPS ISLAMIA WALICE ROAD SUKKUR	102	9
117	Sukkur	Sukkur City	SHAIKH SHEENH	41803 0037	GBPS NUSRAT COLONY NO 4 SUKKUR	280	13
118	Sukkur	Sukkur City	BARRAGE COLONY	41803 0011	GGPS BARRAGE COLONY	599	24
119	Sukkur	Sukkur City	GHARIBABAD	41803 0030	GBPS MAIN SUKKUR	554	20
120	Sukkur	Sukkur City	MIR MASOOM SHAH	41803 0020	GGPS LIAQUAT MEMORIAL SUKKUR	180	17
121	Sukkur	Sukkur City	PIR ILLAHI BUX	41803 0002	GBPS TAMEER E NAU	230	6
122	Sukkur	Sukkur City	OLD SUKKUR	41803 0028	GBPS OLD SUKKUR	331	11
123	Sukkur	Sukkur City	MIR MASOOM SHAH	41803 0005	GBPS ISLAMIA BAGH E HAYAT ALI SHAH SUKKUR	233	10
124	Sukkur	Sukkur City	BARRAGE COLONY	41803 0074	GBPS Govt. PC School attached GECE(M)	0	4
125	Sukkur	Sukkur City	DARGAH QAZI BABA	41803 0027	GBPS MADINA COLONY SUKKUR	104	5
126	Sukkur	Sukkur City	AYOOB GATE	41803 0023	GBPS RAILWAY COLONY 1ST SHIFT (GIRLS)	162	8
127	Sukkur	Sukkur City	AYOOB GATE	41803 0014	GGPS HAJJANI BAKHTAWAR SUKKUR	355	16
128	Sukkur	Sukkur City	MIR MASOOM SHAH	41803 0039	GBPS BAGH E HAYAT ALI SHAH SUKKUR	391	15



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**PREPARATION OF URBAN DEVELOPMENT STRATEGY FOR SUKKUR, SINDH (2014 - 2035)**

129	Sukkur	Sukkur City	JINNAH CHOWK	41803 0040	GBPS ISLAMIA BUNDAR STATION	31	6
130	Sukkur	Sukkur City	CLOCK TOWER	41803 0016	GGPS BAGH E HAYAT ALI SHAH	319	22
131	Sukkur	Sukkur City	CLOCK TOWER	41803 0022	GGPS MAQBOOL UN NISA BAGH E HAYAT ALI SHAH	73	8
132	Sukkur	Sukkur City	BARRAGE COLONY	41803 0044	GBPS BARRAGE COLONY	476	18
133	Sukkur	Sukkur City	OLD SUKKUR	41803 0046	GBPS ISLAMIA MIANI ROAD	35	3
134	Sukkur	Sukkur City	OLD SUKKUR	41803 0008	GGPS OLD SUKKUR NARISHALA (MAIN)	498	30
135	Sukkur	Sukkur City	SHAMSABAD	41803 0035	GBPS SHAMS ABAD	390	12

**Source:** Education and Literacy Department (Schools) Govt. of Sindh 2018

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**PREPARATION OF URBAN DEVELOPMENT STRATEGY FOR SUKKUR, SINDH (2014 - 2035)**

**Table 2-13.1: List of Middle Schools in Sukkur and New Sukkur**

#	DISTRICT	TEHSIL	UC	SEMIS CODE	SCHOOL	ENROLLMENT	TEACHERS POSTED
1	Sukkur	New Sukkur	Nasirbad	418050127	GBLSS DREHA	284	13
2	Sukkur	Sukkur City	SHAIKH SHEENH	418030017	GGLSS SHAMSA ABAD SUKKUR	289	18
3	Sukkur	Sukkur City	MIR MASOOM SHAH	418030025	GBLSS BALOACH COLONY SUKKUR	134	7
4	Sukkur	Sukkur City	SHAIKH SHEENH	418030038	GBLSS ACHAR GHITTI SUKKUR	184	7
5	Sukkur	Sukkur City	NAU GOTH	418030026	GBLSS A.D.C COLONY SUKKUR	548	17
6	Sukkur	New Sukkur	RAHOOJA	418050130	GGLSS ABAD LAKHA	265	4
7	Sukkur	New Sukkur	ADAM SHAH	418050021	GBLSS NAO GOTH	431	13
8	Sukkur	New Sukkur	SOCIETY	418050103	GBLSS SHAH KHALID COLONY	218	8
9	Sukkur	New Sukkur	HUSSAIN ARIAN	418050126	GBLSS ARAIN ROAD	47	2
10	Sukkur	Sukkur City	JINNAH CHOWK	418030048	GBLSS QADRIA RIZVIA	21	6

**Source:** Education and Literacy Department (Schools) Govt. of Sindh

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**PREPARATION OF URBAN DEVELOPMENT STRATEGY FOR SUKKUR, SINDH (2014 - 2035)**

**Table 2-13.2: List of Elementary Schools in Sukkur and New Sukkur**

#	DISTRICT	TEHSIL	UC	SEMIS CODE	SCHOOL	ENROLLMENT	TEACHERS POSTED
1	Sukkur	New Sukkur	HUSSAIN ARIAN	418050125	GBELS KANDO WAHAN	106	9
2	Sukkur	Sukkur City	Gharibabad	418030049	GGELS GHARIB ABAD SUKKUR	618	41
3	Sukkur	New Sukkur	SOCIETY	418050133	GBELS AGHA RAFIQUE COLONY	424	15
4	Sukkur	New Sukkur	Tamachani	418050128	GBELS TAMACHANI	252	12
5	Sukkur	Sukkur City	Gharibabad	418030056	GBELS GHARIB ABAD	478	18
6	Sukkur	New Sukkur	RAHOOJA	418050134	GBELS RAHOOJA	242	9
7	Sukkur	Sukkur City	MIR MASOOM SHAH	418030047	GBELS MUSLIM ELEMENTARY SCHOOL	264	19
8	Sukkur	New Sukkur	Nasirbad	418050054	GGELS NASEER ABAD	389	8
9	Sukkur	Sukkur City	SHAIKH SHEENH	418030053	GBELS SHOUKAT UL ISLAM SUKKUR	72	11
10	Sukkur	Sukkur City	CLOCK TOWER	418030051	GGELS BAGH E HAYAT ALI SHAH SUKKUR	261	14
11	Sukkur	New Sukkur	HUSSAIN ARIAN	418050024	GBELS ARAIN SUKKUR	282	7
12	Sukkur	Sukkur City	OLD SUKKUR	418030054	GBELS ISLAMIA SUKKUR	637	42
13	Sukkur	Sukkur City	JEAY SHAH	418030004	GBELS WASPUR	96	15
14	Sukkur	Sukkur City	BARRAGE COLONY	418030031	GBELS RAILWAY SLEEPER FACTORY	409	19
15	Sukkur	Sukkur City	SHAH LATIF	418030052	GGELS S.F OLD SUKKUR	188	20
16	Sukkur	New Sukkur	HUSSAIN ARIAN	418050132	GGELS FARASH	49	3
17	Sukkur	Sukkur City	MIR MASOOM SHAH	418030055	GBELS NEW ERA SUKKUR	153	22
18	Sukkur	Sukkur City	ADAM SHAH	418030050	GGELS ADAM SHAH COLONY SUKKUR	382	24
19	Sukkur	Sukkur City	BARRAGE COLONY	418030073	GGELS Govt. Elementary School attached GECE(W)	0	0

**Source:** Education and Literacy Department (Schools) Govt. of Sindh 2018

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**PREPARATION OF URBAN DEVELOPMENT STRATEGY FOR SUKKUR, SINDH (2014 - 2035)**

**Table 2-13.3: List of Secondary & Higher Secondary Schools in Sukkur City and New Sukkur**

#	DISTRICT	TEHSIL	UC	SEMIS CODE	SCHOOL	ENROLLMENT	TEACHERS POSTED
1	Sukkur	New Sukkur	BAGARJI-Tc	4180501 41	GGHSS BAGARJI	685	20
2	Sukkur	Sukkur City	MIR MASOOM SHAH	4180300 68	GBHS AL FALAH	460	37
3	Sukkur	Sukkur City	PIR ILLAHI BUX	4180300 64	GGHS SUKKUR	786	45
4	Sukkur	New Sukkur	HUSSAIN ARIAN	4180501 44	GGHS BACHAL SHAH MIANI SUKKUR	1	12
5	Sukkur	New Sukkur	HUSSAIN ARIAN	4180501 37	GBHS BACHAL SHAH MIANI	464	18
6	Sukkur	Sukkur City	MIR MASOOM SHAH	4180300 59	GBHS FARAN	116	14
7	Sukkur	Sukkur City	MIR MASOOM SHAH	4180300 66	GGHS ISLAMIA GHAT SUKKUR	149	22
8	Sukkur	Sukkur City	BARRAGE COLONY	4180300 72	GGHSS BARRAGE COLONY HIGHER SECONDARY SCHOOL	0	61
9	Sukkur	Sukkur City	NAU GOTH	4180300 81	GGHS NAU GOTH SUKKUR	120	7
10	Sukkur	New Sukkur	SMALL INDUSTRIES	4180501 51	GGHS KGM at LAIK MAKAR SUKKUR	274	14
11	Sukkur	New Sukkur	PIR MURAD SHAH	4180300 06	GGHS NUMAISH COLONY	343	14
12	Sukkur	New Sukkur	HUSSAIN ARIAN	4180501 31	GGHS ARAIN	345	6
13	Sukkur	New Sukkur	Ghumra	4180501 40	GBHS ARBAB KHAN GHUMRO	91	5
14	Sukkur	Sukkur City	Gharibabad	4180300 57	GBHS NO.1 SUKKUR	677	71
15	Sukkur	Sukkur City	MIR MASOOM SHAH	4180300 65	GGHS D.M.B	761	61



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16	Sukkur	Sukkur City	MIR MASOOM SHAH	418030062	GBHS ISLAMIA BAGH E HAYAT ALI SHAH	201	26
17	Sukkur	Sukkur City	NAU GOTH	418030071	GBHS MEHRAN OLD SUKKUR	318	18
18	Sukkur	New Sukkur	17-ARAIN	418050139	GBHS ABAD LAKHA	683	25
19	Sukkur	Sukkur City	05-ADAM SHAH	100000399	GBHS Central jail	0	0
20	Sukkur	Sukkur City	MIR MASOOM SHAH	418030058	GBHS ISLAMIA	569	40
21	Sukkur	Sukkur City	OLD SUKKUR	418050147	GGHSS OLD SUKKUR	510	37
22	Sukkur	New Sukkur	BAGARJI-Tc	418050135	GBHS BAGERJI	383	15
23	Sukkur	Sukkur City	NAU GOTH	418030063	GBHS MPL HIGH SCHOOL OLD SUKKUR	158	35
24	Sukkur	Sukkur City	MIR MASOOM SHAH	418030067	GGHS M.P.L. SUKKUR	177	38
25	Sukkur	Sukkur City	MAKKI SHAH	418030070	GBHS MODERN HIGH SCHOOL SUKKUR	824	50
26	Sukkur	New Sukkur	PIR MURAD SHAH	418050143	GGHS AZIZ ABAD SUKKUR	241	11
27	Sukkur	Sukkur City	JEAY SHAH	418030060	GBHS TAMIR E NAU	146	41
28	Sukkur	New Sukkur	NEW PIND	418050136	GBHS NEW PIND SUKKUR	554	27
29	Sukkur	New Sukkur	HUSSAIN ARIAN	418050091	GBHS ABAD LAKHA	888	19
30	Sukkur	Sukkur City	MIR MASOOM SHAH	418030069	GBHS M.K HIGH SCHOOL	693	36
31	Sukkur	Sukkur City	ADAM SHAH	418030061	GBHS DOUBLE SECTION SUKKUR	769	35
32	Sukkur	New Sukkur	NEW PIND	418050142	GGHS NEW PIND SUKKUR	552	71

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33	Sukkur	New Sukkur	PIR MURAD SHAH	4180501 38	GBHS AZIZA BAD SUKKUR	526	22
34	Sukkur	New Sukkur	SMALL INDUSTRIES	4180501 46	GBHSS COMP. HIGHER SEC. SUKKUR	865	57

**Source:** Education and Literacy Department (Schools) Govt. of Sindh 2018

#### 4.3.2 Long Term Development Strategy Plan (Up to 2035)

The long term plan (upto 2035) stipulated in UDS Sukkur sufficiently caters for demand up to plan period.

#### 5.3 Social Development Projects (Education)

Short term and long term development projects proposed in UDS Sukkur for all relevant socio economic and physical infrastructure development projects are given in table no 5-1 (pages 75-78)

Details of last five years ADP of Education sector are given below.

Following are details of five year ADP of Education Sector of Sukkur

**Table 5.3 District ADP**

S. No.	Gen. Sr. No.		<u>Status</u>	Target Date for completion	Estimated Cost
		Sector / Sub-Sector/	Date of Approval		
		Name of Scheme			
		<u>2013-14</u>	.	.	.
1	258	Establishment of Sindh College of Arts & Design at Sukkur	Approved 22.01.2013	30.06.2016	1595.460
2	292	Immediate Needs for Skkur IBA	Approved 03.02.2011	30.06.2013	162.329
3	303	Strengthening of Sukkur Institute of Business Administration (Sukkur IBA)	Approved 24.11.2011	30.06.2015	492.070
4	304	Extension and Rehabilitation of PirIllahBakhsh Literacy Tower, Sukkur (Under Revision )	Approved 03.02.2011	30.06.2013	65.000
5	310	Reconstruction / Re-Construction of Office buildings of existing of Directorate of Schools Edcation Sukkur	Un-approved	30.06.2015	100.000
		<b>2014-15</b>			

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1	183	Up-gradation of Primary Schools to Middle Schools in District Sukkur	Un-approved	June-17	30.000
2	212	Construction / Reconstruction of Two Roomed Building in Existing Shelterless Primary Schools in District Sukkur	Un-approved	June-17	20.000
3	238	Rehabilitation / Reconstruction of Existing Primary & Elementary Schools in Sindh (Damaged due to Rain / Flood or any other conditions) District Sukkur	Un-approved	June-17	40.000
4	259	Provision of Furniture in Existing Primary / Elementary Schools in Sukkur Division	Un-approved	June-17	60.000
5	266	Rehabilitation / Re-Construction & Provision of Missing Facilities in Existing Elementary Colleges / Colleges of Education in Sukkur Division	Un-approved	June-15	100.000
6	316	Rehabilitation of Existing High Schools & Higher Secondary Schools in District Sukkur	Un-approved	June-17	40.000
7	345	Up-gradation of Middle Schools to High Schools in District Sukkur	Un-approved	June-17	40.000
8	369	Re-construction of Dangerous Elementary / High Schools in District Sukkur	Un-approved	June-17	40.000
9	394	Provision of Furniture in Existing Secondary / Higher Secondary Schools in Sukkur Division	Un-approved	June-17	60.000
10	428	Remaining Works of Cadet College Pano Akil (Under Revision)	Approved 10.12.11 (U/R)	June-15	200.000
11	440	Establishment of Sindh College of Arts & Design at Sukkur	Approved 22.01.13	June-17	1595.460
12	457	Establishment of Law College @ Sukkur	Un-approved	June-17	500.000
13	480	Immediate Needs for Sukkur IBA (Under Revision)	Approved 03.02.11 (U/R)	June-16	162.329
14	482	Provision of Drinking Water & Purification for Sukkur Institute of Business (IBA Sukkur)	Approved 03.02.11	June-17	52.000
15	484	Strengthening of Sukkur Institute of Business Administration (Sukkur IBA)	Approved 24.11.11	June-17	492.070
16	487	Establishment of Women University at Sukkur	Approved 22.01.13	June-17	2710.000
17	494	Insatallation of Solar Energy System and LED Lights at Sukkur IBA	Un-approved	June-17	258.610

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18	507	Extension and Rehabilitation of PirIllahiBakhsh Literacy Tower, Sukkur (Under Revision )	Approved 03.02.11 (U/R)	June-15	65.000
19	513	Provision of Sports Facilities in High Schools / Colleges of Sukkur Division.	Un- approved	June-17	60.000
20	518	Construction / Reconstruction of Existing Offices for Field Officers of Education & Literacy Department in Sukkur Division	Un- approved	June-17	60.000
21	525	Schools Improvement through Adopt a School Intervention Sukkur Division	Un- approved	June-17	60.000
22	530	Schools Improvement through PPP Initiatives Sukkur Division	Un- approved	June-17	60.000
<b><u>2016-17</u></b>					
1	179	Rehabilitation, Improvement / Renovation & Missing Facilities in Existing Primary / Elementary Schools	Approved		30.000
2	208	Construction of Building for Shelterless Primary School	Approved		20.000
3	285	Improvement of Existing Public School in Sukkur Division (C:39.412+R: 17.192)	Approved 14.12.15		56.604
4	292	Provision of Furniture to Schools, Constructed under SBEP in District Sukkur	Approved 09.07.15		37.000
5	305	Rehabilitation / Re-construction of Secondary Schools	Approved		20.000
6	325	Rehabilitation, Improvement / Renovation & Provision for Missing Facilities in Existing Secondary / Higher Secondary Schools	Approved		30.000
7	349	Provision of Furniture to Schools, constructed under SBEP in District Sukkur (Assisted by USAID).	Un-Approved		44.000
8	382	Remaining Works of Cadet College Pano Akil (Revised) (C: 313.750 + R: 68.862)	Approved 03.03.16		382.612
9	389	Establishment of Sindh College of Arts & Design at Sukkur (C: 1081.353 + R: 514.107)	Approved 22.01.13		1595.460
10	396	Immediate Needs for Sukkur IBA (Revised ) (C: 287.561 + R: 39.979)	Approved 15.05.14		327.540



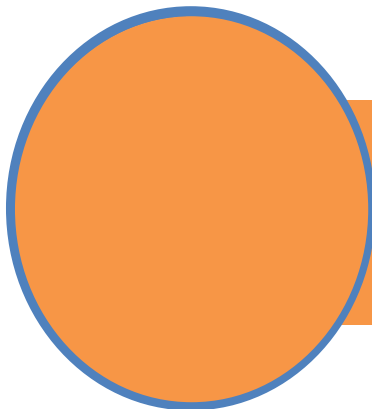
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11	398	Strengthening of Sukkur Institute of Business Administration (Sukkur IBA) (C: 348.208 + R:143.862)	Approved 24.11.11	492.070
12	400	Installation of Solar System and LED Lights at Sukkur IBA (C: 11.435 + R: 245.798)	Approved 14.02.14	257.234
13	416	Repair / Renovation of Government Islamia College Sukkur	Approved	40.000
14	422	Construction of Hostel at Pano Akil Cantonment	Approved	205.000
15	435	Establishment of Law College at Sukkur	Approved	100.000
16	459	Construction of Office of the Chief Engineer & Superintending Engineer Education Works Sukkur (C:55.204 + R: 2.933 )	Approved 14.12.15	58.137
17	473	Construction of Multipurpose Hall / Career Development Centre at Sukkur	Un-Approved	695.750
18	484	Renovation and Provision of Basic Facilities in Selected Educational Management Organization (EMO) Cluster Schools at District Sukkur	Approved	60.000
19	531	Establishment of Women University at Sukkur (C:1604.666 + R:1106.013)	Approved 22.01.13	2710.679
		<b><u>2017-18</u></b>		
1	179	Rehabilitation, Improvement / Renovation & Missing Facilities in Existing Primary / Elementary Schools	Approved 23.09.16	29.999 3.750
2	208	Construction of Buildings for Shelterless Primary Schools (C:18.100 + R:1.700)	Approved 23.09.16	19.800 2.500
3	235	Up-gradation of Primary Schools to Elementary Schools Sukkur Division. (10 Units).	Approved 17.05.17	99.627 0.000
4	253	Up-gradation of Primary Schools to Middle Schools (04 Units).	Approved 20.06.17	40.000 0.000
5	282	Solarization of Existing Elementary Schools.	Approved 11.07.17	40.000 0.000
6	324	Improvement of Existing Public School in Sukkur Division (C:39.412+R: 17.192)	Approved 14.12.15	56.604 25.000
7	327	Provision of Furniture to Schools, Constructed under SBEP in District Sukkur	Approved 09.07.15	37.000 15.060
8	338	Rehabilitation / Re-construction of Secondary Schools	Approved 23.09.16	19.983 2.500



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9	357	Rehabilitation, Improvement / Renovation & Missing Facilities in Existing Secondary / Higher Secondary Schools	Approved 23.09.16	29.935	3.750
10	409	Provision of Furniture to Schools Constructed under SBEP in District Sukkur (Assisted by USAID).	Approved 20.06.17	57.200	0.000
11	434	SEF Regional Office / Professional Development Center / Student Learning Center	Approved 07.11.17	200.000	0.000
12	445	Construction of Office of the Chief Engineer & Superintending Engineer Education Works Sukkur (C:55.204 + R: 2.933 )	Approved 14.12.15	58.137	43.137
13	465	Renovation and Provision of Basic Facilities in Selected Educational Management Organization (EMO) Cluster Schools at District Sukkur	Approved 31.10.16	65.590	3.500
		<u>COLLEGE EDUCATION</u>			
14	503	Repair / Renovation of Government Islamia College Sukkur (SDG # 4)	Approved 23.09.16	38.181	5.000
15	523	Construction of New Building for Law College at Sukkur (C:92.483 + R:6.041)	Approved 23.09.16	98.524	12.500
16	531	Remaining Works of Cadet College Pano Akil (Revised) (C: 313.750 + R: 68.862) (SDG # 4)	Approved 03.03.16	382.612	256.386
		<u>UNIVERSITIES AND BOARDS</u>			
17	585	Establishment of Women University at Sukkur (C:1604.666 + R:1106.013) (SDG # 4)	Approved 22.01.13	2710.679	70.596
18	591	Strengthening of Sukkur Institute of Business Administration (Sukkur IBA) (C: 348.208 + R:143.862) (SDG # 4)	Approved 24.11.11	492.070	392.070
19	593	Installation of Solar System and LED Lights at Sukkur IBA (C: 11.435 + R: 245.798) (SDG # 4)	Approved 14.02.14	257.234	50.000
20	596	Establishment of Sindh College of Arts & Design at Sukkur (C: 1081.353 + R: 514.107) (SDG # 4)	Approved 22.01.13	1595.460	664.869



## **Infrastructure,**

Water Supply, Sewerage and Drainage, Solid Waste Management, Roads and Transport

**Water Supply**

**Sewerage and Drainage**

**Solid Waste Management**

**Roads and Transport**

### **2.3.1 Water Supply**

After the defunct of North Sindh Urban Services Corporation (NSUSC), Sukkur Municipal Corporation (SMC) provides the services of water supply, sewerage, drainage and solid waste management under the SLGA 2013.

#### **2.3.1.1 Existing Water Sources**

There are two sources of water intake for Sukkur City i.e. Bunder Road Intake Works which feeds raw water to Bunder Road and Numaish Gah water treatment plants, and Airport Road Intake Works which feeds Airport road water treatment plant and Adam shah reservoir.

Recently, a scheme – “Improvement of Water Intake Works at Bukkur Island” has been completed under North Sindh Urban Services Corporation (NSUSC) which will feed raw water to Bunder Road and Numaish Gah water treatment plants. The capacity of this scheme is 50 MGD<sup>1</sup>.

#### **2.3.1.2 Water Demand**

Based on the population census 2017 figures and domestic water utilization per capita per day at 40 gallons, water demand projection upto 2035 is given as under:

<b>Water Demand for Sukkur City</b>		
<b>Population years</b>	<b>Population (Persons)</b>	<b>Water Demand @ 40 GPCD (MGD)</b>
2017	507,704	20.3
2018	518,518	20.7
2020	540,842	21.6
2025	600,948	24.0
2030	667,734	26.7
2035	741,942	29.7

#### **2.3.1.3 Existing Water Supply**

After completion of ICB3 works under NSUSC, the combined water production of three plants i.e. Bunder Road WTP, Numaish Gah WTP and Airport Road WTP is 13.0 MGD against the current water demand of 20.7 MGD. The current demand supply gap comes out as 7.7 MGD. Following is the detail of Household water connections and coverage:

<b>Sukkur</b>	<b>By the end of June 2017</b>
HH Connections – Water	99,358
Water Coverage	82%

(Source: Annual Operating Plan 2016-17 of NSUSC)

<sup>1</sup> Sukkur Municipal Corporation

### **2.3.1 Sewerage and Drainage**

After the defunct of North Sindh Urban Services Corporation (NSUSC), Sukkur Municipal Corporation (SMC) provides the services of water supply, sewerage, drainage and solid waste management under the SLGA 2013.

#### **2.3.2.1.1 Wastewater Collection and Treatment**

The Mega Project of sewerage system which was laid by PHED to cater sewerage needs of Sukkur and New Sukkur still have commissioning problems. There are some areas where pipelines have not been connected. There are some other issues such as at Bihar Colony and Society areas, the pipeline is undersized, and manholes are installed on disproportionate distances, which hinder de-silting activities at wet well<sup>2</sup>.

##### **2.3.2.1.2.3 Disposal Station (DS) and Mains**

Currently, disposal system of the city is based on 30 disposal stations. Final disposal station at Makko delivers the wastewater to stabilization ponds and there is also an outlet pumping station lifting the effluent over flood protection bank. The updated list of sewage disposal stations is as under:

1.	Ahmad Nagar DS 01	11.	Gulsher Chawan DS	21.	Numaish (Ph) DS
2.	Ahmad Nagar DS 02	12.	Islam Colony DS	22.	Police Hq DS
3.	Azizabad DS	13.	Jail Garden DS	23.	Railway Ground DS
4.	Bashirabad DS	14.	Lohar Mohalla DS	24.	Raju Marvaari DS
5.	Bhakar DS	15.	Makko DS	25.	Sabzi Mandi DS
6.	City By Pass DS	16.	Meerani DS 01	26.	Shah Faisal Colony DS
7.	DCO DS	17.	Meerani DS 02	27.	Shahbaz Colony DS
8.	Dooba DS	18.	Miani DS	28.	Shalimar DS
9.	Gaddani DS	19.	Micro DS	29.	Solangi Mohalla DS
10.	Gulshan Drainage DS	20.	Malik Mohalla DS	30.	Waspur DS

(Source: Sukkur Municipal Corporation)

<sup>2</sup> Sukkur Municipal Corporation

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### 2.3.3.1 Institutions and Regulations

Government of Sindh established Sindh Solid Waste Management Board (SSWMB) through an act in 2014. The Board has the right over the solid waste related issues, assets, funds and liabilities of the Councils and shall possess sole rights on all kinds of solid waste within the limits of all Councils. SSWMB Act also indicates that during the transition period, the existing operation of Solid Waste Management will continue by the Councils. SSWMB has not yet taken over the functions of solid waste management at Sukkur from the Council. Thus, currently Sukkur Municipal Corporation (SMC) is looking after the solid waste management in Sukkur city<sup>3</sup>.

#### 2.3.3.2.1 Existing Assets

Two major projects were undertaken by NSUSC in Tranche 1 to overcome the serious deficiencies in the SWM system. These were ICB-1: Secondary SWM Collection Equipment and ICB-2: Priority Equipment. Details of equipment received under ICB-1 project and percentage increase in lifting capacity of solid waste are given as under:

S. No.	City	3.5 m <sup>3</sup> Skips	7 m <sup>3</sup> Skips	Side Loading Trucks	Rear Loading Trucks	% Increase in SW Lifting Capacity
1	New Sukkur	38	9	3	1	74
2	Sukkur	102	23	8	1	73

(Source: Annual Operating Plan 2016-17 of NSUSC)

<sup>3</sup> Sindh Solid Waste Management Board

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Under ICB-2 project, the distribution of the equipment is given as under:

S. No.	City	Equipment					
		Tractor with Tripping Trolleys	Wheel Excavator	Dumper Truck	Truck Mounted Back Crane	Sucker Machine 4000 Litres	Jetting Machine 4000 Litres
1	New Sukkur	1	0	0	0	0	0
2	Sukkur	1	1	1	1	1	1

(Source: Annual Operating Plan 2016-17 of NSUSC)

### 2.3.3.3 Solid Waste Collection

The solid waste management coverage in Sukkur is reported as 80% by the end of June 2017<sup>4</sup>.

### 2.3.4 Utility Services, O&M Expenditures and Revenues

Service	PKR in Millions
Water supply	55.40
Wastewater and drainage	3-
Solid waste collection	3-
<b>Total</b>	<b>61.40</b>

(Source: Annual Operating Plan 2016-17 of NSUSC)

<u>Composition of operational shortfall Sukkur / New Sukkur</u>	Rs. in million
Particulars	Rs. in million
Operating Expenditure	
Outsourcing SW collection at Ucs	-
Salaries & wages	66.18
Deputation allowance	27.83
Employee incentive	7.56
Office rent	4.41
Electricity Bills	170.96
Electricity / Power generation	35.00
Chemicals & consumables	6.05
Travel & conveyance	1.23
Vehicle cost – SWM	31.68
Maintenance & regular repair	75.12

<sup>4</sup> Annual Operating Plan 2016-17 of NSUSC

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Comm. and Awareness Campaign	1.70
Office running cost	0.63
Total operating expenses	428.36
Operating Shortfall	<b>366.96</b>

(Source: Annual Operating Plan 2016-17 of NSUSC)

#### **4.3.1 Short Term Development Strategy Plan (2014-20)**

Since taking over the services of water supply, sewerage, drainage and solid waste management in Sukkur, NSUSC has<sup>5</sup>:

- Improved the maintenance and condition of water treatment plants and pumping stations
- Improved the maintenance and condition of wastewater disposal stations
- Introduced regular collection of solid waste
- Introduced sweeping on daily basis including Sunday
- Procured and commissioned new skips and trucks and organized the collection system
- Implemented a Complaints Management System
- Introduced an Asset Management System
- Introduced a Payroll Management System for NSUSC Salaries of TMA Staff deputed to NSUSC
- Introduced Water Billing & Collection System

#### **4.3.2 Long Term Development Strategy Plan (2020-35)**

Based on the population census 2017 figures and domestic water utilization per capita per day at 40 gallons, water demand projection upto 2035 is 29.7 MGD.

After completion of ICB3 works under NSUSC, the combined water production of three plants i.e. Bunder Road WTP, Numaish Gah WTP and Airport Road WTP is 13.0 MGD against the current water demand of 20.7 MGD. The current demand supply gap comes out as 7.7 MGD. The long term development plan upto 2035 caters the updated current demand supply gap based on population census of 2017.

<sup>5</sup> Annual Operating Plan 2016-17 of NSUSC

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## 5.0 Priority Development Projects

Current status of development projects are as under:

### Water Supply:

S.No.	Name of Scheme	Estimated Cost PKR (M)	Project Status
<b>Short Term: SCIP sponsored NSUSC Schemes</b>			
1.	Improvement of Water Intake Works at Bukkur Island	750	Completed
2.	Improvement of Pumping Stations	300	Incomplete
3.	Addition of Rising Main From Intake at River Indus to Numaish Gah Treatment Plant	500	Incomplete
4.	Establishment of Testing Laboratories and Monitoring Mechanism	500	Completed
5.	Improvement / New Construction of Settling Tanks at Rizvia, Bunder Road and Numaish Gah	750	Not started
6.	Rehabilitation / Construction of Overhead Tanks	100	Not started
7.	Installation of Water Meters	100	Not started
	<b>Total:</b>	<b>3,000</b>	

### Wastewater:

S.No.	Name of Scheme	Estimated Cost PKR (M)	Project Status
<b>Short Term: SCIP sponsored NSUSC Schemes</b>			
1.	Construction of Sewage Treatment Plant and Disposal Works	2,000	Not started
2.	Rehabilitation of Existing Force Mains	500	Not started
3.	Disposal System of Effluent From Treatment Plants	175	Not started
4.	Proposed Primary Trunk Sewer Systems	1,000	Not started
5.	Proposals for Trunk Sewers	500	Not started
6.	Establishment of Sewage Testing Laboratories At Each Stp And Monitoring Mechanism	300	Incomplete – Labs made
7.	Construction / Design of New Drainage System	500	Not started
8.	Construction of New Drainage Pumping Stations	400	Not started
<b>Long Term</b>			
1.	Construction of Main Drain	5,000	Not started
2.	Proposals for Secondary Drainage Systems	500	Not started
	<b>Total</b>	<b>10,875</b>	



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**Solid Waste Management:**

S.No.	Name of Scheme	Estimated Cost PKR (M)	Project Status
<b>Short Term: SCIP sponsored NSUSC Schemes</b>			
1.	Solid waste management and waste to energy conversion	250	Incomplete
2.	Construction of regional Landfill site	1,000	Land acquisition issues
	<b>Total</b>	<b>1,250</b>	

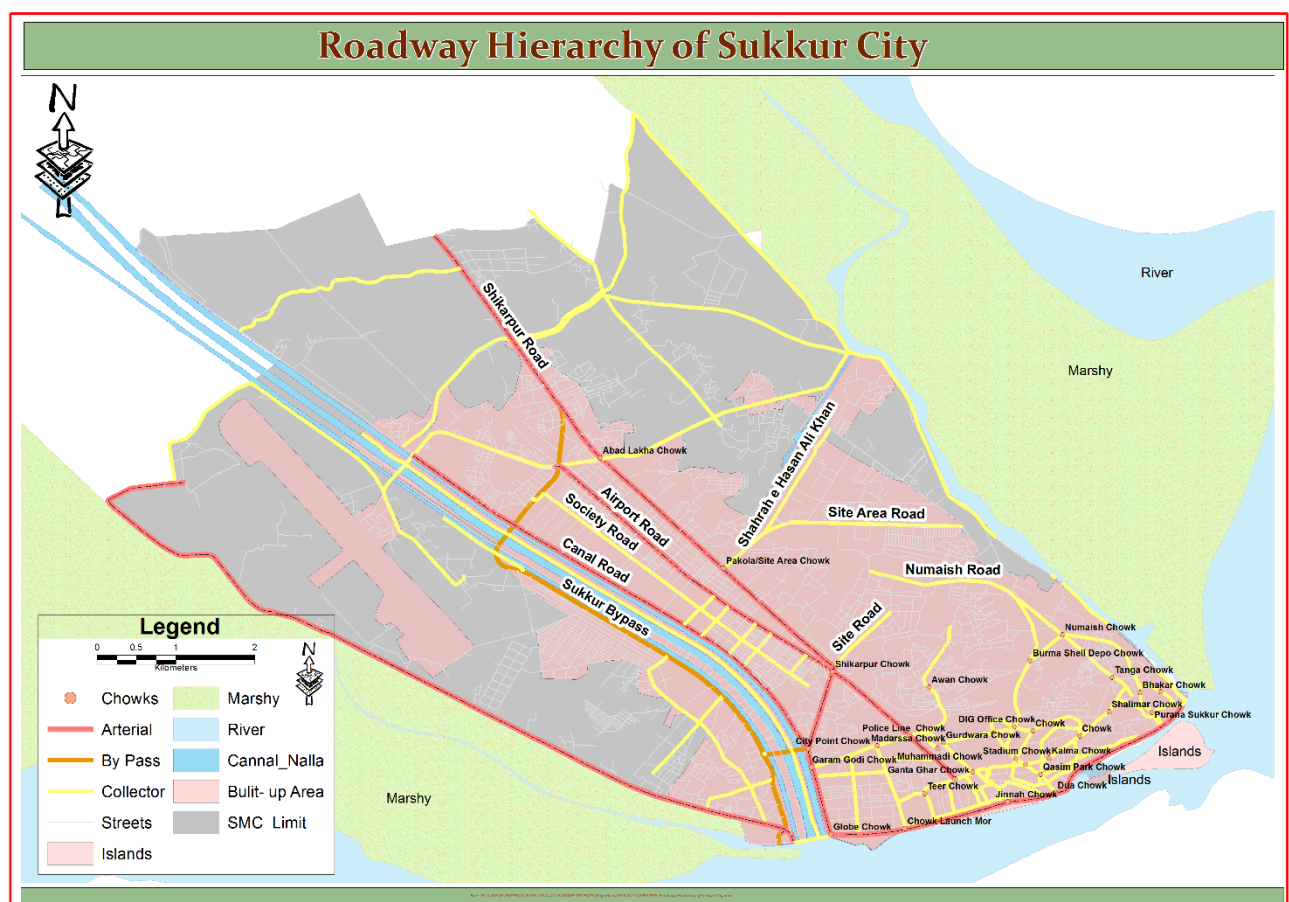
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## 2.4.1 THE ROAD NETWORK

There is no particular difference/ change in road network between 2013-14 and year 2018. Data received from Regional Transport Authority Sukkur reveals that inter and intra city road network is same.

### 2.4.1.3 ROAD TRAFFIC

According to data received from RTA Sukkur, a total 24,537 public transport vehicles are currently registered with Excise and Taxation office Sukkur and 34,660 route permits have so far been granted to public and loading vehicles.



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### 4.3.2 LONG TERM DEVELOPMENT STRATEGY PLAN (Up to 35)

The proposed long term development plan includes rehabilitation of deteriorated roads, widening for increasing the capacities, development of new required links, bypassing heavy traffic through ring road, diverting loading vehicles towards shifted material markets, and overall traffic management. The long term plan sufficiently caters for transport and communication needs up to plan period 2035.

### 5. PRIORITY DEVELOPMENT PROJECTS

Short term and long term development projects proposed in UDS Sukkur for all relevant socio economic and physical infrastructure development projects are given in table no 5-1 (pages 75-78)

Details of five year ADP of Road/ transport sector of Sukkur is as under;

2013-14						
1	976	Improvement / Recondg: of road from Kandhra Naka at Rohri to Sukkur Barrage Road Mile	Sukkur	Approved 22.11.12	Jun-14	30.000
2	981	Installation of C.C Cameras & Traffic Plan at Main Roads of Sukkur	Sukkur	Approved 22.11.12	Jun-14	40.000
3	982	Construction of varions streets, footpaths surface drains & Boring of water at Cattle Colony Sukkur	Sukkur	Approved 22.11.12	Jun-14	25.000
4	1005	Recondition of road from shikarpur Phattak to Golimar road	Sukkur	Approved 30.01.13	Jun-14	2.500
5	1130	Improvement / Reconditioning of Bunder Road including face lifting, Grills for side walls both side of River Indus side drain, foothpath and reiver view platform (4 Nos) mile 0/0-2/3 (3.82 Kms).	Sukkur	Approved 01.06.12	2013-14	250.000
6	1797	W/R of road from Sukkur Bye Pass to Sukkur Airport i/c link connecting Airport Bagerji road (with Asphalt 2' Thick) mile 0/0-2/4 (4.00 Kms).	Sukkur	Approved 03.12.11	2013-14	37.791
2014-15						
1	1509	Improvement / Reconditioning of Bunder Road including face lifting, Grills for side walls both side of River Indus side drain, foothpath and river view platform	Sukkur	Approved 01.06.12	Jun-17	250.000

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		(4 Nos) mile 0/0-2/3 (3.82 Kms).				
2	1599	Reconditioning of road from Hira Hospital to Ghanta Ghar patch work and asphalt concrete i/c link Teer Chowk to Bunder Road, Al-Habib Hotel to Karam Ali Shah and link to Shamsabad (3.5 Kms)	Sukkur	Un-approved	Jun-17	118.900
2016-17						
1	1376	Reconditioning of road from Hira Hospital to Ghanta Ghar patch work and asphalt concrete i/c link Teer Chowk to Bunder Road, Al-Habib Hotel to Karam Ali Shah and link to Shamsabad (3.5 Kms)	Sukkur	Approved 18.02.15 (U/R)	June-18	116.715
2	1491	Rehabilitation of road of Sindhi Society near Airport road Sukkur	Sukkur	Approved	June-18	40.000
201-18						
1	1653	Rehabilitation of road of Sindhi Society near Airport road Sukkur (SDG # 9)	Sukkur	Approved 10.10.16	June-19	40.000



## **Ecology, Environment and Disaster Management**

### **2.5.2.2.1 SURFACE HYDROLOGY**

The gauge was fixed there in 1848. Water quality in the Indus has been continuously monitored since 1973 at Sukkur, Kotri and other locations. Water quality data given in MICS 2014 of Sukkur division depicted following results:

<b>Water Quality of Sukkur City</b>		
<b>Parameters</b>	<b>SEQS of Drinking Water</b>	<b>MICS 2014 Results</b>
<b>TDS</b>	<1000	24.2 ppm
<b>Hard water</b>	>500ppm	7.2 ppm
<b>Fluoride</b>	<=1.5	6.2 ppm
<b>Nitrates</b>	<0.5	8.7 ppm
<b>Arsenic</b>	<=0.05	10.2 ppb
<b>Ecoli</b>	>=1 cfu/ml	21.2 cfu/ml
<b>Total coliforms</b>	<1 cfu/ml	58.3 cfu/ml

### **2.6.1.3 DROUGHT**

In 2013, the National Drought Monitoring Cell of Pakistan Meteorological Department (PMD) reported the beginning of a mild to moderate drought conditions in Southern Sindh. Rainfall departure ranked between -50% and -75% in from July to September 2014, leading to mild to severe drought conditions in Western (severe) and Eastern Sindh (Mild to Severe). The Drought until June 2015, and subsided in July 2015, when rainfall departure became positive in the province, but was followed by negative values again in August.<sup>6</sup>

### **2.6.2.2.1 HEAVY RAINFALL AND FLOODS**

According to Meteorological and Hydrological conditions observed by Flood Forecasting Division Lahore, Indus River at Sukkur has attained high flood level ranging between 650,000 cusecs to 750,000 cusecs during the period from 1200 PST of August 3, 2015 to 2400PST of August 5, 2015.<sup>7</sup>

However the people within the river embankments were safely evacuated in monsoon season of 2013, 2014 and 2015 but the same didn't affect the cities<sup>8</sup>.

<sup>6</sup> Sindh Drought Needs Assessment 2016 by GoS and NDMA

<sup>7</sup> Situation Report # 3 on Flood (2015) affected areas of Northern-Sindh

<sup>8</sup> Information received from PDMA SINDH

## **5.0 PRIORITY DEVELOPMENT PROJECTS**

### **Environment and Disaster Management Projects:**

<b>S.No.</b>	<b>Name of Scheme</b>	<b>Estimated Cost    PKR (M)</b>	<b>Project Status</b>
1.	Detail urban risk assessment of Sukkur and Rohri	200	Not started
2.	Establishment of Emergency Operation Centre (EOC)	50	Not started
3.	Strengthening of rescue and response capacity	100	Not started
4.	Improvement of microclimate of Sukkur city	50	Not started



# **Economic Development**

## ECONOMIC ENGINES OF THE CITY

### 2.7.1 AGRICULTURE

Sukkur district due to its strategic and geographical location serves as a conduit for business and trade for inter and intra provincial regional trade. The study shows that the economic base of Sukkur encompasses of agriculture, industry, trade and service sectors; and individually they have their own significance in Sukkur's economy.

Table 2-66 provides agriculture profile of Sukkur district for 2017, showing cultivated area and un-cultivated area in Acres.

**Table 2-66**

#	Indicators	Value	Unit
01	No. of Bulldozers	11	No.
02	Geographical Area	480	"000" Hectares
03	Cultivation Area	162	"000" Hectares
04	Un-Cultivated Area	318	"000" Hectares

Source: Development Statistics of Sindh - Bureau of Statistics, P&D, Government of Sindh 2017

Table 2-69 shows crop production of Sukkur district. The important crops of Sukkur in terms of total production are cotton, sugarcane and wheat, all having annual production of above 800,000 tons. There exists a significant scope of development of agro based industries related to fruit processing given its high domestic and export demand.

**Table 2-69**

Major Crops Production	value	Unit
Rice	20,131	Metric Tons
Wheat	184,797	Metric Tons
Jowar	1,846	Metric Tons
Bajra	11	Metric Tons
Maize	175	Metric Tons

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<b>Gram</b>	467	Metric Tons
<b>Barley</b>	10	Metric Tons
<b>Rapeseed and mustard</b>	336	Metric Tons
<b>Sesamum</b>	32	Metric Tons
<b>Sugarcane</b>	412,630	Metric Tons
<b>Cotton</b>	214,712	Bales
<b>Tobacco</b>	21	Metric Tons

Source: Development Statistics of Sindh - Bureau of Statistics, P&D, Government of Sindh 2017

## **2.7.2 DATES SECTOR**

**SSARC Development Fund (SDF)** Project Titled A SDF funded project entitled 'Post-Harvest Management and Value Addition of Fruits in Production Catchments in SAARC Countries: Pakistan Component' is being implemented by the Directorate of Post-harvest and Food Engineering, Agricultural Engineering Division, Pakistan Agricultural Research Council, Islamabad at Khairpur and Sukkur districts which are famous for date and banana production in Pakistan.

The project is aimed at drying of dates and value addition in banana in production catchment, in order to mitigate the postharvest losses of dates and banana and to improve the livelihood of resource-poor masses in remote areas of the country.

Field Day Seminars/demonstrations were organized at five locations of Solar Dates Dryers (Pano Aqil, Pir Jo Goth, Preyalo, Hayyat Solangi and Ali Bakhsh Hajano) in District Khairpur/Sukkur from 23rd July to 1st August, 2016.

The objective of these field day seminars/demonstrations was to demonstrate these technologies to members of Village Organizations (VOs), local farmers, date growers, date processors, agricultural machinery manufacturers, local and provincial administration and to convince them for adoption of these drying technologies. The major event was held at village Al-haj Muhammad Chuttal Bhand, Pir Jo Goth, Taluka Kingri, Khairpur on 28th July, 2016.

Table 2-72

**DATES PRODUCTION PAKISTAN**

Year	Production(Tons)
2007-08	273,000
2008-09	257,936
2009-10	329,900
2010-11	268,600
2011-12	299,800
2012-13	268,900
2013-14	270,500
2014-15	280,800
2015-16	201,200

Source: Development Statistics of Sindh - Bureau of Statistics, P&D, Government of Sindh 2017

### 2.7.3 LIVESTOCK

Livestock plays an important role in agriculture sector of Pakistan. The livestock industry has been one of very progressive sector showing a consistent progress over the last many years. The contribution of livestock in National GDP during the year 2016-17 stood at 11.4 percent compared to 11.6 percent in 2015-16 at constant basic prices of 2005-06. Gross value addition of livestock has increased from Rs. 1,288 billion (2015-16) to Rs. 1,333 billion (2016-17), showing an increase of 3.5 percent over previous year. Similarly, its contribution to agriculture value added stood at 58.33 percent during 2016-17 compared to 58.35 percent (2015-16).

SR.#	PARTICULARS	PROPOSED FIGURES2018 (SUKKUR)			
LIVESTOCK SECTOR					
1	Livestock Population	1,198,025 heads			
2	Livestock Products	Whole Milk, Cream, Yoghurt, Cheese, Ice cream, Mutton, Beef, Hide & Skin, Blood & Bones for Poultry Feed.			
3 <sup>9</sup>	Demand and Supply of Meat in Sukkur District <sup>1</sup>	1	Buffalo	2,230,900	Kg / Year
		2	Cattle	530,000	Kg / Year
		3	Sheep	195,300	Kg / Year
		4	Goats	385,000	Kg / Year
4	Meat Production and Consumption in Sukkur District.	-do-			

Source: Livestock and Fisheries Department Sindh 2018

<sup>9</sup> The Figures mentioned in Sr. No. 03 of Livestock Sector is based on monthly statement of slaughtered animals

Table 2-75

Estimated Livestock Population in Pakistan

SPECIES	(000 Heads)				
	2011	2012	2013	2014	2015
	-12	-13	-14	-15	-16
<b><u>CATTLE</u></b>					
a) For breeding	2,996	3,251	3515	3777	4050
b) For work	2,182	2,123	2065	2009	1954
c) Others					
<b>2. Cows 3 years and above</b>					
a) In milk	10,888	11,299	11725	12167	12625
b) Dry	5,580	5,791	6009	6235	6471
c) Not yet calved	2,456	2,549	2645	2744	2848
<b>3. Bulls less than 3 years</b>	4,883	6963	7226	7498	7781
<b>4. Cows less than 3 years</b>	1,827	6324	6563	6821	7079
<b>Total Cattle</b>	<b>30812</b>	<b>33680</b>	<b>39743</b>	<b>41251</b>	<b>42828</b>
<b><u>BUFFALOES</u></b>					
<b>1. Bulls 3 years and above</b>					
a) For breeding	407	407	417	430	442
b) For work	345		354	364	375



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<b>c) Others</b>					
<b>a) In milk</b>	12,224	12595	12921	13305	13701
<b>b) Dry</b>	4,043	4166	4274	4401	4532
<b>c) Not yet calved</b>	2,343	2414	2476	2550	2626
<b>3. Bulls less than 3 years</b>	5,628	5798	5949	6125	6307
<b>4. Buffaloes less than 3 years</b>	7,721	7956	8162	6813	7015
<b>Total Buffaloes</b>	<b>32711</b>	<b>33680</b>	<b>34553</b>	<b>33988</b>	<b>34998</b>
<b><u>SHEEP</u></b>					
<b>1. Male 1 year and above</b>	4,683	4739	4795	4851	4909
<b>2. Female 1 year and above</b>	14,757	14932	15109	15288	15469
<b>3. Young stock less than 1 year</b>	8,978	9084	9192	9301	9411
<b>Total Sheep</b>	<b>28418</b>	<b>28755</b>	<b>29095</b>	<b>29440</b>	<b>29789</b>
				(Contd.)	
<b>SPECIES</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
	<b>-12</b>	<b>-13</b>	<b>-14</b>	<b>-15</b>	<b>-16</b>
<b><u>GOATS</u></b>					
<b>1. Male 1 year and above</b>	7,768	7979	8195	8417	8654
<b>2. Female 1 year and above</b>	36,594	37585	38604	39650	40724

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3. Young stock less than 1 year	18,785	19294	19816	20353	20905
<b>Total Goats</b>	<b>63147</b>	<b>64858</b>	<b>66615</b>	<b>68420</b>	<b>70274</b>
<b><u>CAMELS</u></b>					
1. 3 years and above	385	390	395	784	794
2. Less than three years	370	374	379	251	254
<b>Total Camels</b>	<b>241</b>	<b>244</b>	<b>247</b>	<b>1035</b>	<b>1048</b>
<b><u>HORSES</u></b>					
1. 3 years and above	299	301	303	304	306
2. Less than 3 years	57	57	58	58	58
<b>Total Horses</b>	<b>356</b>	<b>358</b>	<b>360</b>	<b>362</b>	<b>364</b>
<b><u>ASSETS</u></b>					
1. 3 years and above	3,901	3973	4046	4121	4198
2. Less than 3 years	864	880	896	913	930
<b>Total Assets</b>	<b>4765</b>	<b>4853</b>	<b>4942</b>	<b>5034</b>	<b>5128</b>
<b><u>MULES</u></b>					
1. 3 years and above	155	158	161	164	167
2. Less than three years	18	18	18	19	19
<b>Total Mules</b>	<b>173</b>	<b>176</b>	<b>179</b>	<b>182</b>	<b>186</b>

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<b>POULTRY</b>					
<b>Total Poultry (Million No.)</b>	<b>721</b>	<b>785</b>	<b>855</b>	<b>931</b>	<b>1016</b>

Source: M/o National Food Security & Research (Livestock wing) 2016-17

ESTIMATED PRODUCTION OF OTHER LIVESTOCK PRODUCTS- PAKISTAN				
Product	Unit	2013-14	2014-15	2015-16
Blood	(000 tones)	62.2	64.4	66.1
Guts	(Million No)	52.4	53.6	54.8
Casings	( " )	15.8	16.3	16.9
Bones	(000 tones)	802.9	827.2	852.3
Horns & Hooves	( " )	54.0	55.5	57.2
Fat	( " )	255.8	263.3	271.0
Dung	( " )	1336.0	1171	1207
Urine	( " )	348.0	358	368
<b>HIDES</b>				
Cattle	Mill. No.	7.5	7.8	8.1
Buffalo	( " )	7.2	7.4	7.7
Camels	( " )	0.1	0.1	0.1
<b>Total</b>	<b>( " )</b>	<b>14.8</b>	<b>15.2</b>	<b>15.9</b>
<b>SKINS</b>				
Sheep	( " )	11.0	11.1	11.3
Goats	( " )	25.7	26.4	27.1
Fancy skin	( " )	15.2	15.6	15.9

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<b>Total</b>	<b>( " )</b>	<b>51.9</b>	<b>53.1</b>	<b>54.3</b>
<b>Wool (sheep)</b>	<b>(000 tones)</b>	<b>44.1</b>	<b>44.6</b>	<b>45.1</b>
<b>Hair (goat)</b>	<b>( " )</b>	<b>25.1</b>	<b>25.8</b>	<b>26.5</b>

Source: - Ministry of National Food Security and Research (Livestock Wing)

#### 2.7.4 FISHERIES

Table 2-79 is showing the fishery sector in the form of fish production, fishermen involved boats in use and number of fish farms in Sukkur District. There are number of fish species, which are promoted locally for producing fish meet.

**Table 2-79**

**Fisheries Statistics of District Sukkur**

<b>Year</b>	<b>Fish Production (Million Tonnes)</b>	<b>No. of Fishermen</b>	<b>No. of Boats</b>	<b>No. of Fish Farms</b>
2017-18	10520	3160	262	136

Source: Fisheries Department District Govt. Sukkur 2018

#### 2.7.5 DAIRY SECTOR

Pakistan is the fourth biggest milk producer in the world. With an annual production of 36 million tons from 8 million farming households, the country has an annual per capita milk consumption of 200 liters. This \$1.5Bn industry supplies milk both in packaged and open form.

Some of the biggest challenges in this industry are livestock management, milk yield improvement and value loss for farmers. Only 4% of cows in Pakistan are vaccinated and only 5% receive complete diet. Experts believe that if yield is improved, Pakistan could export milk and gain higher value from global economies.

Nestle Pakistan Ltd., a unit of the world's biggest food company, has started selling pasteurized fresh milk in a pilot project as it seeks to develop a new segment in the South Asian country's \$23 billion dairy market.

<b>DAIRY SECTOR OF SUKKUR DISTRICT</b>		
<b>1</b>	<b>Milk Production &amp; Processing in District Sukkur</b>	<b>23500 Liters / Day</b>
<b>2</b>	<b>No. of Milk Collection Centers</b>	<b>20 Approximately</b>
<b>3</b>	<b>No. of Milk Collectors</b>	<b>200 Approximately</b>

Figures mentioned in Sr. No. 1-3 of Dairy Sector are based on verbal information sent by employees of EngroFoods

<b>ESTIMATED MILK PRODUCTION – PAKISTAN</b>										
<b>(000 tonns)</b>										
	<b>2011-12</b>		<b>2012-13</b>		<b>2013-14</b>		<b>2014-15</b>		<b>2015-16</b>	
<b>Animals</b>	<b>I</b>	<b>II</b>	<b>I</b>	<b>II</b>	<b>I</b>	<b>II</b>	<b>I</b>	<b>II</b>	<b>I</b>	<b>II</b>
<b>Cows</b>	16,741	13,393	13,897	17,372	14,421	18,027	18,706	14,965	19,412	15,529
<b>Buffaloe</b>	29,565	23652	24,370	30462	25,001	31252	32,180	25,744	33,137	26,510
<b>Sheep</b>	37	37	37	37	38	38	38	38	39	39
<b>Goats</b>	779	779	801	801	822	822	845	845	867	867
<b>She camel</b>	829	829	840	840	851	851	862	862	873	873
<b>Total</b>	<b>47,951</b>	<b>38,690</b>	<b>39,945</b>	<b>49,512</b>	<b>41,133</b>	<b>50,990</b>	<b>52,631</b>	<b>42,454</b>	<b>54,328</b>	<b>43,818</b>
<b>Note</b>										
I= Gross Production, II= Human Consumption, NA= Not available										
5% of total milk production is excluded as milk sucked by young animals, 15% is excluded as wastage in transportation										
Only 5% of adult female sheep and 15% of adult female goats and 50% of adult female camels are milked for human consumption										
<b>Source: - M/o National Food Security and Research (Livestock Wing) 2015-16</b>										

Pakistan has huge potential for investment in the dairy sector for domestic and global market consumption.

## **2.7.6 TOURISM SECTOR**

### **No of international tourists expected**

According to the report, 1.75 million international tourists visited Pakistan in 2017 alone. The number of international tourists is gradually growing.<sup>10</sup>

### **Tourism potential in Pakistan**

Over the past few years, Pakistan has seen a rapid increase in its tourism industry. A lot of credit, for which, goes to the internet. It has immensely contributed towards the development and growth of the tourism industry in Pakistan.

Pakistan has been ranked the world's top travel destination for 2018 by the British Backpacker Society, which described Pakistan as "one of the friendliest countries on earth, with mountain scenery that is beyond anyone's wildest imagination. Pakistan is the clear winner of the British Backpacker Society's top 20 adventure travel destinations 2018 and we encourage keen travellers to book a trip now" the backpackers, who have travelled to over 101 countries, shared on social media.<sup>11</sup>)

According to international Booking.com and Jovago, the top hotel booking and e-commerce site in Pakistan, there has been a significant increase in the annual tourism rate and business traveling in Pakistan.

Significantly improved security situation has helped boost annual tourist arrivals in Pakistan by 300% since past few years with 1.75 million in 2017. Domestic travelers have increased 30%, according to the state-owned Pakistan Tourism Development Corporation. According to Jovago, hotel bookings increased 80-90% percent in 2017.

### **Tourism Potential in Sindh**

Sindh's remarkable tourism potential has largely remained unexplored. The Indus Valley Civilization (IVC) was a Bronze Age civilization (mature period 2600–1900 BCE) which was centered mostly in the Sindh.

Gorakh hill station, Keenjhar lake, pre-historic site of Moen jo Daro, Makli necropolis, various forts & palaces spread throughout sindh, beautiful beaches on the shore of Arabian Sea make Sindh truly an ideal destination for tourism.

### **Tourism potential in Sukkur**

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<sup>10</sup> (Source: PTDC& World Travel & Tourism Council)

<sup>11</sup> (Source Gulf News)

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There is enormous potential of tourism in Sukkur. It is the third largest city of Sindh province; Located at the bank of River Indus. The cultural spots and bazaars in Sukkur show how rich it is in Sindhi culture, and they are the most prominent attractions of the city. People living here are proud of their city and show their pride by being very hospitable to tourists. Their hospitable culture is extended even to the management of top hotels in Sukkur, giving more reasons to tourists to fall in love with the city.

Sukkur is simple yet beautiful, and the cultivable area around the city enhances its beauty. The climate at Sukkur is usually hot, dry and hazy. The city is beautifully crafted that people can't stop roaming around and exploring the magnificence of civilization.

Some of historical and eye catchy places of Sukkur are as under:

**Sadh Belo:** An island on Indus River very close to the city of Sukkur. There is a Hindu temple on the island which was founded in 1823 by Swami Bakhandi Maharaj Udasi; it is one of the main tourist attractions. The route to the temple is through the river on a boat, which provides the tourist with a pleasurable experience and scenic view of River.

**Satyun Jo Asthan:** Satyun jo asthan or Satbahain jo maskan is the resting or 'living' place of Seven Sisters. It is situated in Sukkur on a mound near Lansdown Bridge. Popularly known as Satian jo asthaan (the home of seven virgins) is a cave like hall, dug out of the mound.

It is a strange place. No impressive mausoleum like those of other saints of Sindh, but just an empty cave.

**Sukkur & other barrages:** Sukkur barrage (bridge) is located near Sukkur city. There are about 66 parts of the barrage and each has a door weighing 50 tons, to help control the water flow for cultivation and floods. There are Lansdowne bridge and Ayoub Bridge also famous for their fascinating look. Mir Masoom Shah Minaret and historical Market are favorite places for local and international tourists.

Archaeological sites of Sukkur like "Lakhiyun Jo Daro" which is pre-matured site of Indus Valley Civilization is yet an enigma. About 40 Kms long Pre-Historic Stone tool factory is a series of hills from Rohri to Kotdiji, where fossils and remains of stone age tools are on the peaks of hills. Rohri is side by side town of Sukkur which has also vast historical background.

## 2.7.7 INDUSTRIES

### SINDH INDUSTRIAL TRADING ESTATE

Salient Feature of Sukkur:

SITE Sukkur was established over an area of 1066 acres in the year 1963. Presently, all the utilities viz gas, electricity and infrastructure viz roads, drains and water supply are available for establishment of medium scale industries. The Government of Sindh has also approved establishment of Combined Effluent Treatment Plant for treatment of industrial waste before discharging into fresh water bodies.

**Table 2-82: Salient Characteristics of SITE Ltd. Sukkur**

<b>Industrial estate establishing</b>		<b>1963</b>
<b>Transfer of site ltd, in the year</b>		<b>1975</b>
<b>Total area of estate (SITE Ltd. Sukkur)</b>		<b>1060acres</b>
<b>Number of units in production</b>	91	<b>171.33acres</b>
<b>Trade</b>	Vegetable ghee, cooking oil, flour, beverages, ice & cold storage, dal mills, chemicals, re-rolling, dates & food processing, oil & soap, straw paper board, ice cream, biscuits, rice, poultry farms, and machines,	
<b>No. of large scale industries functional</b>	<b>01 Unit only</b>	<b>M/s. Kiran Sugar Mills</b>
<b>Medium scale industries</b>	73 units 01 Engro Foods (PVT) LTD 33 Flour Mills 01 Knitting Mill 01 Beverages 01 Bottlers 06 Ghee & Oil Mills 02 Biscuits 24 Cotton Ginning 02 Chemicals 01 Engineering 01 RCC Pipe Industries	

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## Type of Industries

The Small Industrial Estate (SIE) Sukkur was set up in 1963-64 over an area of 110 acres. The Sindh Small Industries Corporation is managing the estate. The rate of colonization of small industrial estate has also been slow.

The industries developed in the Small Industrial Estate are more diversified. It include sub-sectors of paints, cotton waste, agriculture implements, rice, RCC pipes, flour mills, furniture, pulses, cotton seed oil & cakes, spices grinding, herbal liberties, confectioneries, soap, tin manufacturing, salt grinding, saw mill, cotton thread, ice, printing press, poultry feed manufacturing, biscuits manufacturing, food products, marbles tiles, auto rubber, steel closet, room coolers, newspaper, mirror manufacturing, oil expellers, metal container, liquor works, plastic manufacturing and chemicals. These small-scale manufacturing and service units have been developed with relatively lower capital costs.

There are medium scale industries and presently in 2018, 91 units are in production (the detail is as under).

**Table 2-83: Industrial Unit in Production of SITE**

#	Name of Tenants		Plot No.		Area		Trade
1	M/s.	Faisal Industries	B-	52	2.00	acres	Animal Protein
2	M/s.	Shahbaz Industries	D-	40	1.00	acres	Ara Machine
3	M/s.	Shahmir khan Khoso	D-	49	0.50	acres	Ara Machine
4	M/s.	Namatullah Ara Machine	F-	1	0.50	acres	Ara Machine
5	M/s.	Balouch Agro Industries	C-	4	1.00	acres	Agriculture Processing
6	M/s.	Sukkur Beverages Ltd.	A-	7-B	1.00	acres	Beverages Unit
7	M/s.	Sukkur Beverages Ltd.	A-	10	5.00	acres	Beverages Unit
8	M/s.	Akmal Bottling Pvt. Ltd	A-	9	2.62	acres	Beverages & MFGC
9	M/s.	Continental Biscuit Ltd.	B-	67	6.00	acres	Biscuit Unit
10	M/s.	New Yaqoob Biscuit Factory	B-	18	5.00	acres	Biscuit Factory
11	M/s.	Continental Biscuit Ltd.	B-	62	4.00	acres	Biscuit Factory
12	M/s.	N&Z Chemicals	B-	73-A	1.10	acres	Chemical
13	M/s.	Fazle Rabi	B-	50	4.00	acres	Cold Storage
14	M/s.	Faizan Enterprises	D-	8-A	1.00	acres	Cold Storage
15	M/s.	Technical Training Centre	B-	22	10.00	acres	Commercial



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16	M/s.	Itihad Enterprises	B-	69	1.00	acres	Commercial
17	M/s.	Wapda Grid Station	D-	46	9.03	acres	Commercial
18	M/s.	Ghulam Murtaza Enterprises	B-	79	1.00	acres	Control Sheed
19	M/s.	Rima Cooking Oil Industries Ltd.	B-	16-A	2.00	acres	Cooking Oil & Ghee
20	M/s.	Rehman Industries	A-	5	6.16	acres	Cotton Ginning & Oil
21	M/s.	Rima Dall Mill	B-	16	1.00	acres	Dall Mill
22	M/s.	A.R.R Industries	A-	7-C	0.81	acres	Date Processing Packages
23	M/s.	A.W Industries	A-	7-D	0.83	acres	Date Processing Packages
24	M/s.	Sana Industries	A-	7-A	2.08	acres	Dates & Food
25	M/s.	Alam Brothers Engineering	B-	30	2.00	acres	Engineering Works
26	M/s.	Junejo Flour & General Mill	A-	2	5.00	acres	Flour & General Mill
27	M/s.	New Insaf Rice Mill & Flour Mill	B-	48	3.00	acres	Flour & Rice Mill
28	M/s.	New Qadria Flour Mill	A-	14	0.36	acres	Flour Mill
29	M/s.	Hamid Flour Mill	B-	17	4.13	acres	Flour Mill
30	M/s.	Sami Flour Mill	B-	40	2.00	acres	Flour Mill
31	M/s.	Indus Flour Mill	B-	41	3.00	acres	Flour Mill
32	M/s.	Sunny Jatoti Flour Mill	B-	43	2.00	acres	Flour Mill
33	M/s.	M.D Flour Mill	B-	53	2.00	acres	Flour Mill
34	M/s.	Dilber Flour Mill	B-	98	1.80	acres	Flour Mill
35	M/s.	Mushtaq Flour Mill	D-	52	0.56	acres	Flour Mill
36	M/s.	New Qadira Flour Mill	S-	4	1.00	acres	Flour Mill
37	M/s.	Swiss Food International	B-	31	4.45	acres	Food Processing
38	M/s.	Sitara Product Pakistan	B-	56-B	1.00	acres	Food Processing
39	M/s.	Iqbal & Brothers	B-	55	1.00	acres	Gases Unit
40	M/s.	Iqra Board Indsutry	B-	38	1.00	acres	Gatta Factory
41	M/s.	Madina Enterprises	B-	91	2.00	acres	Gatta Factory
42	M/s.	New Friends Gatta Factory	D-	6	2.00	acres	Gatta Factory
43	M/s.	Al-Usmani Gatta Factory	D-	14	1.00	acres	Gatta Factory



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44	M/s.	Saeed Oil Mill	B-	85-B	1.00	acres	Godown & Shops
45	M/s.	Secretary Food Department	C-	13	7.00	acres	Govt: Department
46	M/s.	Public Health Engineering	C-	23	1.37	acres	Govt: Department
47	M/s.	Sindh Employee Social Security	S-	3	1.00	acres	Hospital Building
48	M/s.	Indus Industries	A-	4	3.00	acres	Ice & Cold Storage
49	M/s.	New Sukkur Enterprises	A-	12	2.71	acres	Ice & Cold Storage
50	M/s.	Baloch Ice & Cold Storage	B-	39	1.00	acres	Ice & Cold Storage
51	M/s.	Khan Cold Storage	B-	54-A	2.00	acres	Ice & Cold Storage
52	M/s.	S. Zia-ul-Haq	B-	92-93	4.00	acres	Ice & Cold Storage
53	M/s.	Saif Jatoi Ice & Cold Storage	D-	2	1.50	acres	Ice & Cold Storage
54	M/s.	Wali Enterprises	B-	56-A	1.00	acres	Ice Cream
55	M/s.	Bukhari Marble Factory	D-	61	1.00	acres	Marble Factory
56	M/s.	S.S Margrine Ltd	B-	72-A	1.09	acres	Margrine
57	M/s.	Mahar Brothers Oil	D-	26	1.00	acres	Multi Food
58	M/s.	Karman Vegetable Oil & Ghee	B-	45	2.89	acres	Oil & Ghee Mill
59	M/s.	Y.A Oil Mill	A-	13	1.64	acres	Oil Mill
60	M/s.	Rehman Oil Mill	B-	61	4.00	acres	Oil Mill
61	M/s.	Ahmed Vegetable & Ghee	B-	72	10.00	acres	Oil Mill
62	M/s.	Merhan Traders	B-	36	2.00	acres	Oil, Dall & Soap
63	M/s.	Merhan Traders	B-	36-A	1.00	acres	Oil, Dall & Soap
64	M/s.	Police Station	S-	2	0.50	acres	Police Station
65	M/s.	Bukhar Poultry Farm	C-	7	1.00	acres	Poultry Farm
66	M/s.	Magsi Poultry Farm	C-	11	2.00	acres	Poultry Farm
67	M/s.	Bukhari Tasti Form	D-	55	1.00	acres	Poultry Farm/ Control Sheet
68	M/s.	Bukhari Tasti Form	D-	55-A	1.00	acres	Poultry Farm/ Control Sheet
69	M/s.	Siddiqui Industries	B-	49	4.00	acres	Rice & Cold Storage
70	M/s.	Sukkur Flour Mills & Rice	D-	64	1.09	acres	Rice & Flour Mill
71	M/s.	Tawakal Oil Mill	B-	64	1.00	acres	Rice & Oil Mill



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72	M/s.	Zam Zam Rice Mill	B-	64-A	1.00	acres	Rice & Oil Mill
73	M/s.	Shah Usman Rice Mill	D-	11	1.00	acres	Rice Mill
74	M/s.	Abdul Muqadam	D-	12	1.00	acres	Rice Mill
75	M/s.	Abdul Muqadam	D-	13	1.00	acres	Rice Mill
76	M/s.	Indus Rice Mill	D-	17	3.00	acres	Rice Mill
77	M/s.	Mahar Rice Mill	D-	19	4.00	acres	Rice Mill
78	M/s.	Primary School	S-	1	0.50	acres	School
79	M/s.	Bilal Soap Factory	B-	74	1.00	acres	Soap Factory
80	M/s.	Khadim Soap Factory	B-	75	2.00	acres	Soap Factory
81	M/s.	Hassan Soap Factory	D-	15	1.00	acres	Soap Factory
82	M/s.	Rehman Solvent & Cooking Oil	B-	59	3.00	acres	Solvent & Cooking Oil
83	M/s.	Rehman Solvent & Cooking Oil	B-	60	3.00	acres	Solvent & Cooking Oil
84	M/s.	PASSCO Ltd.	B-	19	12.00	acres	Storage (Godown)
85	M/s.	Crescent Chemcials Ltd.	B-	20	5.00	acres	Sulfaric Acid Chemcial
86	M/s.	Eman Textile	B-	85	4.00	acres	Textile Unit
87	M/s.	Public Health Engineering	E-	3	1.75	acres	Water Supply
88	M/s.	Kamran Weigh Bridge	B-	45-A	0.11	acres	Weigh Bridge
89	M/s.	Abdullah Weigh Bridge	B-	53-A	0.07	acres	Weigh Bridge
90	M/s.	PDMA	E-	49	10.00	acres	Wharehous
91	M/s.	Tariq Enterprises	D-	1	0.44	acres	Wharehous & Shops

Source: SITE 2017

### 2.7.7.1 SMALL INDUSTRIAL ESTATE (SIE)

**Table 2-85: Industrial Unit in Production of SIE SUKKUR**

S.No	Name of Unit	Characteristics of Industry	Capital Investment	No. Employees	Status / Industries Units In production
1	Shaheed Abdul Aziz Bullo Cotton Wastage Industry	Cotton Wastage Industry	374000	18	B-24 in Production & B-25, Open Plot
2	Shoaib Dali Chakki	Dal Chakki	623000	13	In Production
3	New Waqar Dall Mill	Dall Mill	-	5	in Production
4	Waqar Dall Mill	Dall Mill	-	7	in Production
5	Multani Elec:	Electric	181000	14	using as Godown notice issued
6	moderan Auto Eng: Works	Eng: Works	900000	9	in Production
7	Madina Enter Prices	Enter Prices	437000	13	in Production
8	Shaikh Flour Mill	Flour Mill	175000	4	In Production
9	Anand Flour Mill	Flour Mill	-	5	using as Godown notice issued
10	Indus Oil Ghee Mill	Oil Ghee Mill	642500	19	in Production
11	Asif Oil Mill	Oil Mill	-	13	in Production
12	Farooq Oil Mill	Oil Mill	323000	10	in Prodcution
13	Masood Paint	Paint	-	5	in Prodcution
14	Shalimar Soup Factory	Soup Factory	323000	10	using as Godown notice issued
15	Birds Establishment	Agriculture Work	735000	11	in Production
16	Multani Enterprises	Agricultrue Works	-	8	using as Godown notice issued
17	M/s Mirza Industry	Agricultrue Works	-	6	in Production
18	New Suhail Animal Feed Industries	Animal Feed Industries	494500	8	using as Godown notice issued
19	Mushtaque Atta Chaki	Atta Chaki	113000	3	In Production



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20	Iqbal Atta Chakki	Atta Chakki	395000	11	using as Godown notice issued
21	Malik Industry	Bardana Works	465000	13	using as Godown notice issued
22	Shams Biscuit Factory	Biscuit Factory	335000	13	in Production
23	Bismillah Feed Industry	Bismillah Feed Industry	888000	10	In Production
24	Mehmood Iqbal Industries	Bricks Works	610000	16	using as Godown notice issued
25	Shameem Ind:	Bricks Works	1078000	25	in Production
26	Good Luck Industry	Candy	470000	13	in Production
27	Mohammadi Carding Factory	Carding Factory	181000	13	in Production
28	Lucky Carding Factory	Carding Works	495000	7	in Production
29	Koswan Chemical Industries	Chemical Industries	205000	6	In Production
30	Bilawal Cold Storage	Cold Storage	1946600	8	C-16 Tower&C-17-18 Using as Godown Notice issued
31	Muhammad Javeed Cold Storage	Cold Storage	-	4	using as Godown notice issued
32	Sardar Cold Storage	Cold Storage			Construction
33	Varda Cold Storage	Cold Storage	-	-	using as Godown notice issued
34	Syed Mohd.Ali Raza (Commer)	Commercial Tower			Tower
35	Al-Syed Computerized Weight Bridge	Computerized Weight Bridge	-	9	in Production
36	Kiran Confectionary & Biscuit	Confectionary & Biscuit	770000	13	C-4&C-5 Using as Godown and C-6-7n Production
37	Sindh Punjab Corporation	Confectionary & Biscuit	-	9	in Production
38	Zahid Industries	Confectionary & Chips	1993000	14	in Production
39	Darbar Cottage Industries	Cottage Works	-	-	Open Plot
40	Rashid Cotton Wastage	Cotton Wastage			In Production
41	Sharif Cotton Wastage	Cotton Wastage	-	-	using as Godown notice issued



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42	Nizam Cotton Wastage Industry	Cotton Wastage Industry	193000	13	B-22 in Production & B-23 Tower
43	Amin Industries	Cotton Waste	468500	10	In Production
44	Humayoon & Company	Cotton Waste	-	6	in Production
45	Nasir Mehmood & Sons	Cotton Waste	-	9	in Production
46	Siddique Brothers	Cotton Waste	48965	8	Closed
47	Bashir Ahmed Cotton Waste Ind:	Cotton Waste Ind:	590000	12	in Production
48	Abdul Latif Cottton Waste Factory	Cottton Waste Factory	298000	15	in Production
49	Al-Noor Dall Mill	Dall Mill	840000	12	in Production
50	Faisal Dall Mill	Dall Mill	480000	10	In Production
51	New Nisar Dall Mill	Dall Mill	-	8	in Production
52	Nisar Dall Mill	Dall Mill	300000	10	using as Godown notice issued
53	Pak Dall Mill	Dall Mill	352000	9	in Prodcution
54	Divisional Eng:Telephone	Divisional Eng:Telephone	-	-	PTCI Office
55	Zahoor Industries	Electric Works	466000	8	using as Godown notice issued
56	Al-Makka Enterprises	Electronic Works			In Production
57	Sindh Eng:Works	Eng:Works	430000	13	In Production
58	Alyas Engineering Works	Engineering Works	458000	15	in Production
59	M/S Jamshed Engineering Works	Engineering Works	315000	13	using as Godown notice issued
60	Rafique Engineering Works	Engineering Works	370000	6	Encroachment
61	Syed Industries	Engineering Works	-	9	Encroachment
62	Mian Enginerning Works	Enginerning Works	-	-	using as Godown / 02 Shops notice issued
63	New Perfact (Eng)	Enginerning Works	-	10	In Production
64	Engro Comical	Engro Chemical	664000	10	in Production

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65	A.R Enterprises	Enterprises	475000	10	using as Godown notice issued
66	EXEN Wapda Sukkur	EXEN Wapda Sukkur			Wapda Office
67	Mumtaz Feed Industries	Feed Industries	216000	16	in Production
68	Bismillah Feed Industry	Feed Industry	259500	6	In Production
69	Kamran Feed Industry	Feed Industry	-	10	In Production
70	R.R Feed Industry	Feed Industry			using as Godown notice issued
71	Patel Industries	Flour Mill	-	10	using as Godown notice issued
72	Jawaid Flour Mill	Flour Mill	-	8	using as Godown notice issued
73	Kashif Flour Mill	Flour Mill	319000	6	using as Godown notice issued
74	Khalid Flour Mill	Flour Mill	1500000	18	Closed
75	Lakha Flour Mill	Flour Mill	1729500	12	using as Godown notice issued
76	Madina Flour Mill	Flour Mill	1310000	21	Open Plot
77	Mangrio Flour Mill	Flour Mill	-	-	01 Tower
78	Raja Zahid Flour Mill	Flour Mill	2354000	10	using as Godown notice issued
79	Sattar Flour Mill	Flour Mill	-	7	in Production
80	Sindh Flour Mill	Flour Mill	385000	4	In Production
81	Star Industries	Flour Mill	-	7	using as Godown notice issued
82	Dawood Noor Flour Mill	Flour Mill	410000	20	Closed
83	Khan Food Enterprises	Food Enterprises	900000	10	using as Godown notice issued
84	Abdul Basit Food Industries	Food Industries	699000	15	in Production
85	Gunj Bux Food Industries	Food Industries	-	7	using as Godown notice issued
86	Haji Dawood Food Industries	Food Industries			Open Plot

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87	Nadir Food Industries	Food Industries	400000	5	using as Godown notice issued
88	A.H Food	Food Industry	1000000	10	using as Godown notice issued
89	Al-Pino Foods	Food Industry	1976000	8	In Production
90	Golden Valley Foundry Works	Foundry Works	727000	9	in Production
91	Shafi Foundry Works	Foundry Works	851000	7	in Production
92	Sharif Bhutto	Foundry Works	727000	8	in Production
93	Tip Top Furnishers	Furnishers	-	8	In Production
94	Decent Furniture Industry	Furniture Industry	841000	8	using as Godown notice issued
95	Hafiz Enterprises	Gatta Waste	373000	10	using as Godown notice issued
96	Data General Mill	General Works	864000	5	using as Godown notice issued
97	Mittal Godown	Godown	-	-	using as Godown notice issued
98	Zia Grease	Grease	-	8	in Production
99	Prime Grinding Ind:	Grinding Ind:	1252000	6	using as Godown notice issued
100	Khawaja Grinding Spices	Grinding Spices	163000	9	in Production
101	Rais Ice & Cold Storage	Ice & Cold Storage	670000	15	In Production
102	Fahad Ice factory	Ice Factory	324000	4	In Production
103	Imran Ice Factory	Ice Factory	215000	4	In Production
104	Khokhar Industries	Ice Factory	740500	13	using as Godown notice issued
105	M/s Global Ice Factory	Ice Factory	2037000	10	in Production
106	R.R Ice Factory	Ice Factory	2037000	12	using as Godown notice issued
107	Makkah Ice Factory	Ice Factroy	325000	4	In Production
108	Irama Industries	Industries	1020000	10	Under Construction



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109	Hanif Brothers	Iron Works	268000	21	In Production
110	Kawish Publication (Pvt Ltd)	Kawish Publication (Pvt Ltd)	147000	5	In Production
111	Nobal Laboratories	Laboratories	273000	10	In Production
112	M/s Khawaja Leather & Salt Works	Leather & Salt Works	1163000	10	using as Godown notice issued
113	Umar Scan	Leather Works	760000	6	using as Godown notice issued
114	Asif Ali Marbal Factory	Marbal Factory	-	-	Rented Out Transformer work Open Plot
115	Mehran Marbal Factory	Marbal Factory	1070000	17	in Production
116	Mansoor Marbal & Tiles Factory	Marble & Tiles Factory	1143000	7	In Production
117	Millat Marbal & Tiles Factory	Marble & Tiles Factory			In Production
118	Al-Majeed Marbal Factory	Marble Factory	1190000	9	In Production
119	Shabbir Marble & Tiles Industry	Marble Factory	1222500	9	Open Plot / 01 Tower
120	Abdullah Metal Works	Metal Works	525000	10	using as Godown notice issued
121	Mohammadi Dall Mill	Mohammadi Dall Mill	279000	8	In Production
122	Ibrat Group	News Papers	1876000	8	In Production
123	Independent News Papers	News Papers	-	-	Closed
124	Chohan Nimco	Nimco	1385000	8	In Production
125	Rehman Oil & Soap Factory	Oil & Soap Factory	242500	18	Open Plot
126	Asif & Co	Oil Deepo	-	8	using as Godown notice issued
127	Amercian Trading Co:	Oil Mill	175600	8	Open Plot
128	Arfat Oil Mill	Oil Mill	288000	10	in Production
129	Asif Oil Mill	Oil Mill	1238000	29	in Production

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**PREPARATION OF URBAN DEVELOPMENT STRATEGY FOR SUKKUR, SINDH (2014 - 2035)**

130	Awami Oil Mill:	Oil Mill	-	-	Open Plot
131	Ayoub Oil Mill	Oil Mill	975000	13	Under Construction
132	Hussain Till Oil Mill	Oil Mill	-	15	using as Godown / 01 Tower notice issued
133	Imdad Oil Mill	Oil Mill	700000	11	in Production
134	Madni Oil Mill	Oil Mill	135800	10	in Production
135	MashaAllah Oil Mill	Oil Mill	699000	13	In Production
136	Muhammadi Oil Mill	Oil Mill	-	11	In Production
137	New Mashaallah Oil Mill	Oil Mill	288000	6	using as Godown notice issued
138	Noman Oil Mill	Oil Mill	1632000	10	in Production
139	Pakistan Oil Mill	Oil Mill	293000	10	Closed
140	Rabel Oil Mill	Oil Mill			Open Plot
141	Reema Oil Mill	Oil Mill	435000	10	using as Godown notice issued
142	Sukkur Oil Mill	Oil Mill	440000	10	using as Godown notice issued
143	Super Rehman Oil Mill	Oil Mill	426000	11	in Production
144	Wali Oil Mill	Oil Mill	323000	10	in Production
145	yousif Oil Mill	Oil Mill	288000	8	using as Godown notice issued
146	Primier Oil Mill	Oil Mill	152000	23	Closed
147	Zaric Pharmaceutical	Pharmaceutical	521000	13	Open Plot
148	Star Pipe Factory	Pipe Factory	383000	10	In Production
149	A.A Pipe Ind:	Pipe Ind:	6300000	6	Open Plot
150	Zubair Industries	Pipe Works	-	9	in Production
151	Bhittai Plastic	Plastic	-	7	using as Godown notice issued

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**PREPARATION OF URBAN DEVELOPMENT STRATEGY FOR SUKKUR, SINDH (2014 - 2035)**

152	Sukkur Plastic Mfg	Plastic Mfg	245000	4	using as Godown notice issued
153	Shameem Poultry	Poultry	-	10	In Production
154	Azmeer Poultry Farm	Poultry Farm	395000	4	using as Godown notice issued
155	Hafeez Poultry Farm	Poultry Farm	370000	8	Under Construction
156	Haq Poultry Farm	Poultry Farm	187000	5	In Production
157	Star Poultry Farm	Poultry Farm	-	-	Open Plot
158	Taj Printer / Marbal	Printer / Marbal			In Production
159	Aijaz Printer Press	Printer Press	319000	8	using as Godown notice issued
160	Nida Investment Printing Corporation	Printing Press	565000	6	open Plot /Boundary
161	Nijat Printing Press	Printing Press	-	-	Closed
162	Star Printing Machine	Printing Works	113000	3	Encroachment
163	Mohammad Arif PVC Pipe Factory	PVC Pipe Factory	1065000	9	Open Plot
164	Al-Syed R.C.C Pipe Factory	R.C.C Pipe Factory	-	-	B-64 & 65 Open Plots & B-66 in Production
165	New United R.C.C Pipe Factory	R.C.C Pipe Factory	-	11	in Production
166	Sarfaraz R.C.C Pipe Factory	R.C.C Pipe Factory	-	6	in Production
167	United R.C.C. Pipe Factory	R.C.C. Pipe Factory	-	10	in Production
168	Abid Rice Mill	Rice Mill	1270000	9	using as Godown notice issued
169	Al-Makkah Rice Mill	Rice Mill	438000	10	in Production
170	New Allah Tawakal	Rice Mill	193000	14	using as Godown notice issued
171	Noor Rice Mill	Rice Mill	154500	8	In Production
172	Sukkur Rice Mill	Rice Mill	-	8	in Production
173	Super Sindh Rice Mill	Rice Mill	593000	10	using as Godown notice issued

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**PREPARATION OF URBAN DEVELOPMENT STRATEGY FOR SUKKUR, SINDH (2014 - 2035)**

174	Muhammad Ramzan Salt Grinding	Salt Gridding	970000	11	in Production
175	Abdul Hameed Khan & Co:	Salt Grinding	-	6	in Production
176	Abdul Hameed Khan & Co:	Salt Grinding	-	-	Open Plot
177	Haji Ibraheem Salt Grinding	Salt Grinding	164500	14	using as Godown notice issued
178	M/s Ghousia Salt Grinding	Salt Grinding	423000	8	In Production
179	Syed Saw Mill	Saw Mill	845000	11	In Production
180	Sindh Traders	Sindh Traders	-	-	using as Godown notice issued
181	Pak Soap Factory	Soap Factory	595000	16	using as Godown notice issued
182	Ramzan Soap Factory	Soap Factory	323000	16	in Production
183	Sobh Publication	Sobh Publication	1456000	9	in Production
184	Abdul Hameed Brothers	Spices	218000	5	using as Godown notice issued
185	Abdul Wahab Spices Grinding	Spices Grinding	475000	18	in Production
186	A-Faisal Industries	Spices Grinding	450000	13	C-49-50 Using as goddown and C- 51-52In Production
187	Itehad Industries	Spices Grinding	355000	8	In Production
188	MashaAllah Industries	Spices Grinding	138000	9	in Production
189	New Rana Spices Grinding	Spices Grinding	-	5	using as Godown notice issued
190	Rafique Brothers	Spices Grinding	152000	8	using as Godown notice issued
191	Tawakal Spices Grinding	Spices Grinding	-	6	in Prodcution
192	Tayyab Spice Grinding	Spices Grinding	576000	10	in Production
193	Wali Spics Grinding	Spics Grinding	150000	8	using as Godown notice issued
194	United Steel Works	Steel Works	-	6	using as Godown notice issued



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195	Sui Southern Gas Co.	Sui Southern Gas Co.			SSGC Welding Works
196	Sui Southern Gas Company	Sui Southern Gas Company	-	-	SSGC Office
197	Sukkur Marbal & Tiles Factory	Sukkur Marbal & Tiles Factory	255900	9	in Production
198	Manzoor Industries	Tiles & Marbles	-	12	using as Godown notice issued
199	Hannan Products	Vermicelli	401000	12	In Production
200	Nasir Cotton Waste Cleaning Factory	Waste Cleaning Factory	181000	13	using as Godown notice issued
201	Malik Waste Plastic	Waste Plastic	2111500	8	using as Godown notice issued

Source: Sindh Small Industrial Corporation 2017

**REVISED FINAL STRATEGIC DEVELOPMENT PLAN REPORT**  
**PREPARATION OF URBAN DEVELOPMENT STRATEGY FOR SUKKUR, SINDH (2014 - 2035)**

**2.7.10.3 PUBLIC SECTOR DEVELOPMENT PLAN (PSDP) AND ANNUAL DEVELOPMENT PROGRAMME (ADP) OF DISTRICT SUKKUR**

The detail ADP of district Sukkur provides sector wise allocations on a number of ongoing and new schemes/projects with approved and thorough forward costs along with the 2017-18 allocations.

**Table 2-5**

<b>SCHEMES PERTAINING TO DISTRICT SUKKUR INCLUDED IN ADP 2017-18</b>								
Sector / Sub-sector / Name of Scheme	Estimated Cost	Estimated Expendit- ure upto June' 17	Throw fwd as on 01-07-17	Allocation for 2017-18			Release	Expend.
				Capital	Reve nue	Total		
AGRICULTURE	262.648	53.331	209.317	40.099	140. 153	180.252	35.376	20.527
EDUCATION	6328.63.	1550.6	4778.1	743.7	161. 52	905.2	579.48	312.7
HEALTH	4817.7	1621.7	3195.9	787.5	202	989.5	619.5	222.68
INDUSTRIES & COMMERCE	45.000	11.250	33.750	33.750	0.00 0	33.750	33.750	20.734
LAW, PA & PROSECUTION	200.686	60.457	140.229	42.742	0.00 0	42.742	7.020	4.979
LOCAL GOVERNMENT & HTP	829.2	12.5	816.7	217.3	0	217.3	88.55	19.66
PUBLIC HEALTH ENGG	387.810	88.499	299.311	60.697	0.00 0	60.697	143.917	72.610
SGA&CD	191.786	87.074	104.712	25.543	0.00 0	25.543	21.690	15.852
SPORTS & YOUTH AFFAIRS	2022.589	747.999	1274.590	361.600	30.0 00	391.600	195.800	99.986
WORKS & SERVICES	5213.650	1494.207	3719.443	1003.68 0	0.00 0	1003.68 0	838.685	670.282
HOME	5817.7	1621.7	3195.9	787.5	202	989.5	619.5	222.68
TOTAL :-	20433.17	5790.9	14642.2	3364.2	533. 6	3897.9	2611.2	1494.05

**REVISED FINAL STRATEGIC DEVELOPMENT PLAN REPORT**  
**PREPARATION OF URBAN DEVELOPMENT STRATEGY FOR SUKKUR, SINDH (2014 - 2035)**

**SCHEMES PERTAINING TO DISTRICT SUKKUR INCLUDED IN ADP 2016-17**

Sector / Sub-sector / Name of Scheme	Estimated Cost	Estimated Expendit- ure upto June' 16	Throw fwd as on 01-07-16	Allocation for 2016-17			Release	Expend.
				Capital	Reve nue	Total		
AGRICULTURE	261	0	261	70	0	70	30.9	19.32
EDUCATION	7612.08	1368.0	5794	794.8	165. 6	9605	731.5	656.1
HEALTH	3847.7	1115.6	2732.0	361.6	150. 48	512.1	642.15	642.05
INDUSTRIES & COMMERCE	45.000	0	45	11.25	0.00 0	11.25	11.25	11.25
LAW, PA & PROSECUTION	215.07	47.9	167.07	63.10	0	63.10	13.51	5.518
LOCAL GOVERNMENT & HTP	219.7	119.2	100.5	31.70	0	31.7	41.5	35.66
PUBLIC HEALTH ENGG	426.68	25.48	401.2	104.3	0	104.3	93.51	92.8
SGA&CD	145.4	29.9	115.5	82.58	0	82.58	72.36	70.84
SPORTS & YOUTH AFFAIRS	1844.9	361.2	1483.7	386.7	7.5	394.2	386.7	386.5
WORKS & SERVICES	44717.14	991.95	3425.1	640.5	0	640.5	634.05	572.69
HOME	142.6	56	86.65	27.65	0	27.65	20.77	20.27
TOTAL :-	18584.9	4059.5	14525.4	2546.74	323. 6	2870.3	2657.5	2492.9

**SCHEMES PERTAINING TO DISTRICT SUKKUR INCLUDED IN ADP 2014-15**

Sector / Sub-sector / Name of Scheme	Estimated Cost	Estimated Expendit- ure upto June' 14	Throw fwd as on 01-07-14	Allocation for 2014-15			Release	Expend.
				Capital	Reve nue	Total		
AGRICULTURE	17.08	0	17.08	0	17.0 8	17.08	13.7	13.52
EDUCATION	6705.46	813.9	5891.5	315.1	78	393.13	318.59	301.58
HEALTH	4540.5	404.5	4136.0	140.6	90.3 4	231.0	105.17	26.0
INDUSTRIES & COMMERCE								
LAW, PA & PROSECUTION	152.52	45.41	104.9	26.61	0	26.61	0	0
LOCAL GOVERNMENT & HTP	628.9	43.40	585.4	56	0	56	134.38	134.19
PUBLIC HEALTH ENGG	107.9	44.29	63.66	36.97	0	36.97	44.95	44.23
SGA&CD	193.5	0	193.5	59.5	59.5	59.5	34.5	14.3
SPORTS & YOUTH AFFAIRS	766.2	165	601	192	0	192	131.3	131.27

**REVISED FINAL STRATEGIC DEVELOPMENT PLAN REPORT**  
**PREPARATION OF URBAN DEVELOPMENT STRATEGY FOR SUKKUR, SINDH (2014 - 2035)**

WORKS & SERVICES	4421.69	1258.6	3163.05	437.9	0	437.8	493.8	342.06
HOME	566.6	56.6	510.0	52.36	0	52.36	35.618	28.96
TOTAL :-	18100.5	2831.8	15266.5	1317.11	185.42	1502.5	1312.0	1036.15
<b>SCHEMES PERTAINING TO DISTRICT SUKKUR INCLUDED IN ADP 2013-14</b>								
Sector / Sub-sector / Name of Scheme	Estimated Cost	Estimated Expendit- ure upto June' 13	Throw fwd as on 01-07-13	Allocation for 2013-14			Release	Expend.
				Capital	Reve nue	Total		
AGRICULTURE								
EDUCATION	2614.85	293.45	2001.40	222.69	64.62	287.32	175.48	175.46
HEALTH	3868.84	297.70	3571.14	289.6	41	330.63	284.3	252.46
INDUSTRIES & COMMERCE								
LAW, PA & PROSECUTION	71.07	46.9	24.9	24.9	0	24.9	14.64	8.53
LOCAL GOVERNMENT & HTP	1200	205	995	562.8	0	532.8	307.4	279.14
PUBLIC HEALTH ENGG	107.9	22.4	85.5	60.05	0	60.05	16.8	12.65
SGA&CD								
SPORTS & YOUTH AFFAIRS	814.2	138.2	676.0	219.7	0	219.7	128.4	128.4
WORKS & SERVICES	4112.4	1586.3	2526.1	697.72	0	697.72	669.5	883.13
HOME	385.6	40	345.6	90.6	0	90.6	15.89	15.89
TOTAL :-	13175.12	2949.24	10225.8	2168.36	105.6	2273.99	1612.708	1755.78

Given the limited own source revenues and heavy dependence of sub-national governments (provincial and local) on fiscal transfers and grants there is a dire need that provincial and local governments would now focus on increasing own resource mobilization efforts to enlarge their revenue receipts.

This could be achieved by increasing fiscal efforts through exploiting existing provincial and local tax bases, including agriculture income tax base, which currently have a very low tax yield.

The considerable scope exists to enlarge provincial and local government revenues provided automation of various tax bases and collection including professional trade and calling tax, excise tax, motor vehicle tax. In addition, revenue yield from property tax may also considerably increased by updating the property records reflecting property values close to market rate. Moreover, present recoveries from provincial and local governments' user charges are dismally low and are not meeting full cost recoveries.

**REVISED FINAL STRATEGIC DEVELOPMENT PLAN REPORT**  
**PREPARATION OF URBAN DEVELOPMENT STRATEGY FOR SUKKUR, SINDH (2014 - 2035)**

**Table 2-96**

<b>Collection Statement of Taxes Sukkur Region</b>							
S.NO	NAME OF TAX	COLLECTION	COLLECTION	COLLECTION	COLLECTION	COLLECTIO N	COLLECTIO N
		2013-14	2014-15	2015-16	2016-17	2017-18	2018-19 (upto Sept. 2018
1	Motor Vehicle Tax	4437.729	4140.975	5190.379	6010.640	7021.115	1695.465
2	Excise Enactment	3600.888	3964.340	3913.954	3510.017	4661.351	1234.793
3	Infrastructure Cess	22402.611	25072.726	36014.215	45770.780	52281.910	13901.767
4	Cotton Fee	154.505	160.964	156.072	151.108	177.611	20.011
5	Professional Tax	303.052	322.229	346.119	348.635	371.347	135.443
6	Hotel Tax	-	2.357	ABOLISH			
7	Property Tax	1824.270	1829.785	1891.761	1886.669	1909.707	919.071
8	Entt. Duty	45.071	46.190	46.613	57.571	61.782	19.040
<b>Total</b>		<b>32768.126</b>	<b>35539.566</b>	<b>47559.923</b>	<b>57735.420</b>	<b>66484.982</b>	<b>17925.590</b>

Source: Excise and Taxation Dept.

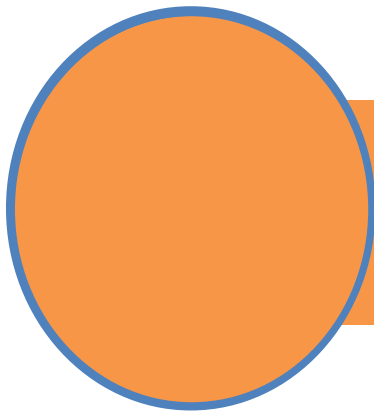
#### **4.3.2 Long Term Development Strategy Plan (2020-35):**

The Economic development plan upto 2035 stipulated in UDS Sukkur caters for demand upto plan period.

## **5.0 PRIORITY DEVELOPMENT PROJECTS**

### **5.1 Economic Development Projects**

<b>S.No.</b>	<b>Name of Scheme</b>	<b>Estimated Cost PKR</b>	<b>Project Status</b>
1.	Development / urban re-generation of CBD and selected surrounding areas of Sukkur district	2.5 Billion	Not started
2.	Construction of new slaughterhouse	500 Million	Not started
3.	Relocation of iron / building material market	500 Million	Not started
4.	Shifting / development of fish and vegetable market	500 Million	Not started
5	Development of Indus river green zone	10 Billion	Not started
6	Revitalization and expansion of industrial estates	1 Billion	Proposed in ADP 2016-17 as “Establishment of undeveloped area of SIE-Rohri” Estimated cost Rs. 45 Million
7	Establishment of dates and dry dates dehydration plant	500 Million	Not started
8	Development of Sukkur export processing zone	1 Billion	Not started
9	Development of Sukkur dry port	200 Million	Not started



## **Priority Development Projects**

**REVISED FINAL STRATEGIC DEVELOPMENT PLAN REPORT**  
**PREPARATION OF URBAN DEVELOPMENT STRATEGY FOR SUKKUR, SINDH (2014 - 2035)**

**Table 5-1: Prioritization of Development Projects**

DEVELOPMENT SECTOR	PROJECT	CONSULTANTS					CONSULTATION WITH STAKEHOLDERS					IEE / EIA
		TIMELINE RANKING		PRIORITY RANKING			TIMELINE RANKING		PRIORITY RANKING			REQ.
		Short Term	Long Term	High	Medium	Low	Short Term	Long Term	High	Medium	Low	
<b>Economic development</b>	Development of Indus River Green Zone						21	14	11	11		EIA
	Development / Urban Re-Generation Of CBD and Selected Surrounding Areas within SMC Limits						10	14	14	7		IEE
	Revitalization and Expansion of Industrial Estates						11	18	8	13	1	EIA
	Construction of New Slaughterhouse						14	11	16	5	1	EIA
	Relocation of Iron / Building Material Market											EIA
	Shifting / Development of Fish and Vegetable Market											EIA
	Establishment of Dates and Dry Dates Dehydration Plant						10	17	13	8	3	EIA
	Development of Sukkur Export Processing Zone						9	18	11	11		EIA
	Development of Sukkur Dry Port						17	10	6	12	1	EIA
<b>Housing , detailed planning and feasibility projects</b>	Detailed Planning Feasibility of Identified Functional Zones						4	19	7	9	1	IEE
	Ground Water Study						4	19	8	8	1	-
	Development of Sukkur Cattle Colony (Bhains Colony)											EIA
	Construction of Office Complex						16	11	11	8	1	EIA
	Low-Income Housing Projects / Schemes						15	12	16	7		EIA
	Master Planning of Railway Land within SMC Limited						10	17	13	8	3	
	Feasibility study of renewable energy production						10	17	13	8	3	EIA
	Feasibility study and detailed master planning of Healthcare City						10	17	13	8	3	EIA
<b>Social development projects</b>	Construction and Rehabilitation of Primary Schools and allied Infrastructure						22	9	19	5	1	EIA

**REVISED FINAL STRATEGIC DEVELOPMENT PLAN REPORT**  
**PREPARATION OF URBAN DEVELOPMENT STRATEGY FOR SUKKUR, SINDH (2014 - 2035)**

DEVELOPMENT SECTOR	PROJECT	CONSULTANTS						CONSULTATION WITH STAKEHOLDERS						IEE / EIA
		TIMELINE RANKING		PRIORITY RANKING			TIMELINE RANKING		PRIORITY RANKING			REQ.		
		Short Term	Long Term	High	Medium	Low	Short Term	Long Term	High	Medium	Low			
	Construction and Rehabilitation of Higher Secondary Schools / Colleges						14	11	18	4	2	EIA		
	Development of Sukkur – Rohri Education City						12	15	20	4	1	EIA		
	Development and improvement of public amenities including construction of Public Toilets and Emergency Health Centers						12	15	20	4	1	-		
	Rehabilitation of historical monuments and public parks													
	Construction of 500 Beds General Teaching Hospital						11	20	17	8	1	EIA		
	Construction of Cancer Diagnostic and Treatment Centre						11	15	16	3	3	IEE		
	Sukkur Zoo and Botanical Garden						12	13	8	15	2	EIA		
Infrastructure development projects	Improvement of Water Intake Works						18	9	15	3		EIA		
	Improvement / New Construction of settling tanks at Rizvia, Bunder Road and Numaishgah						18	8	14	11	1	EIA		
	Rehabilitation / Constructions of Over-Head Tanks						19	10	16	7	3	IEE		
	Installation of Water Meters						20	8	9	11	6	IEE		
	Proposals for Main Drain						14	8	19	5	1	EIA		
	Construction of Sewage Treatment Plant and Disposal Works						14	18	20	5		EIA		
	Proposed Primary Trunk Sewer						19	7	8	13		EIA		
	Proposals for Secondary Drainage Systems						14	13	17	5	1	EIA		
	Proposals for Trunk Sewers						16	9	11	10	1	EIA		
	Solid Waste Management and Waste to Energy Conversion Feasibility Study						17	13	10	9	2	IEE		
	Construction of Landfill site in Sukkur						16	10	11	8	2	EIA		
	Addition of Rising Main from Intake at River Indus to Numaish Gah Treatment Plant						16	10	11	8	2	EIA		
	Establishment of Testing laboratories and Monitoring mechanism						16	10	11	8	2	IEE		
	Improvement of Water Intake Works on Bukkur Island						14	8	19	5	1	EIA		
	Improvement of Pumping Stations						14	8	19	5	1	IEE		

**REVISED FINAL STRATEGIC DEVELOPMENT PLAN REPORT**  
**PREPARATION OF URBAN DEVELOPMENT STRATEGY FOR SUKKUR, SINDH (2014 - 2035)**

	Extension of Existing Stabilization Ponds and construction of Sewage Treatment Plant and Disposal Works						14	8	19	5	1	EIA
DEVELOPMENT SECTOR	PROJECT	CONSULTANTS					CONSULTATION WITH STAKEHOLDERS					IEE / EIA
		TIMELINE RANKING		PRIORITY RANKING			TIMELINE RANKING		PRIORITY RANKING			REQ.
		Short Term	Long Term	High	Medium	Low	Short Term	Long Term	High	Medium	Low	
	Rehabilitation of Existing Force main						14	8	19	5	1	EIA
	Disposal System of Effluent from Treatment Plants						14	8	19	5	1	EIA
	Improvement/ rehabilitation of existing lined and un-lined drainage system/ Covering of open drains						14	8	19	5	1	EIA
	Proposals for Secondary Drainage Systems						14	8	19	5	1	EIA
	Establishment of Sewage Testing Laboratories at each STP and Monitoring Mechanism						14	8	19	5	1	EIA
	Construction of New Drainage Pumping Stations						14	8	19	5	1	EIA
	Construction of solar energy park near Salehpat and Hydropower generating units at irrigation canals						14	8	19	5	1	EIA
Roads and communication network	Rehabilitation and Improvement of Bunder Road						17	13	10	9	2	IEE
	Rehabilitation and Improvement of Numaishgah Road						16	10	11	8	2	IEE
	Rehabilitation and Improvement of Site Area Road						18	13	14	7	2	IEE
	Rehabilitation and Improvement of Shikarpur Road						22	4	18	2	3	IEE
	Rehabilitation and Improvement of Society Road						13	11	12	5	3	IEE
	Rehabilitation and Improvement of Station Road						21	6	13	7	2	IEE
	Rehabilitation and Improvement of Workshop Road						21	8	14	6	2	IEE
	Construction of Ring Road						15	8	15	4		EIA
	Widening / Rehabilitation of Bagarji Road and link with Existing Sukkur Bypass						15	11	16	5	2	IEE
	Widening / Rehabilitation of New Pind Road						15	14	14	7	2	IEE
	New link between Sukkur and Rohri with new Bridge over River Indus						9	12	13	4	1	EIA
	Truck Terminal						14	10	7	9	3	EIA
	Improvement of Road Hierarchy by Construction of Missing Links and Rehabilitation of Existing Links						9	17	7	13	1	EIA

**REVISED FINAL STRATEGIC DEVELOPMENT PLAN REPORT**  
**PREPARATION OF URBAN DEVELOPMENT STRATEGY FOR SUKKUR, SINDH (2014 - 2035)**

	Traffic Management of CBD Area						18	7	15	3	1	IEE
	Street Lighting on road corridors and key intersections						16	10	15	9		IEE
	Rehabilitation and expansion of Sukkur power plant and Expansion of electric supply to newly developed areas						16	10	15	9		-
	Rehabilitation of the gas supply distribution network/						16	10	15	9		-
DEVELOPMENT SECTOR	PROJECT	CONSULTANTS					CONSULTATION WITH STAKEHOLDERS					IEE / EIA
		TIMELINE RANKING		PRIORITY RANKING			TIMELINE RANKING		PRIORITY RANKING			REQ.
		Short Term	Long Term	High	Medium	Low	Short Term	Long Term	High	Medium	Low	
	Expansion of gas supply network to newly developed housing schemes											
Environment & disaster management projects	Detailed Urban risk Assessment of Sukkur and Rohri						8	19	7	14	1	IEE
	Establishment of EOC (Emergency Operation center)						17	9	14	5	3	IEE
	Strengthening of Rescue and Response Capacity						17	11	13	5	3	EIA
	Awareness Campaign on Environment and Disaster Reduction						16	15	11	8	4	IEE
	Improvement of microclimate of Sukkur City.						17	9	14	5	3	IEE



## **Data Annexures**



# HEALTH PROFILE OF SINDH

(DISTRICT WISE)

For the year 2016

**BUREAU OF STATISTICS  
PLANNING & DEVELOPMENT DEPARTMENT  
GOVERNMENT OF SINDH**

ST-13, Block-8, Kehkashan Clifton, Karachi-75600  
Fax no. (021) 35296415

Web: [www.sindhbos.gov.pk](http://www.sindhbos.gov.pk)  
Email: [sindh.statistics@gmail.com](mailto:sindh.statistics@gmail.com)

DIRECTORATE OF URBAN POLICY & STRATEGIC PLANNING  
PLANNING & DEVELOPMENT DEPARTMENT  
GOVERNMENT OF SINDH

No. P&D/UPSP/DD (GIS)/2018-

Karachi, Dated November 2, 2018

Court Matter

To,

The Chief Statistician  
Pakistan Bureau of Statistics  
Islamabad, Pakistan

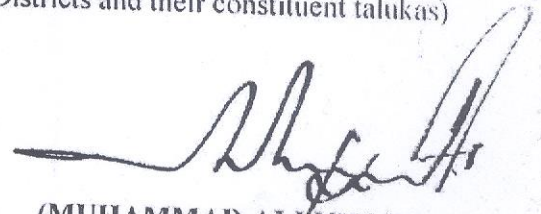
Subject: CENSUS DATA FOR SUKKUR AND LARKANA DISTRICTS OF SINDH PROVINCE

Urban Development Strategies for Larkana and Sukkur have been prepared by this Directorate with the technical & financial assistance of ADB to guide the short term and long term development of these cities.

In this regard during the hearing of Constitutional Petition No. D-1497/2017, dated Oct, 31, 2018 Honorable High Court of Sindh Bench at Sukkur passed orders to update the Urban Development Strategies for Sukkur and Larkana on the basis of census 2017 data within 15 days positively i.e by 15 Nov 2018.

It is therefore requested that following data may kindly be shared with this Directorate on urgent basis for compliance of orders of Honorable court please.

1. Population Census Data 2017 (Sukkur and Larkana Districts and their constituent talukas)
2. Housing Census Data 2017 (Sukkur and Larkana Districts and their constituent talukas)



(MUHAMMAD ALI KHOSO)  
Director General

A copy is forwarded for information:

- The Assistant Advocate General Sindh, High court Sukkur.
- P.S to Chairman, P&D Board, GoS, Karachi
- P.S to Secretary (Planning), P&D Dept., GoS, Karachi
- The Provincial Census Office 1-B, S.M.C.H Society, Karachi.
- ES to Director General UP&SP, P& D Department GoS Karachi.

o/c

Outward

Daily No. 0211A

Date 02-11-18

Director Urban Policy & Strategic Planning  
P&D Department Government of Sindh



Government of Pakistan  
Statistics Division  
Pakistan Bureau of Statistics



Deputy Census Commissioner Statistics House, 21-Mauve Area, G-9/1,  
PH No. 051-9106536

\*\*\*\*\*

No. 8(1)/2018-PBS (CP&C)

Islamabad the 8<sup>th</sup> November, 2018

Subject: - CENSUS DATA FOR SUKKUR AND LARKANA DISTRICTS OF SINDH PROVINCE

Dear Sir,

Reference Directorate of Urban Policy & Strategic Planning, P & D Department, Government of Sindh, Karachi's letter No. P&D/UPSP, DD(GIS)/2018- dated 2<sup>nd</sup> November, 2018 addressed to Chief Statistician, PBS, Islamabad on the subject noted above.

2. Enclosed please find the available Population & Household Data pertaining to Larkana & Sukkur districts according to Provisional Results of Census-2017 for further course of action as desired.
3. The Final Results of Census-2017 are in approval stage. As soon as the same are approved, will be released accordingly. The rest of the data requested will be supplied alongwith final results.
4. This issues with the approval of Member (C&S).

  
(Muhammad Riaz) 8/11/18

Mr. Muhammad Ali Khoso,  
Director General,  
Directorate of Urban Policy & Strategic Planning,  
P & D Department,  
Government of Sindh,  
Banglow No. 37E/2, P.E.C.H.S Block-6,  
Karachi



NO.DD(DEV)01/MISC/2018/05  
**GOVERNMENT OF SINDH**  
**DIRECTORATE OF INDUSTRIES**  
2<sup>ND</sup> FLOOR, STATE LIFE BUILDING NO.11,  
ABDULLAH HAROON ROAD,  
NEAR ZAINAB MARKET, KARACHI.

Dated: 07-11-2018.

To,

1. The Deputy Director Industries,  
Sukkur Region, Minara Road,  
Sukkur.
2. The Deputy Director Industries,  
Larkana Region, Lahori Muhallah,  
Larkana.

**Subject:** PREPARATION OF URBAN DEVELOPMENT STRATEGY FOR SUKKUR.  
PREPARATION OF URBAN DEVELOPMENT STRATEGY FOR  
LARKANA.

With telephonic instructions of the Additional Secretary Industries on  
07-11-2018 on the above subject.

The Planning and Development Department (letters enclosed) is  
urgently required information regarding functional industries as per (Annex-A) in  
your jurisdiction may kindly be provided today for onward transmission to the  
Department.

DEPUTY DIRECTOR (DEVELOPMENT)  
FOR DIRECTOR OF INDUSTRIES, SINDH,  
KARACHI

Copy to:

- ✓ 1. The Additional Secretary, Industries & Commerce Department,  
Sindh, Karachi.
2. P.A. to Additional Director Industries, Sindh, Karachi.

# Sindh Industrial Trading Estates (Guarantee) Limited

Manghopir Road, Karachi-75700

Managing Director : 021-99333152-3  
Secretary : 021-99333164  
Director Administration : 021-99333170  
Director Finance : 021-99333161  
P.A.B.X. No. : 021-9933317-9



Chief Engineer : 021-99333148  
Estate Engineer, SIW (Phase-I&II) : 021-36881830  
Estate Engineer, Nooriabad : 0254-670262  
Estate Engineer, Kotri : 0223-870008  
Estate Engineer, Hyderabad : 022-9250135  
Estate Engineer, Tando Adam :  
Estate Engineer, (Navabshah) :  
Shahood Benazirabad :  
Estate Engineer, Sukkur : 071-5807045  
Estate Engineer, Larkana :

Ref: 7465

Date: 08/11/2018

**The Director General,**  
Directorate of Urban Policy & Strategic Planning,  
Planning & Development Department,  
Government of Sindh, Karachi.

**SUBJECT:- Preparation of Urban Development Strategies (UDS)**  
**For Sukkur and Larkana.**

Please refer to the subject noted above and find enclosed the required information.

## **1. SITE SUKKUR**

### Sailent Feature:

SITE Sukkur was established over an area of 1066 acres in the year 1963. Presently, all the utilities viz gas, electricity and infrastructure viz roads, drains and water supply are available for establishment of medium scale industries. The Government of Sindh has also approved establishment of Combined Effluent Treatment Plant for treatment of industrial waste before discharging into fresh water bodies.

### Type of Industries

There are medium scale industries and presently 91 units are in production (the detail is at Annexure-"I").

## **2. SITE LARKANA**

SITE Larkana is being established over an area of 500 acres land on Larkana Moen-Jo-Daro Road at 14 k.m. from Larkana.

The medium scale industries will be established in SITE area Larkana.

  
**CHIEF ENGINEER**

Copy to:-

1. P.S. to Managing Director, SITE Ltd Karachi.
2. P.S. to Secretary, Industries & Commerce Department, Government of Sindh

# INLAND FISHERIES STATISTICS IN DISTRICT SUKKUR FOR THE YEAR 2018

NAME OF DISTRICT/TALUKA	FISH SPECIES	Private Fish Farm in District Sukkur	FISH PRODUCTION (MT)	TOTAL	NO OF FISHMEN			NO OF BOATS		
					FULL TIME	PART TIME	TOTAL	SALE	REUSE	TOTAL
TALUKA	Pond Fish, Tilapia, Silver Catfish, Common carp, Rooster, Snake, Tilapia, Koi, Shrimp, Bawal, and Carp, Carp Big, Khatina, Golden, Darna.	135	1842	17410	804	277	924	10	40	70
			7055		800	142	1922	22	50	77
			4091		785	125	923	4	24	97
SUMMARY			1820		251	30	287	0	18	18

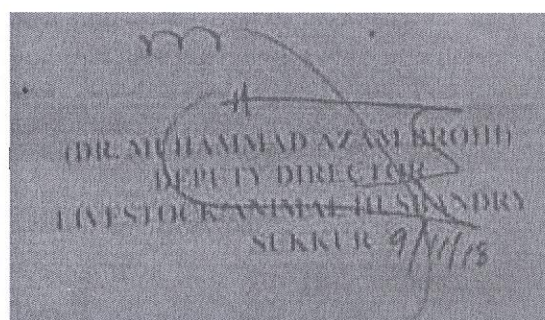
*Handwritten Signature*  
 MOHAMMAD ALI KHAN  
 DEPUTY DISTRICT MAGISTRATE  
 SUKKUR

**OFFICE OF THE DEPUTY DIRECTOR**  
**LIVESTOCK / ANIMAL HUSBANDRY / SUKKUR**

**PREPARATION OF URBAN DEVELOPMENT STRATEGIES FOR  
DISSTRIC SUKKUR**

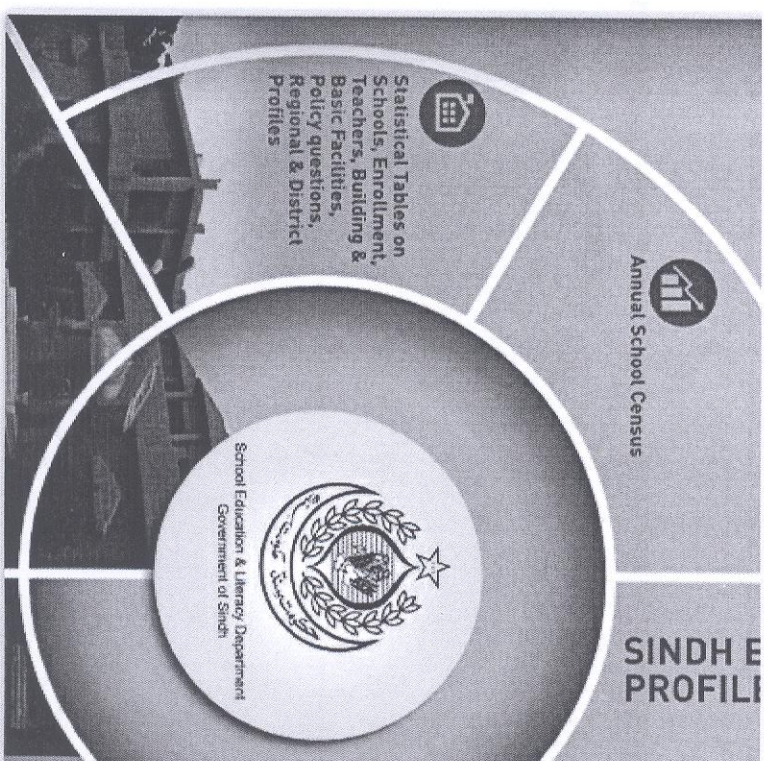
SR.#	PARTICULARS	PROPOSED FIGURES
<b>LIVESTOCK SECTOR</b>		
1	Livestock Population	1198025 heads
2	Livestock Products	Whole Milk, Cream, Yoghurt, Chees, Ice cream, Mutton, Beef, Hide & Skin, Blood & Bones for Poultry Feed.
3	Demand and Supply of Meat in Sukkur District	1 Buffalo 2230900 Kg / Year 2 Cattle 530000 Kg / Year 3 Sheep 195300 Kg / Year 4 Goats 385000 Kg / Year
4	Meat Production and Consumption in Sukkur District.	-do-
<b>DAIRY SECTOR</b>		
1	Milk Production & Processing in District Sukkur	23500 Liters / Day
2	Milk Export	Does not applied
3	No. of Milk Collection Centers	20 Approximately
4	No. of Milk Collectors	200 Approximately

1. No Any Statistical Survey or data available for Milk Production in this office, and this information may be brought from statistical section of Directorate of Livestock Planning Sindh, Hyderabad.
2. The Figures mentioned in Sr. No. 03 of Livestock Sector is based on monthly statement of slaughtered animals in 04 Talukas of District Larkana.
3. The Figures mentioned in Sr. No. 1-4 of Dairy Sector are based on verbal information sent by employees of Engro Foods.



cation & Literacy Department

## Sindh Education Profile 2016-17



## (Urban Development Strategies for Sukkur and Larkana)

Present Status of network (inter city, intra city)	Physical condition roads NHA	Road Traffic	Number of registered motor vehicle	Public transport	Peak-hour Traffic	Daily movement of passengers vehicle	Inter city mode of transport	Parking facilities
There are following main roads: (A) inter City 1. Sukkur-Larkana 2. Sukkur-Sukarpur 3. Sukkur-Quak 4. Sukkur-Jacobabad 5. Sukkur-Thul 6. Sukkur-Kandhah-Kashmore 7. Sukkur-Ubano 8. Sukkur-sehwan Sharif 9. Sukkur-Pir to Gochi 10. Sukkur-Nawabshah 11. Sukkur-Ther Mir Warh (B) intra City 1. Sukkur-Rohri 2. Sukkur-Kandhah 3. Sukkur-Sandhat 4. Sukkur-Chundiko 5. Sukkur-Thirato 6. Sukkur-Sangar	MOST ROADS NEED REPAIR OR RECONSTRUCTION	MOST ROADS ARE CONGESTED AND USUALLY TRAFFIC REMAINS JAM	As per telephone conservation with Asif Khose Assistant Excise & Taxation Total No. 24537 of Public Vehicle registered by the E.T.O Sukkur.	(A) ACCORDING TO THIS OFFICE RECORD FOLLOWING NOS. 17303 Trucks/pickups: 1535 Mini bus: 3831 Rickshaws CNG 2+1,4+1: 10282 Motorcycle loader: 131 Buses: 1524 OF VEHICLES HAVE BEEN GRANTED ROUTE PERMITS. (B) ACCORDING TO THE GROUND REALITY, FOLLOWING NO. 17303 OF VEHICLES ARE PLAYING ON THE INTERCITY AND INTRACITY ROUTES.	IT IS OBSERVED THAT ON THE FOLLOWING PEAK HOURS A HUGE TRAFFIC FLOW HAS BEEN SEEN (A) 8am to 10am (School Timing) (B) 1pm to 3pm (School Timing) (C) 5pm to 7pm (Government officials, businessman Labor etc return to home)	As in quarry No 6 above	INTRA CITY MODE DUE TO INCREASING NO OF PASSENGERS/ VISITORS AND WORKING MEN TRAVEL FROM ONE PLACE TO OTHER PLACE OF CITY THERE IS A NEED OF MORE INTERCITY COMMUTER FACILITIES AND OVER HEAD BRIDGES/ UNDER PASSES IN THE URBAN AREA.	There is no any mentionable parking facility in the city and more drivers park th vehicles on the congested roads. i.e. 1. Clock tower. 2. Minara road. 3. Bandar road. 4. Civil hospital.  It is therefore suggested/requester That parking areas m be arranged in the ci for the smooth flow traffic.



No. PDMA (S)/7(223)/2018/  
GOVERNMENT OF SINDH  
REHABILITATION DEPARTMENT  
PROVINCIAL DISASTER MANAGEMENT AUTHORITY  
BANGLOW NO: 82, LANE 10, KHAYABAN-E-HILAL  
DHA, PHASE-VI, KARACHI.  
Phone: 021-99332701-2, Fax: 021-99332700  
Karachi, dated: 13<sup>th</sup> November, 2018.

To, ✓

The Director General  
Directorate of Urban Policy & Strategic Planning  
Planning and Development Department,  
Government of Sindh,  
Karachi.

Subject: PREPARATION OF URBAN DEVELOPMENT STRATEGIES (UDS) FOR SUKKUR AND LARKANA

I am directed to refer to your office letter No. P&D/Directorate (UPSP)/MF&G/UDS/0611T dated, 6<sup>th</sup> November, 2018 on the subject cited above.

2. The requisition information is stated as below:

S. No	Question	Reply
1	Information on History of Disaster after 2013 which includes "Riverine Floods, Flash Floods, heavy rains, epidemics, earthquake and transport accidents.	After 2013, no such disasters occurred in Sukkur and Larkana Divisions. However, the people within the river embankments were safely evacuated in monsoon season of 2013, 2014 and 2015 but the same didn't affect the cities. Moreover, it is suggested that the details of transportation accidents and epidemics may be sought from relevant departments.
2	Updated severity of various hazards in the city which includes Drought, Floods, Earthquake, Landslides, Fire, Cyclone, tsunami, Refugees IDP's etc.	Annex -A



(KHALID MALIK)  
ASSISTANT DIRECTOR (Ops)

CC:

1. The P.S to Chairman, P&D Board, GoS, Karachi.
2. The P.S to Secretary (Planning), P&DD, GoS, Karachi.
3. The P.S to Secretary Rehabilitation Department, GoS, Karachi.
4. The P.S to Director General, PDMA Sindh, Karachi.

Diary No. 141102  
Date: 14/11/18  
Directorate of Urban Policy & Strategic Planning  
P&D Department Government of Sindh  
Inward



0800-81122



# Annual Operating Plan 2016-17



## Vision:

To be a leader in sustainable water supply, sewerage and solid waste management, delivery of quality customer services.

## Mission:

To deliver sustainable water supply, sewerage and solid waste services in a safe, efficient and effective manner.