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Directorate of Urban Policy & Strategic Planning, Planning & Development Department, Government of Sindh

Karachi Neighborhood Improvement Project

Environmental and Social Management Framework (ESMF)

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Executive Summary

During the last few decades, Karachi has suffered infrastructure neglect and there has been a decline in access and quality of these services. Karachi's urban planning, management and service delivery has been unable to keep pace with the needs of a rapidly growing population, quality of living and business environment. As a result Karachi ranks low on livability and the rapid growth of the city has led to a rapid deterioration in municipal service delivery in many sectors, including urban transport, water supply and sanitation, and solid waste management. Indicators and statistics in these sectors are poor. To respond to these challenges, the Government of Sindh (GoS) seeks the support of the World Bank in developing early harvest interventions in the city of Karachi that will act as a demonstration effect of the potential of economic and urban development interventions in Karachi. These interventions will be included in this proposed project to rapidly improve the lives of the citizens and increase their trust in the state.

GoS and the Local Government are keen to start with easy to implement interventions that would have visible and high impact results to build confidence between government and citizens, while setting the stage and platform for a longer term and sustained action. Therefore, GoS and the Local Government with the support of World Bank are planning to undertake "Karachi Neighborhood Improvement Project (KNIP)". ESMF Consultant[1] has been commissioned by Directorate of Urban Policy & Strategic Planning to prepare "Environmental and Social Management Framework (ESMF) for KNIP Project" at its inception stage via assessing the project's environmental and social viability through various environmental components like air, water, noise, land, ecology, cultural sites along with the parameters of human interest and mitigating adverse impacts along with chalking out of guidelines, SOPs, procedure for detailed EA during project execution.

The project has three components under Karachi Transformation Strategy: i) Public spaces and mobility improvements in selected neighborhoods of Karachi city, such as Saddar downtown area, Korangi area and Malir area; ii) Support to improved citizen services and city capacity development and iii) Support to implementation and technical assistance.

Public Spaces and Mobility Improvements in Selected Neighborhoods

The component will focus on three targeted neighborhoods: Saddar downtown area, Malir Neighborhood and Korangi Neighborhood. It will rehabilitate or enhance the usability and attractiveness of public spaces; improve mobility and pedestrian access[2] to key destinations (including future BRTS stations); and improve traffic safety. These neighborhoods have been selected in consultation with the government and stakeholders based on the following considerations and criteria: areas with a high potential to demonstrate the project's impact on livability; complementarity with ongoing or future public investment; low anticipated negative social and environmental impacts; ethnicity and political balance; and engagement with low-income and vulnerable groups (including women).

Within each neighborhood (sub-component), specific interventions (sub-projects) will be selected and designed via a framework approach. The screening criteria for sub-projects include: fit with overall project development objectives; focus on enhancing public space assets for use by pedestrians, women, youths and

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2 Improved mobility and pedestrian accessibility refers to the improved ease of getting from one place to another by motorists and non-motorists/pedestrians. For example, creating a good pedestrian network with paths and sidewalks to key destinations such as BRTS stations can reduce walking time and distances. Upgrading dirt paths or broken roads can allow better accessibility to areas that are difficult to walk or drive to.

vulnerable groups; alignment with stated needs of citizens; readiness to be implemented within project time period, with visible positive impacts in the area; no major or irreversible environmental and social impacts; and economically viable. There are three sub-components under Component 1, associated with the three targeted neighborhoods.

Sub-component 1.1: Saddar Downtown Area Revitalization - This sub-component aims to improve pedestrian accessibility, walkability, safety and livability of the public urban spaces within the Saddar Downtown area. Exact sub-projects will be determined based on local stakeholder consultations but may include, inter alia: upgrading roads and streets, sidewalks, and pedestrian crossings within existing rights-of-way (ROW); upgrading existing open spaces, installing shade features, and removing barriers for visitors; reorganizing traffic patterns and closing certain street segments (temporarily or permanently); installing signs, street furniture, lighting, and bus stop shelters; organizing street parking and installing safety barriers to reduce vehicular encroachment on sidewalks; and rehabilitating underground infrastructure beneath upgraded roads, and storm water drainage where necessary.

Sub-component 1.2: Malir Area Road and Public Spaces Enhancement - The objective of this sub-component is to improve mobility and quality of life for local residents and provide quality public spaces to meet citizen's needs in the underserved Malir area. Sub-projects may include, inter alia: upgrading the main road, sidewalks, pedestrian crossings within existing ROW; reorganizing vehicular travel lanes to provide adequate space to pedestrians; rehabilitating/enhancing existing open spaces with shade, adequate drainage and trash collection facilities; installing street furniture, bus shelters, safety barriers, shade features and lighting; and rehabilitating underground infrastructure beneath upgraded roads, and storm water drainage where necessary.

Sub-component 1.3: Korangi Neighborhood Mobility Improvements - The objective of this sub-component is to improve mobility, accessibility to neighborhoods, safety and livability of roads and public urban spaces within the Korangi area. Sub-projects may include, inter alia: upgrading main roads, streets, sidewalks, and pedestrian crossings within existing ROW; improving existing open spaces such as markets, playground and road medians; installing street furniture, lighting, bus shelters; and safety barriers for pedestrians; and rehabilitating underground infrastructure beneath upgraded roads, and storm water drainage where necessary.

Component 2: Support to Improved Citizen Services and City Capacity Development (US$ 7.5 million)

The objectives of this component are to: improve selected citizen services in Karachi; and lay the foundations for better city management and support the sustainability of Component 1 investments. This component will finance consultancy services and goods to relevant institutions and agencies at the provincial and local level, for the following activities: automation of construction permits and business registration in Karachi; Laying the foundation for better city management, by modernizing KMC financial management information system and public asset management; improving own-source revenue (OSR) collection; and enhancing citizen participation, feedback and communications.

Support to Implementation and Technical Assistance

This component will finance technical assistance and advisory services, including: project management and coordination costs associated with project implementation ; consultancy services for feasibility, conceptual and detailed designs, environmental and social assessments for sub-projects and to prepare follow-on

operations; and consultancy services for the preparation of a study on parking management in Saddar Downtown, Malir and Korangi areas. It will also support the Karachi Transformation Steering Committee through mobilization of expertise, exchange of international experience, and advisory services to: prepare and adopt a shared vision focused on improving city prosperity, livability and inclusiveness; and develop a coordinated roadmap of future investments and key policy reforms needed to realize that vision.

Project Implementation

A specific Project Implementation Unit (PIU) consisting of appropriate experts headed by a Project Director within the Directorate General of Urban Policy and Strategic Planning (DGUPSP) will have the overall responsibility for implementing the project. The PIU will be responsible for all aspects of project implementation, including technical, operational, environment and social safeguards, procurement, financial management, disbursement, and overseeing the technical assistance, training, public awareness and communication activities.

A project coordination committee will be established to ensure inter-agency coordination and resolve any implementation bottlenecks. This committee will be headed by ACS of Planning and Development of Sindh Government and will include high level representatives of city and provincial utilities/agencies/boards including but not limited to KWSB, K-Electric, Transport Department, Karachi Development Authority, Traffic engineer unit, and Sindh Solid Waste Management Board, as well as established institutes, research centers and universities and other civil society stakeholders.

Expected Benefits

The project will upgrade the livability status of the neighborhood – through environmental improvement, infrastructure rehabilitation and by creating spaces for social integration. It will also optimize the still existent cultural, social and recreational potential provided by the relevant structures and spaces through utilizing them as catalysts for public space design interventions that are characterized by their inclusive, accessible, safe and comfort based designs - that rely on creating ‘places’ rather than ‘structures’. It will knit the destinations of public visitation in a manner that promotes improved public access and through facilitating patterns of circulation that are pedestrian in nature rather than motorized – facilitated both by route identification and associated street furniture that assists walkability. It will tap into the defining historical legacies of the area – multicultural, learning, public service – through public space design interventions that render these attributes as contributors’ to pleasing experiences that the citizens of the city can enjoy through improved access, comfort and environmental suitability. And more importantly, will include components which will improve street furniture to facilitate pedestrian movement, shaded trees, rerouting of motorized traffic and provision of parking spaces in a way that the neighborhoods environmental sensitivities are not degraded and elements of public conveniences are not obstructed.

Regulatory Review

Sindh Environmental Protection Act 2014 being as principle legislation of environmental protection in Sindh Province envisages protection, improvement, conservation and rehabilitation with the help of legal action against polluters and green awakening of communities. The discharge or emission of any effluent, waste, air pollutant or noise in an amount, concentration or level in excess of the Sindh Environmental Quality Standards (SEQS) specified by the Sindh Environmental Protection Agency (SEPA) has been prohibited under the Act, and penalties have been prescribed for those contravening the provisions of the Act.

The World Bank requires environmental assessment (EA) of projects proposed for Bank financing to help ensure that they are environmentally sound and sustainable, and thus to improve decision making. As per World Bank's OP 4.01: (7) Depending on the project, a range of instruments can be used to satisfy the Bank's EA requirement. Therefore this ESMF is being prepared to satisfy Bank's EA requirements.

The Operational Policy defines the EA process and various types of the EA instruments. The proposed project may consist of activities which can potentially have environmental and social consequences, hence the policy is triggered and this instrument is being developed. Since the activities under the project would be small-scale interventions in terms of rehabilitation, restoration, maintenance on the existing footprints to improve livability, the level of environmental impacts is likely to be low to moderate. This project is classified as "Category B" project per the WB Environment Category.

Triggered Operational Policies (OPs) of World Bank and their management under ESMF

OP 4.01 - Environmental Assessment: This project is classified as "Category B" project per the WB Environment Category since the activities under the project would be small-scale interventions in terms of rehabilitation, restoration, maintenance on the existing footprints to improve livability.

OP/BP 4.11 - Physical Cultural Resources: The World Bank's general policy regarding cultural properties is to assist in their preservation, and to seek to avoid their elimination. As discussed above, the project involves rehabilitation of roads and underground utility works at the existing roads near PCRs, rehabilitation of food streets etc. There are 211 sites of archeological, cultural and historical significance distributed all over Karachi District and in subproject sites. Therefore, this OP is triggered.

Impacts envisaged may relate to the (i) rehabilitation/restoration of cultural properties or cultural landscapes and/or (ii) execution of civil works in surrounding communities, where lesser known monuments may be present. The possible discovery of archeological sites or random findings during the rehabilitation of cultural landscapes and/or the execution of civil works will require measures to manage chance finds.

Since the exact locations of subprojects are not known at this moment, a guideline for identification of physical cultural resources and determination of the suitability of the subprojects from the perspective of PCR is provided in the ESMF (Annex E). The ESMF also includes "Chance Find" procedures for protection of cultural property and included in the construction contractor bidding documents.

OP/BP 4.12 - Involuntary Resettlement: The hard components under KNIP will be undertaken on government land and existing ROW. However, there may be land acquisition required for developing parking places/plazas. Also on the existing ROW of subproject sites, it is observed from the reconnaissance survey that hawkers / shopkeepers encroaching the streets and sidewalks and placed their assets. Therefore interventions under this project may affect these assets of Project Affected Persons (PAPs). Therefore this policy is triggered. The impacts and measures to avoid, mitigate or compensate the loss of PAPs will be covered under Resettlement Policy Framework and subproject RAPs/ARAPs.

OP/BP 7.50 - Projects on International Waterways: This OP is triggered as the subproject interventions involve the rehabilitation and improvement of sewerage and storm water drainage systems in the subproject areas, which currently pollutes the two tributaries (i.e. Lyari River and Malir Rover) of Indus River System which is as per Indus Water Treaty designated as International Waterway between India and Pakistan. These tributaries of Indus River System run exclusively in Pakistan which is lowest downstream riparian. As per this OP, rehabilitation work is exempted from notification under section 7(a).

Environmental and Social Management

The Project takes a framework approach to integrating environmental and social aspects at design stage. A framework approach has been used because the exact location of sub-projects is not clear. While broad areas and types of interventions have been identified, the exact location of where these will be implemented in the areas is not yet decided.

The ESMF report presents the regulatory review, broad baseline data collected for air, water, land, biological, physical cultural and socio-economic components of environment, identification, prediction and evaluation of generic impacts and preparation of Environment and Social Management Plan (ESMP) for mitigation of adverse impacts that may arise due to the proposed project interventions.

Some of the subprojects may involve the requirement of taking approvals from local agencies and Government of Sindh departments. For example, civil work undertaken near any protected antiquity would require approval from Antiquities Department / Advisory committee, Government of Sindh and maintenance of roads will require approval from Sindh Environmental Protection Agency (SEPA).

Districts of intervention:

After initial information was collected and reviewed, Reconnaissance Survey (RS) was conducted to collect primary information in districts where the interventions will take place. Summary of proposed sub-project locations were made during the RS. The Downtown historic area of Saddar is considered to be an historical area where most of the protected heritage sites and old buildings are located. Also this area is considered to be Central Business District (CBD) in which most of the main markets are located which not only impact the economy of Karachi but overall Sindh Province as well. On the other hand, Korangi area is considered as industrial hub and managing main industrial activity. Shah Faisal zone is a residential area which houses majority of labor class working in Korangi and Landhi industrial areas.

Stakeholder consultations have been carried out during ESMF preparation revealed that overwhelming majority of the respondents were not satisfied with the current situation of traffic and infrastructure in their areas and it caused major nuisance as well as health issues such as asthma, allergies, COPD, etc. However, some such as small hawkers were fine with the current situation. Most of the respondents had positive views of the proposed project interventions but they said that planning for road improvements and public consultations had been done several times in the past but there is no improvement on ground till to date and people suffer continuously.

Impact Assessment and mitigation measures

Most of the Project's environmental and social impacts will be beneficial, including for example the ease of mobility, pedestrian-only areas for the convenience of general public, dedicated food streets for the public to enjoy delicious cuisines in auspicious environment and business-friendly infrastructure development.

However, during construction phase, many of the Project's environmental and social impacts will require mitigation measures, including for example air quality deterioration due to dust emissions during construction activities, traffic congestion and management due to road closure, surface and ground water quality deterioration due to spills from construction equipment, fuel, inadequate disposal of waste material, possible noise emissions from running of construction machinery, public nuisance etc. These impacts require appropriate mitigation and management measures to contain them.

Regarding subproject siting, it will be ensured through screening checklist (sample presented in Annex B) that the subproject avoids any PCRs. Valuation and compensation of affected assets of community should be in line with RPF/Sub-projects Resettlement Action Plans (RAPs)/ ARAPs and implemented before beginning of civil works. Also community consultations will be carried out before construction activities.

Restriction of access and impediment of locals to resources: Extensive consultation with stakeholders should be carried out beforehand and their feedback, concerns and input should be taken into account in the project planning and execution. It will be ensured that the construction site is appropriately condoned off but it will also be ensured that safe and continuous access to all adjacent office facilities, shops and residences during construction will be provided. Provision of alternative traffic arrangement/detours, if necessary so that traffic can be re-routed to move through different roads and ensure that public/residents association is informed about such traffic diversions. Provision of information to the public through media – daily newspapers and local cable television (TV) services about the need and schedule of work, and alternative routes.

Impacts on Women, Children, and Vulnerable Groups: Adequate crossing facilities will be developed and included in the project for pedestrians as well as walkways will be improved. Adequate crossing facilities during construction will also be provided by taking care of women. Due to the improvement in local road network, removal of mobile vendors in walkways and improved bus facilities, pedestrians including women and children have better access to crossing facilities and walkways. Environmental screening checklist will provide first stage information about impacts on poor, women and other vulnerable groups including needs and priority for social and economic betterment. In awareness raising, women should be specifically targeted. Participation of vulnerable groups in project activities will be ensured through consultations to ensure planned investments take the well-being of such groups into consideration.

Assuring participation of women and other deprived groups: Meetings will be held with all community groups, wherever possible, using women to encourage participation of women in all stages of the project. Group and individual discussions will be used to identify and ensure vulnerable people are consulted. Explore with each group how they might be involved at each stage of the project. Identify the communication mechanisms most commonly used by women and ensure these are used to impact and receive information throughout the project.

Labor Issues: Preference will be given to labor from locally skilled and unskilled workers of Karachi. PIU will ensure that certain clauses will be added in the contract documents of Contractor(s) i.e. not to use bonded and child labour and to enforce national labour laws such as official minimum wages, hours of work, overtime payment etc.

Impact on PCRs during construction: Since the exact locations of subprojects are not known at this moment, a guideline for identification of physical cultural resources and determination of the suitability of the subprojects from the perspective of PCR is provided in the ESMF. The ESMF also includes "Chance Find" procedures for protection of cultural property and contracts for subcontractors will include “Chance Find” procedures. Structural Engineer of PSC who will assess the stability of the archeological/ historical buildings and nature of interventions near them and decide what intervention can be done near sensitive PCRs. Where required, the services of specialists in old buildings will be engaged. Approvals must be taken from director of Antiquities deptt. / Advisory committee when working near PCRs.

Air Quality deterioration due to dust emissions: Construction sites including soil and material piles at the site should be barricaded to avoid material escape, generation of dust. Ready-mix can be used in the stages

of the project wherever and whenever required and deemed appropriate. Soil/crush and temporary spoil piles should be covered or sprayed with water if generating dust. The exposure of construction workers to dust will be minimized by provision of dust masks and mandating the workers to wear them. Construction machinery, vehicles should be properly tuned and kept in good working condition, minimizing exhaust and vehicular emissions. It should be ensured that exhausts from these equipment and vehicles comply with relevant SEQS. Excessive engine idling should be discouraged and machinery causing excessive pollution (i.e. visible clouds of smoke) should be banned from sites. Timing to start interventions on each sub-project site will be so selected that the cumulative impact will not be significant or synergistic e.g. working on consecutive /connecting roads simultaneously can aggregate the traffic jam and air quality deterioration.

Traffic Congestion and management: Designated parking areas will be provided for different type of project vehicles within and around the project site. Traffic management plan will be introduced to manage smooth flow of vehicular traffic and to avoid traffic jam and long queues. Ensure safe and continuous access to all adjacent office facilities, shops and residences during construction It is suggested that interventions that involves traffic management like provision of parking spaces, designated parking, prioritization of roads for pedestrian only should be implemented first to avoid traffic congestion while civil works on roads.

Storm water drainage: It will be ensured to avoid construction works in monsoon seasons. Hydrology of drainage channels if passing through the sub-project sites will not be altered. Strom water channels/side drains should be will to reduce flooding

Surface and Ground Water Quality deterioration due to spills: It will be ensured that the wastes from construction activities are not released into any surface or groundwater source e.g. local Nallah. Excavation material /civil works related solid waste will be disposed of off-site in KMC landfill sites.

Waste Management during construction: Construction sites will be equipped with temporary refuse bins. A waste management plan will be prepared for construction phase and implemented in letter and spirit. Wastes should be routinely collected from the designated area and disposed at waste disposal facilities. No wastes should he dumped at any location outside the waste designated site.

Possible Noise emissions from running of construction machinery: Machinery operation and high noise activities should be carefully planned and scheduled. Noise-abating devices/barriers will be used wherever needed and practicable. Where that is not possible, high noise activities should cease between 22:00 and 06:00 hrs.

Soil Contamination due to fuel spills or ponding of water or degradation due to activities: Fuel oils, lubricants, and chemicals should be stored in covered diked areas, underlain with impervious lining. Regular inspections should be carried out to detect leakages in construction vehicles and equipment.

Impacts on Flora / clearing of trees due to project interventions: Damage to trees will be avoided and trees located along roadside will be protected during construction. A survey and inventory shall be made of large trees in the project vicinity – large tree should be marked and cordoned off with fencing and their root to be protected.

Occupational Health and Safety: WB Group's Environment, Health and Safety (EHS) Guidelines (attached at the end of this document) will be implemented. The construction contracts will include appropriate clauses to protect environment and public health. The present ESMF will be included in the bidding document. Provision of appropriately stocked first-aid equipment at work sites will be ensured.

Environmental and Social Management

Under ESMF approach, the initial screening was done to identify potential neighborhoods using simple criteria to exclude neighborhoods with any significant long term and irreversible environmental and social impacts. The criteria also included zones with potential demonstrative effects for the livability and accessibility improvements; complementarity with ongoing or future interventions for public space redevelopment; community engagement in marginalized neighborhoods and to support confidence building measures. The initial screening also ensured that neighborhoods in sensitive locations and requiring land acquisition are to be avoided.

Each subproject will also be screened for the severity and extent of environmental and social impacts. Subprojects having negligible environmental and or social impacts will be assessed with the help of a rapid assessment checklist. Subprojects having some negative but localized environmental and or social impacts will require Environmental and Social Management Plans (ESMPs).

Disclosure of subprojects Information

The ESMF shall be uploaded on the project website. Hard copies shall be sent to all institutional stakeholders and all KMC / DMC offices. The ESMF shall be disclosed internally within the Bank and shall be released on the Bank's InfoShop. Before start of physical works on the project, the ESMF shall be translated in local languages and shall be communicated to stakeholder communities/ businesses and will be uploaded on the PIU website - http://www.urbandirectorate.gos.pk/ or P&D website. The subproject specific ESMPs and RAPs/ARAPs will also be disclosed and available on abovementioned PIU website.

Implementation and Monitoring Mechanism of ESMF

The project has put in place three tier implementation and monitoring mechanism. Overall responsibility for implementation and monitoring of ESMF as well as ensure compliance with environmental and social safeguards rests with PIU. The PIU will establish an Environment and Resettlement Unit (ERU) that will consist of experts on social, environment, resettlement, gender and labor aspects. The ERU will guide, coordinate and oversee the preparation, implementation and monitoring of ESMPs. The ERU will hire external consultants for the preparation of individual ESMPs for each sub-project. They will technically review and approve the ESMPs for implementation.

At field level, Construction Contractor(s) (hereinafter referred to as "CC") appointed for the sub-projects will be responsible for the implementation of subproject ESMPs and site specific management plans. CC will deploy their adequate ESS staff on-site to implement the site-specific plans. CC will also be responsible for onsite monitoring of environmental and social attributes. CC will provide trainings to his staff related to environment, health and safety.

The Project Supervision and Contract Management Consultant (hereinafter referred to as "PSC") will be responsible for providing technical support to the PIU's ERU. They will be responsible for technically reviewing the mitigation plans provided by CC and provide their technical feedback to ERU on their suitability. Based on this technical feedback, the CC may amend or update specific plans. Once these are final, they will be submitted to PIU's ERU for approval. PSC will develop the training manuals, supervise the trainings and awareness raising activities provided by CC to its staff and communities, review the trainings carried out so far, identify non-compliances/gaps, and recommend changes, if any. The PSC will carry out monitoring of the CC at on a day-today level at field level. In parallel, Monitoring and Evaluation

Consultants (hereinafter referred to as "MEC") will be appointed to monitor and evaluate of the project progress and ESMP implementation. MEC will develop monitoring protocols and actively monitor safeguard compliance in the field implemented by CC.

CC, PSC and MEC are expected to recruit adequate staff on social and environmental safeguards to fulfill the requirements for implementing social and environmental aspects of the Project.

Regular and comprehensive reporting will be conducted during the course of the subprojects execution. PSC will ensure a constant surveillance of the project progress and deliverables through preparation and submittal of these reports to PIU.

Grievance Redress Mechanism (GRM)

The Grievance Redress Mechanism proposed for the entire project implementation, will serve both the directly and indirectly affected population/beneficiaries. Though GRM, a mechanism of redress has been designed to address environmental and social problems identified during implementation, it will also manage any disconnects that emerge from the field level that have significant implications for effective implementation of sub-projects.

A Grass Root level Grievance Redress Committees will be established in which GPFs of subprojects, RE Engineer(s) of PSC, Project Manager of CC, PIU Engineer and prominent local people will be present that will manage GRM aspects for all sub-project locations including decisions to be taken, actions and monitoring of complaints resolution at sub-project level. Grievance Focal Points (GFPs), will be chosen from local community/ business association on each sub-project site. Two GFPs (1 male and 1 female) will be selected for each sub-project locations and will be community members who are easily approached by the community.

A Grievance Redress Committee (Departmental Level) will be established and chaired by the Project Director PIU and will include proportionate representation from local government, community representatives, civil society organizations and project team. The GRC will comprise of, PD, ESS staff of PIU, Senior Engineers from LG/GOS, Representative of DC offices and senior members from civil society and business associations in sub-project areas.

Field level Grievances like entries in GRM register maintained at site level, complaints dropped in the Complaint box, will be dealt and resolved by Resident Engineer(s) of PSC by instructing CC staff and reports to GRC-grass root level. If unaddressed instantly, it will be referred to GRC-grass root level. The Grievance Redress Committee at the grass root level will review and identify actions to be taken to address the complaints within one week. If not satisfactorily resolved by the GRC-grass root level, the grievances will be referred to consideration by GRC at the Department level within one week. Every effort will be made to address or resolve grievances within fixed time-lines. Acknowledgement of a written submission will be issued to the complainant within three working days. If not resolved earlier by the CC on site, grievances will be tabled for discussion/resolution during Committee meeting within one week of receipt of the written submission. If the complainant is not satisfied, the complaint will have the option to seek redress through court of law or go to the Mayor of Karachi.

The PIU office will serve as the secretariat for the Grievance Redress Committee (GRC-Project) that will be responsible for providing oversight on the entire GRM process at a strategic level and monitoring of complaints management.

Any person will have access to PIU website to record grievances and also write a formal letter in the name of Project Director, PIU. The complainant can also visit the PIU office in person and log a grievance. The PIU Office will maintain an electronic database that will provide a summary of complaints received and mitigations. Apart from the electronic database that will be maintained at the PIU level, a manual register and complaint box of all complaints and actions taken will be maintained at construction site by Construction Contractor. GRM sign boards on which Compliant numbers (PIU numbers) will also be displayed at construction site.

ESMF implementation cost

The total cost of the ESMF implementation for 03 years has been estimated to be about Pak Rupees 49.56 Million. This includes costs of environment and social specialists, trainings, third party validation, and ESMP preparation for individual subprojects. This cost is included in the overall project cost.

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Acronyms

ADP	Annual Development Program	NCCP	National Climate Change Policy
CC	Construction Contractor(s)	NGO	Non-governmental organization
DC	Deputy Commissioner	O&M	Operation & Maintenance
DCO	District Coordination Officer	P&DD	Planning & Development Department, GOS
DMS	Detailed Measurement Survey	Pak-EPA	Pakistan Environmental Protection Agency
DOH	Department of Health, GOS	PAHs	Project Affected Households
EA	Environmental Assessment	PAPs	Project Affected Persons
EIA	Environmental Impact Assessment	PBS	Pakistan Bureau of Statistics
EHS	Environment, Health, and Environment	PCRs	Physical Cultural Resources
EIA	Environmental Impact Assessment	PD	Project Director
EPA	Environmental Protection Agency	PDMA	Provincial Disaster Management Authority
ERU	Environment and Resettlement Unit	PKR	Pakistani Rupees
ESMF	Environmental and Social Management Framework	PM	Particulate Matter
ESMP	Environmental and Social Management Plan	PMU	Project Management Unit
ESS	Environmental and Social Safeguard	PPE	Personal protective equipment
FGD	Focus Group Discussion	PSC	Project Supervision and Contract Management Consultant
GDP	Gross Domestic Product	RAP	Resettlement Action Plan
GOP	Government of Pakistan	RFP	Resettlement Policy Framework
GOS	Government of Sindh	RS	Reconnaissance Survey
GRC	Grievance Redress Committee	RU	Resettlement Unit
GRM	Grievance redress mechanism	SIA	Social Impact Assessment
GPI	Gender Parity Index	SEPA	Sindh Environmental Protection Agency
IP	Indigenous people	SESA	Strategic environmental and social assessment
IPs	Implementation Partners	SEQS	Sindh Environmental Quality Standards
IUCN	International Union for Conservation of Nature	SS	Social Specialist
LGD	Local Government Department, GOS	SWD	Sindh Wildlife Department
M&E	Monitoring and evaluation	SWMO	Sindh Water Management Ordinance
MAF	Million acre feet	TA	Technical Assistance
MDGs	Millennium Development Goals	TSP	Technical Support Partner
MEC	Monitoring and Evaluation Consultant	UNDP	United Nations Development Programme

MHa	Million hectares	WB	World Bank
MICS	Multiple Indicator Cluster Survey	WHO	World Health Organization
MRL	Maximum Residue Limit		

Chapter 1 INTRODUCTION

Karachi's lack of development and economic growth in recent decade's vis-à-vis its role as the economic and commercial center of the country is gaining increasing visibility due to recent improvements in its security environment as well as new and dynamic leadership in Sindh. Government of Sindh (GoS) has announced strong interest in, and support for, development in Karachi and requested the World Bank to provide support in transforming the city – which led to the Bank's engagement in the city and the production of the City Improvement.

GoS and the Local Government are keen to start with easy to implement interventions that would have visible and high impact results to build confidence between government and citizens, while setting the stage and platform for a longer term and sustained action. Therefore, GoS and the Local Government with the support of World Bank are planning to undertake "**Karachi Neighborhood Improvement Project**" (hereinafter referred to as KNIP) would focus on three key areas: (i) to improve livability, safety and inclusion in targeted areas through public space enhancements and improved access to citizen services in selected neighborhoods; (ii) to initiate a mechanism for instituting inclusion between the provincial and local government levels, private sector and civil society; and to better engage citizen participation; and (iii) to support the preparation of follow-on larger investment and policy reforms operations.

This ESMF report presents the legal review, broad baseline data collected for air, water, land, biological and socio-economic components of environment, identification, prediction and evaluation of generic project impacts and preparation of ESMF for mitigation of adverse impacts that may arise due to the proposed project interventions.

The ESMF Report has been prepared for Directorate of Urban Policy & Strategic Planning, Planning & Development Department, Government of Sindh the for Karachi Neighborhood Improvement Project.

1.1. Background

Karachi, an ethnically diverse megacity with rapid population growth, is the economic center of Sindh Province. Following's Pakistan's independence in 1947, Karachi quickly became the industrial and commercial hub of the new country. Today it is the only megacity and Pakistan and it is more than double the size of the next largest city, Lahore. Population estimates for Karachi range from 22 to 24 million, accounting for almost half of the entire provincial population, and comprising a high degree of ethnic and linguistic diversity.[3] It is as the main seaport and international trade hub of the country, and a powerhouse in terms of manufacturing employment. The city also has one of the highest per capita incomes and labor productivity (Gross Value Added per worker) in the country, and contributes between 11 to 20 percent to national GDP (more than twice that of the second largest city).[4] The city's population is expected to reach 32 million by 2030. Migration from other parts of the country is the primary driver of this population growth. However, the resulting ethnic diversity did not transform the city into vibrant cosmopolitanism, but instead into pockets of ethnically homogenous zones within a heterogeneous city.

During the last few decades, Karachi has suffered infrastructure neglect and there has been a decline in access and quality of these services. Karachi's urban planning, management and service delivery has been unable to keep pace with the needs of a rapidly growing population, quality of living and business

[3] World Bank (2014), "Pakistan Urban Sector Assessment", unpublished background paper for South Asia Urbanization flagship report.
[4] World Bank (2016), "Karachi City Diagnostic Report", unpublished draft

environment. As a result Karachi ranks low on livability and the rapid growth of the city has led to a rapid deterioration in municipal service delivery in many sectors, including urban transport, water supply and sanitation, and solid waste management. Indicators and statistics in these sectors are poor. To respond to these challenges, the Government of Sindh (GoS) seeks the support of the World Bank in developing early harvest interventions in the city of Karachi that will act as a demonstration effect of the potential of economic and urban development interventions in Karachi. These interventions will be included in this proposed project to rapidly improve the lives of the citizens and increase their trust in the state.

1.2. Project Overview

The project will focus on three key areas: (i) to improve livability, mobility, safety and inclusion in targeted areas of Karachi city through public space improvements in selected neighborhoods and improved access to pedestrian facilities; (ii) to initiate mechanisms for inclusive decision making and planning for the city with different levels of government (provincial and local), private sector and civil society; and to promote citizen participation in this process; and (iii) to strengthen city management and institutional capacity while supporting the preparation of a possible follow-on operation in Karachi focused on larger investments and policy reforms. The project has three components:

This infrastructure component aims to improve livability, mobility, safety and inclusion through public urban space improvements in selected Neighborhoods in Karachi (including both commercial and/or residential areas). **A framework for selecting Neighborhoods and activities against a clear set of criteria has been developed** to scope out public space improvements, focused on tangible improvements to citizens' daily lives, easy-to-implement activities and low and manageable safeguards risk with no land acquisition foreseen. Specific criteria include: **(i)** areas with potential cultural assets or having potential for demonstrative effect on livability improvements; **(ii)** potential for complementarity with ongoing or future interventions for public space redevelopment, public transport and other infrastructure investments; and **(iii)** potential for community engagement in marginalized neighborhoods and to support confidence building between citizens and the state at the municipal level (see Chapter 2).

Within each selected Neighborhood, **a criteria to identify sub-projects** has been developed to include the following: **(i)** fits overall project development objectives; **(ii)** focused on enhancing public space assets for use by pedestrians, women, youths and/or vulnerable groups; **(iii)** meets stated needs of citizens; **(iv)** ready to be implemented within project time period, with visible positive impacts in the area; **(v)** no major or irreversible environmental and social impacts; and **(vi)** economically viable.

Each sub-component will undergo a systematic process of stakeholder engagement and feedback on detailed designs. This provides the necessary flexibility to ensure that public space and mobility improvements are in fact responsive the local context and the needs and preferences of their intended beneficiaries (which could not be ensured if detailed designs were finalized at the appraisal stage). This helps improve citizen engagement and participation, mitigate social risks anticipated during implementation, and support inclusion of vulnerable groups (especially youth and women). The framework approach with stakeholder consultation also supports the larger objective to institutionalize citizen engagement in LG decision making, and a bottom-up approach and community ownership necessary to ensure long-term sustainability of public investments.

1.3. Environmental and Social Management Framework (ESMF)

"Environmental and social management framework (ESMF) is an instrument that examines the issues and impacts associated when a project consists of a program and/or series of sub-projects, and the impacts cannot be determined until the program or sub-project technical details have been identified. The ESMF sets out the principles, rules, guidelines and procedures to assess the environmental and social impacts. It contains measures and plans to reduce, mitigate and/or offset adverse impacts and enhance positive impacts, provisions for estimating and budgeting the costs of such measures, and information on the agency or agencies responsible for addressing project impacts." (Source: OP 4.01, Annex A – Definitions).

1.3.1. Need and Purpose of the ESMF

The Bank requires environmental assessment (EA) of projects proposed for Bank financing to help ensure that they are environmentally sound and sustainable, and thus to improve decision making. As per World Bank's OP 4.01: (7) Depending on the project, a range of instruments can be used to satisfy the Bank's EA requirement: environmental impact assessment (EIA), regional or sectoral EA, strategic environmental and social assessment (SESA), environmental audit, hazard or risk assessment, environmental management plan (EMP) and environmental and social management framework (ESMF). As the sub-project details have not been finalized, framework approach is being followed and this ESMF has been prepared to fulfil Bank's EA requirements.

The OP 4.01 defines ESMF as "An instrument that examines the issues and impacts associated when a project consists of a program and/or series of sub-projects, and the impacts cannot be determined until the program or sub-project details have been identified. The ESMF sets out the principles, rules, guidelines and procedures to assess the environmental and social impacts. It contains measures and plans to reduce, mitigate and/or offset adverse impacts and enhance positive impacts, provisions for estimating and budgeting the costs of such measures, and information on the agency or agencies responsible for addressing project impacts."

Location and design of the sub-projects to be undertaken under KNIP are not known yet, therefore a framework approach has been being taken to carry out environmental and social assessment of these subprojects. Under this approach, the present ESMF has been prepared to identify the potential generic negative environmental and social impacts, propose generic mitigation measures, provide basic screening criteria, list the type of safeguard instruments to be developed and provide institutional, monitoring, reporting and documentation measures for environmental and social safeguards compliance.

1.3.2. Objectives of the ESMF

The ESMF has been prepared to carry out broad safeguards analysis, provide procedures and criteria for screening the proposed subproject intervention types against adverse environmental and social impacts and recommending, where necessary, appropriate mitigation and enhancement measures. Also to broadly assess generic environmental and social consequences in line with the World Bank's Operational Safeguard Policy (OP 4.01). The relevant subproject ESMPs will be integrated with the contract documents to facilitate smooth implementation of safeguards during project operation phase.

The ESMF complies with the WB safeguards requirements provided in Operational Policies. The ESMF also takes into account the national environmental requirements defined through Sindh Environmental Protection Act of 2014 and subsequent regulations and guidelines and also the provincial Acts and Regulations.

The Framework provides an overview of the baseline conditions and also identify generic environmental as well as social impacts of the subprojects. The Framework also provides a generic environmental mitigation and monitoring mechanism in chapter 6 for project interventions which will used for developing site specific ESMPs for each sub-project.

1.3.3. ESMF Components

The study component as per TORs consists of:

- Detailed description of the Project, its components, and implementation arrangements, with a focus on how subprojects will be identified, prepared, approved and implemented.
- An understanding of the legislative, regulatory and administrative regime (e.g. pollution control, environmental management, protection of cultural heritage, etc.) that the project will operate within, with a focus on requirements that will apply to the planning, approval and implementation of subprojects.
- A detailed assessment of the impacts of project activities on environmental, social and physical cultural resources and clear mitigation measures recommended to manage negative impacts.
- Stakeholder consultations with a select sample of communities and institutions
- An understanding of the institutional needs for implementing the ESMF. This includes a review of the authority and capability of implementing agency and their capacity to manage and monitor ESMF implementation.
- A training and capacity building program for implementing agency for implementing the ESMF.
- Requirements for technical assistance to communities, service providers and public-sector institutions to support their ESMF implementation work.
- A budget for implementing the ESMF.

The ESMF has been reviewed and cleared by the World Bank. The ESMF was subject to consultations in Project locations before it was disclosed on GoS website. A translation of Executive Summary in Urdu, has also been released on the GoS website and on the World Bank Infoshop, before appraisal of the proposed project.

1.3.4. ESMF Methodology

Methodology for the ESMF comprise a series of integrated tasks that were carried out by the Consultant. his

Legislative Review: A legislative review has been conducted for the project. This included a review of all the related national legislation, guidelines and WB OPs which are relevant to the project and applicable in conducting ESMF study.

Project Description: Project documents have been reviewed to reflect the proposed interventions in sub-project areas, institutional arrangements, hard and soft components of each sub-projects, M&E responsibilities etc. This information is collected and analyzed as part of ESMF process. A detailed review of information is presented in the Project description section of ESMF study.

Background Information & Literature Review: Prior to conducting detailed reconnaissance surveys (RS), a review of literature, and all relevant documents available specific to the project components in districts and UCs was conducted to collect/explore background information of the project area. This was information was validated during Reconnaissance Surveys.

Reconnaissance Surveys: After initial information has been collected and reviewed, site surveys were conducted by the Consultant to collect primary information for the sub-projects. These site surveys were focused on collection of broad baseline picture on various environmental and social aspects including but not limiting to physical, biological, hydrological, health and social environment.

Stakeholder Consultation and Participation: Stakeholder consultations were carried out during preparation of ESMF. A series of focus group discussions/interviews were undertaken with primary stakeholders including shop keepers, hawkers, local community in all subproject sites during visits. Meetings were held with institutional stakeholders and key environmental and social issues were discussed.

Identification and Assessment of Environmental Impacts and Mitigation Measures: Environmental aspects and their associated impacts were considered for anticipated sub-projects. Mitigation measures were identified where required to minimize the significant environmental impacts. A management plan was also developed in the form of an ESMP for the implementation of the mitigation measures identified during the study.

1.3.5. Layout of ESMF

Chapter 2 provides a simplified description of the Project and its components. **Chapter 3** discusses the legislative, regulatory, and institutional setup that exists in the Country, as well as the World Bank's safeguard policies relevant to the environmental and social assessment. The environmental and social baseline conditions are presented in **Chapter 4**. **Chapter 5** describes the process for ensuring that environmental and social concerns as well as issues related to physical cultural resources are adequately addressed through institutional arrangements and procedures for identification, preparation, approval and implementation of subprojects. The assessment of environmental as well as socioeconomic impacts, their mitigation measures are presented in **Chapters 6** with the Environmental and Social Management Plan. The stakeholder consultations have been covered in **Chapter 7**. **Chapter 8** covers the institutional assessment including institutional structure and its ability to address environmental and social management issues, number as well as qualifications, knowledge and experience of the staff, and appropriateness.

Chapter 2 PROJECT DESCRIPTION

2.1. Project Context

Karachi is the largest city of Pakistan and the only megacity in the country, having an estimated population of 22-24 million which is more than double that of the next largest city. It is also one of the fastest growing cities in the country, with migration from other parts of the country being the primary driver of this population growth. The population is expected to increase to 27.5 million by 2020 and 32 million by 2030. The city dominates Sindh province in terms of its size and economy, accounting for almost half the province's population.[5] The city has consistently seen a rapid increase in its population and economic activity since Pakistan's independence in 1947, after which it quickly became the industrial and commercial hub of the new country. Multiple waves of migration since independence, due to various political, economic and security-related factors, have led to a diverse ethnic and social mix in the city, leading to conflict across multiple dimensions.

However, the economy of the city is declining in competitiveness. Its rate of economic growth from 1999 to 2010 was lower than most other Pakistani cities, with real GDP per capita growing at under 3 percent per annum from 2000 to 2012. Labor productivity grew at an even more anemic rate of around half a percent per annum, which was less than half the national rate.[6] This suggests that the increasing workforce has only been absorbed by low productivity jobs. Firms in the city rate corruption and political instability as the biggest constraints to the business environment, following by electricity shortage and crime, theft and disorder. This is in contrast to firms in other cities which overwhelmingly consider electricity to be the biggest constraint.[7] The city's economic growth may have stalled recently: The intensity of nighttime lights within 40 km of the city center declined between 2004 and 2010, after growing rapidly for four years. Between 2000 and 2010, Karachi experienced an absolute decline in nighttime light intensities within 11 km of its center (while it saw positive growth at distances greater than 11 km),[8] reflecting a worrisome stagnation of economic growth in the city core.

During the last few decades, Karachi has suffered infrastructure neglect and there has been a decline in access and quality of these services. Karachi's urban planning, management and service delivery has been unable to keep pace with the needs of a rapidly growing population, quality of living and business environment. As a result Karachi ranks low on livability and the rapid growth of the city has led to a rapid deterioration in municipal service delivery in many sectors, including urban transport, water supply and sanitation, and solid waste management. Indicators and statistics in these sectors are poor. To respond to these challenges, the Government of Sindh (GoS) seeks the support of the World Bank in developing early harvest interventions in the city of Karachi that will act as a demonstration effect of the potential of economic and urban development interventions in Karachi. These interventions will be included in this proposed project to rapidly improve the lives of the citizens and increase their trust in the state.

The following section provides the detailed description of the proposed components and anticipated subprojects;

[5] World Bank (2014), "Pakistan Urban Sector Assessment", unpublished background report for South Asia Urbanization flagship report 2016
[6] ibid
[7] World Bank Enterprise Survey
[8] Changes in nighttime lights intensity over time are considered a strong proxy for economic growth, and can be used in the absence of subnational data. Source: Mark Roberts and Peter Ellis (2016), "Leveraging Urbanization in South Asia: Managing Spatial Transformation for Prosperity and Livability," World Bank.

2.2. Project Overview

The project will focus on three areas: first, to enhance the accessibility, usability and attractiveness of public spaces (e.g., roads/streets; parks/open spaces; and public buildings) in selected neighborhoods of Karachi; second, to improve selected citizen services and municipal financial management capacity; and third, to initiate mechanisms for inclusive planning and decision making among different levels of government (provincial and local), citizens, private sector and civil society. This first-stage engagement will demonstrate early wins and will build confidence among stakeholders, while supporting the preparation of an expected follow-on operation in Karachi focused on larger investments and policy reforms. The three project components are outlined below.

2.2.1. Component 1: Public Space and Mobility Improvements in Selected Neighborhoods

The component will focus on three targeted neighborhoods: Saddar downtown area, Malir Neighborhood and Korangi Neighborhood. It will rehabilitate or enhance the usability and attractiveness of public spaces; improve mobility and pedestrian access to key destinations (including future BRTS stations); and improve traffic safety. These neighborhoods have been selected in consultation with the government and stakeholders based on the following considerations and criteria: areas with a high potential to demonstrate the project's impact on livability; complementarity with ongoing or future public investment; low anticipated negative social and environmental impacts; ethnicity and political balance; and engagement with low-income and vulnerable groups (including women) (see Annex 2 for details).

Within each neighborhood (sub-component), specific interventions (sub-projects) will be selected and designed via a framework approach. The screening criteria for sub-projects include: fit with overall project development objectives; focus on enhancing public space assets for use by pedestrians, women, youths and vulnerable groups; alignment with stated needs of citizens; readiness to be implemented within project time period, with visible positive impacts in the area; no major or irreversible environmental and social impacts; and economically viable.

The framework approach integrates a systematic stakeholder engagement process during the design development and implementation stages. This is to ensure investments in public spaces are responsive to the local context and beneficiaries' needs, and to give the project the necessary flexibility to adjust designs based on their feedback (see Annex 2). The framework is a way to explicitly incorporate the needs of vulnerable groups (especially youth and women), build bottom-up support and community ownership of the project (important for its long-term sustainability), and mitigate any social risks anticipated during implementation. Lastly, the framework serves as a way to showcase the benefits of strong community engagement in the planning process, which supports the higher-level objective to institutionalize community engagement in LG decision-making in Karachi.

Upgrading physical infrastructure under the project is expected to contribute to local economic development and social impacts in the longer term, through better accessibility to jobs and markets; and through higher utilization of urban spaces by businesses, residents and visitors in these neighborhoods. While the exact nature of sub-projects will depend on the outcomes of stakeholder consultations, they are expected to include activities such as walkability and mobility improvements, enhancement of safety features for non-motorized transport, improved access to adequate public spaces particularly in underserved neighborhoods, activities to foster vibrant street activity and support livelihoods, traffic congestion and parking needs, and improvement of municipal services in selected areas (see Annex 2 for detailed list of possible sub-projects).

There are three sub-components under Component 1, associated with the three targeted neighborhoods. All sub-component costs indicated below are preliminary estimates based on early conceptual designs. These estimates will evolve during implementation, as detailed designs are finalized with stakeholder inputs. During project implementation additional sub-projects may be selected within targeted neighborhoods, depending on the availability of funds and according to the framework criteria.

2.2.1.1. Sub-component 1.1: Saddar Downtown Area Revitalization

Saddar is located in the historic downtown area of Karachi. It has a high concentration of civic, education, cultural and commercial uses, and a large number of daily visitors. Exact sub-projects in Saddar will be determined based on local stakeholder consultations but may include, inter alia: upgrading roads and streets, sidewalks, and pedestrian crossings within existing rights-of-way (ROW); upgrading existing open spaces, installing shade features, and removing barriers for visitors; reorganizing traffic patterns and closing certain street segments (temporarily or permanently); installing signs, street furniture, lighting, and bus stop shelters; organizing street parking and installing safety barriers to reduce vehicular encroachment on sidewalks; and rehabilitating underground infrastructure beneath upgraded roads, and storm water drainage where necessary.

2.2.1.2. Sub-component 1.2: Malir Area Road and Public Spaces Enhancement

Malir is a dense, mixed-use area with low-income communities. It is characterized by an arterial corridor and a number of existing open spaces that are severely degraded. Sub-projects in Malir may include, inter alia: upgrading the main road, sidewalks, pedestrian crossings within existing ROW; reorganizing vehicular travel lanes to provide adequate space to pedestrians; rehabilitating/enhancing existing open spaces with shade, adequate drainage and trash collection facilities; installing street furniture, bus shelters, safety barriers, shade features and lighting; and rehabilitating underground infrastructure beneath upgraded roads, and storm water drainage where necessary.

2.2.1.3. Sub-component 1.3: Korangi Neighborhood Mobility Improvements

Korangi is a residential and industrial area with a large number low-income communities and vibrant markets along several major corridors. It includes one of the largest fishing villages in Karachi. Sub-projects in Korangi may include, inter alia: upgrading main roads, streets, sidewalks, and pedestrian crossings within existing ROW; improving existing open spaces such as markets, playground and road medians; installing street furniture, lighting, bus shelters; and safety barriers for pedestrians; and rehabilitating underground infrastructure beneath upgraded roads, and storm water drainage where necessary.

2.2.2. Component 2: City Management and Capacity Development

The objectives of this component are to: improve selected citizen services in Karachi; and lay the foundations for better city management and support the sustainability of Component 1 investments.

2.2.2.1. Sub-component 2.1: Automation of construction permits and business registration in Karachi

This sub-component will finance services and goods to support the design and implementation of a Sindh Provincial Electronic One Stop Shop (PEOSS) for business licenses and e-licensing by other provincial agencies. It will also finance the provision of services and goods for the automation of construction permit processes (an update from the current paper-based system), including capacity building activities for the Sindh Building Control Authority (SBCA), construction of integrated counters for the public requesting industrial and commercial buildings' licenses, and public access to information and complaints management and resolution.

2.2.2.2. Sub-component 2.2: Laying the foundation for better city management

This sub-component will finance goods and consultancy services to: implement core modules of an integrated financial management information system for KMC by SAP-certified implementing partners, while setting a foundation for incremental implementation of other modules (in a follow-on project); and design and develop an asset management system at KMC for moveable and immoveable assets.

It will support KMC in improving its municipal utility tax revenues by financing the following activities: a city-wide survey to assess the potential tax base and a computerized database of establishments falling within this tax; and the design and implementation of an upgraded online platform and potential incentives for taxpayers to pay municipal utility tax.

In addition, it will finance: the design and development of a web-based platform for KMC for improved public access to information on city management, budgeting, planning, gathering citizen feedback on services, and enabling electronic payment of selected municipal fees and taxes; and the development and implementation of a two-year long public awareness and outreach program for city programs and activities.

2.2.3. Component 3: Support to Implementation and Technical Assistance

This component will finance technical assistance and advisory services to PIU and the KTSC, including: project management and coordination costs associated with project implementation; consultancy services for feasibility, conceptual and detailed designs, environmental and social assessments for sub-projects and to prepare follow-on operations; and consultancy services for the preparation of a study on parking management in Saddar Downtown, Malir and Korangi areas. It will also support the KTSC through mobilization of expertise, exchange of international experience, and advisory services to: prepare and adopt a shared vision focused on improving city prosperity, livability and inclusiveness; and develop a coordinated roadmap of future investments and key policy reforms needed to realize that vision.

2.2.4. Selection criteria to identify neighborhoods and interventions under Component 1

These criteria would include, among others: (i) zones with potential assets or demonstrative effects for livability and accessibility improvement; (ii) potential for complementarity with ongoing or future interventions for public space redevelopment; and (iii) potential for community engagement in marginalized neighborhoods and to support confidence building measures. The prioritization would also take into account the physical characteristics of selected areas, potential negative environmental impacts, ethnicity and political balance, and expected benefits accrued to low-income people and vulnerable groups (including women). Based on these criteria, the initial selected areas are: the Saddar Town downtown historic area, and Korangi area. Subsequent sub-projects are expected to be identified and located in other areas of the city.

For each selected neighborhood, a vision and a schematic urban design scheme focused on the public realm will be developed, in consultation with stakeholders. The urban design scheme shall articulate the vision and focus on specific themes for neighborhood improvement such as a network of improved public space accessibility, usability and comfort (e.g. street furniture, landscaping, shade), pedestrian safety and public health (e.g. lighting, municipal solid waste collection, crossings etc.), and walkability and connectivity to surrounding areas (adequate sidewalks etc.).

Within each selected neighborhood, sub-projects would be selected according to a set of criteria, including: (i) fits overall project development objectives, and located within selected neighborhoods; (ii)focused on

enhancing public space assets[9] for regular use by pedestrians, women, youths and/or handicapped; (iii) meets existing stated needs for citizens; (iv) readiness and quick to implement, with highly visible positive impacts on the daily lives of users, (v) no major or irreversible environmental and social impacts; and (vi) economically viable. These selected investment components will be developed in detail.

The overall project will be divided in three subproject areas which are presented in the below location maps.

2.2.5. Design Brief

The Karachi Neighborhood Improvement Project (KNIP) aims to tap into the defining historical legacies of the neighborhood – multi-cultural, learning, public service – through public space design interventions that render these attributes as contributors' to pleasing experiences that the citizens of the city can enjoy through improved access, comfort and environmental suitability. The design interventions need to focus on the following aspects of public space design:

Comfort

Pedestrian comfort facilitated through shade (trees/canopies), rest areas, conveniently located benches, and amenities within walkable distances.

Access

Easy access to be designed with identification of network linking up to future BRTS stations, good signage, comprehensive pedestrian network linking avenues to side streets etc. (end to end pavements) and key locations, sufficient sidewalks. Design to suitability accommodate the movement and seating needs of disabled.

Safety

Good lighting (suitably located street lamp posts) for dark places and areas proved to crime; good road crossings at appropriate locations; buffer (e.g. landscaping, road calming) vehicles from pedestrian.

Traffic Management

Organizing parking (connected to destinations via pedestrian walkways), rerouting of traffic, possible interventions such as enforcement with parking fee collection, cycling lanes, leveraging on municipal car parking structures.

Services

Services identified to include garbage collection (conveniently located garbage receptors), burying overhead cables, roadside drainage options etc.

Landscape

Specifically defined landscape (soft scape/hard scape interventions) – type of vegetation and placement.

[9] Public space assets refer to the physical elements within streets, squares, parks and includes municipal roads and public buildings

Heritage and Landmarks

List actions needed such as guidelines for heritage and conservation with the hope of revitalizing vacant buildings and restoring heritage; signage control for historic building facades etc. (this may not be part of the project but can be part of the urban design scheme which could be taken up at later stage).

Sociability

Space design will be defined not by elaborate structural constructs, rather by minimalistic designs that create 'places' for inclusive social integration and within the contexts of the defining functions of the various 'zones' in the neighborhood, promote stakeholder engagement for greater social integration.

Zones for Design Interventions

It has been suggested that the neighborhood will be divided in the following thematic zones:

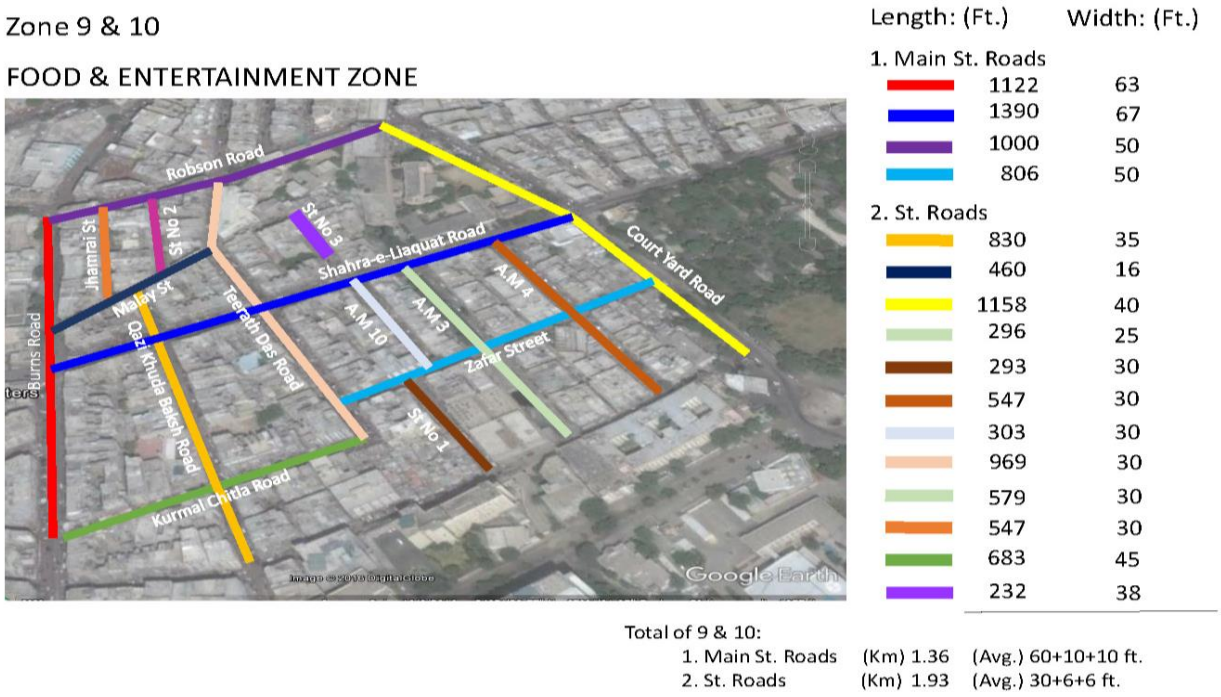
- Cultural Zone
- Educational Zone
- Administrative Zones
- Food Zone
- Recreational Zone
- Neighborhood Zone
- Commercial Zone

While specific design interventions will be appropriate to the spatial and stakeholder needs of each zone, the designs for street furniture and services needs standardization. Also, the zones need to be connected in an organic whole through design interventions that are relevant to providing access. One zone needs to find connectivity with the other.

2.2.5.1. Zoning for Saddar Downtown Area

Following figures represent the proposed zoning for Saddar Downtown area;

Figure 2.1: Proposed Zoning for Saddar Downtown Area[10]



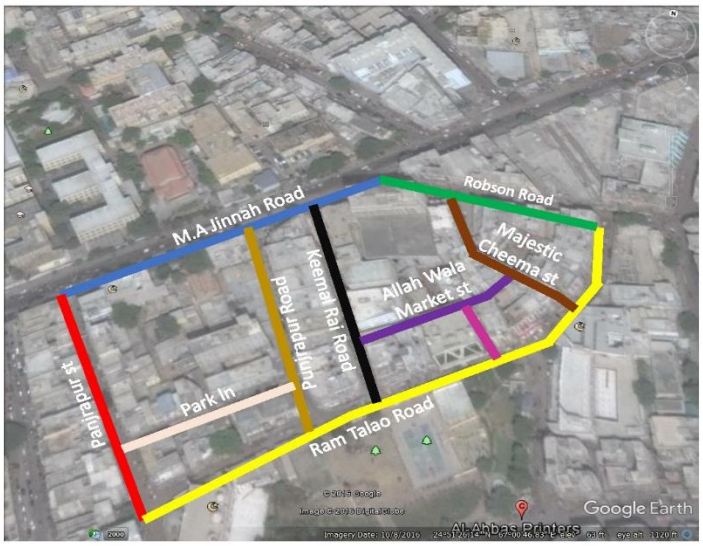
	Length: (Ft.)	Width: (Ft.)
1. Main St. Roads		
	1122	63
	1390	67
	1000	50
	806	50
2. St. Roads		
	830	35
	460	16
	1158	40
	296	25
	293	30
	547	30
	303	30
	969	30
	579	30
	547	30
	683	45
	232	38

Total of 9 & 10:
1. Main St. Roads (Km) 1.36 (Avg.) 60+10+10 ft.
2. St. Roads (Km) 1.93 (Avg.) 30+6+6 ft.

[10] Data from Design Consultant

Zone 9 & 10

FOOD & ENTERTAINMENT ZONE



Length: (FT)	Width: (FT)
1. Main St. Roads	
708	70
2. Street Roads	
420	42
1105	25
341	21
335	20
290	25
435	24
468	25
416	26
103	17

ZONE 4,5,6 & 7

EDUCATIONAL AND CULTURAL ZONE

Length: (Ft.)	Width: (Ft.)
2400	60
2853	80
1290	80
650	100
430	75
340	100
162	90
2.5 (Km)	Avg. 86 (62+12+12 ft.)

Figure 2.2: Proposed zones of Saddar downtown area with road dimensions

2.3. Anticipated Interventions

Anticipated interventions at subproject sites (financed under project) under KNIP are;

a) Rehabilitation and revamping food streets, markets and bazaars
b) Community amenities and public toilets
c) Improved paving for sidewalks, pedestrian crossings and roads
d) Street lighting, landscaping, street furniture including Municipal Solid Waste containers and bins, or way finding signs
e) Playgrounds, sports fields, or community centers
f) Reorganized street parking or improved bus facilities
g) Repaving roads with rehabilitation of selected underground network
h) Reorganizing parking at selected locations
i) Better street crossings at appropriate locations

2.3.1. Project Implementation

2.3.1.1. Karachi Transformation Steering Committee

A High Level Steering Committee for Karachi Transformation (KTSC), chaired by the Chief Minister of Sindh, has been established to provide planning and strategic guidance and facilitate multi-stakeholders cooperation for the development and implementation of vision, policy reforms and investment programs towards the improvement of Karachi economy, livability and sustainability. More specifically, the KTSC will: (i) consider and endorse a shared vision for Karachi transformation and a road map for its implementation; (ii) review and approve policy recommendations and investment programs in support of Karachi transformation; (iii) provide oversight for monitoring and evaluation for the implementation of the road map; and (iv) identify and mobilize technical assistance and financial resources. KTSC membership includes high level representation from Sindh Government, KMC and DMCs, civil society and the private sector. It will meet as and when is needed for the implementation of the road map but at least once each quarter during the first year of the KNIP project. Director General of the Sindh Urban Policy and Strategic Planning Unit will act as secretary of the KTSC and will provide required logistic support.

2.3.1.2. Project Implementation Unit (PIU)

A specific Project Implementation Unit (PIU) consisting of appropriate experts headed by a Project Director within the Directorate General of Urban Policy and Strategic Planning (DGUPSP) will have the overall responsibility for implementing the project and will report to the Secretary Planning and Development of the Government of Sindh (GoS). The PIU will be responsible for all aspects of project implementation, including technical, operational, environment and social safeguards, procurement, financial management, disbursement, and overseeing the technical assistance, training, public awareness and communication activities.

The PIU is staffed with a project director, a deputy project director, liaison officer, civil engineers, an urban planning and design specialist, a traffic engineer, a financial management specialist, a full-time fully accredited accountant, a procurement specialist, an environmental specialist, a social development specialist, a gender specialist, a resettlement specialist, and a communication specialist. In addition to technical staff seconded from KMC, the PIU will also receive part-time support from technical and financial departments of KMC as needed. In parallel, two sets of consultants -Project Supervision and Contract Management Consultants, and Monitoring and Evaluation Consultants will also support the PIU.

2.3.1.3. Project Supervision & Contract Management Consultant

Project Supervision & Contract Management will be selected through international competitive bidding process under Component 3 of the project. They will report to the PIU director and prepare the implementation program, quality of works, delivery of works, and certify the quantities of work carried out and the payments. They will also help the PIU in project planning and management, quarterly progress reporting, procurement planning, contract management, financial management and overall project management. Their scope of work will include but not be limited to] the following:

a) Project management support for project launch, quality assurance, screening and clearance of sub-components;
b) Supervision and verification of survey, design and preparation cost estimates of project interventions;
c) Verification of design, bill of quantities and tender documents of project activities;
d) Verification of detailed design and supervision of investment sub-components;

e) Prepare annual work plan for all project's activities;
f) Prepare annual financial requirements;
g) Spot checking for quality assurance;
h) Supervise and report on implementation of EMSPs and RAPs;
i) Monitor the contractors' safety regulations, precautions on the sites and safety training of his staff and laborers; prepare reports for the PIU and relevant state/city organizations in the event of accidents on the sites
j) Construction supervision / assuming the engineering role; and
k) Through the duration of the project, assist on liaison with KMC/DMCs and utility agencies/boards/companies and regularly report to all these agencies on progress and other matters relating to project implementation.

2.3.1.4. Monitoring and Evaluation Consultants (M&E)

The regular monitoring of all project components and activities will be key to successful execution of the project. M&E consultants will be responsible for (a) monitoring of the physical progress; (b) monitoring and evaluation of the project impact; (c) review and supervision of the environmental and social aspects of the project; and (e) provision of guidance to the management in early identification and resolution of the project. The consultants will be selected using the QCBS procurement method.

Their general scope of work will include but not be limited to the following:

a) Establishment of MIS, GIS and ICT-based monitoring verification system for all project components and activities' monitoring;
b) Responsibility for monitoring implementation and physical progress of the civil works including environmental and social safeguards;
c) Ensuring that Project complies with any legal financial covenant;
d) Monitoring that all component activities are placed in Annual Work Plan (AWP) to achieve desired objectives;
e) Collection and analysis of data for project impacts including data on direct and indirect stakeholders under the project; and Identification and resolution of problems during implementation

2.3.1.5. Project Coordination Committee

A project coordination committee will be established to ensure inter-agency coordination and resolve any implementation bottlenecks. This committee will be headed by ACS of Planning and Development of Sindh Government and will include high level representatives of city and provincial utilities/agencies/boards including but not limited to KWSB, K-Electric, Transport Department, Karachi Development Authority, Traffic engineer unit, and Sindh Solid Waste Management Board, as well as established institutes, research centers and universities and other civil society stakeholders.

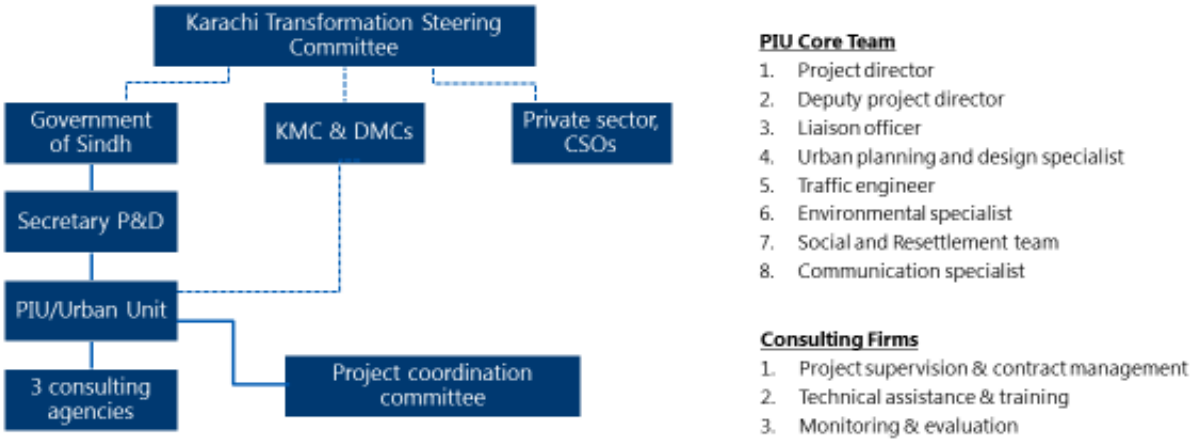


Figure 2.3: Project Implementation Framework

Table 2.1: Proposed staffing of PIU

SR.#	Name of Position	No
1.	Project Director	1
2.	Internal Auditor	1
3.	Admin & HR Officer	1
4.	Deputy Project Director	1
5.	Urban Planning & design Specialist	1
6.	Transport/ Traffic Specialist	1
7.	Contract & Procurement Specialist	1
8.	Asst. Contract & Procurement	1
9.	Financial Management Specialist	1
10.	Senior Engineer	1
11.	Junior Engineer	1
12.	Institutional Capacity Building Specialist	1
13.	Communication Specialist	1
14.	**ENVIRONMENT AND RESSETTLMENT UNIT**	
15.	Environment Specialist	1
16.	Resettlement Specialist	1
17.	Gender Specialist	1
18.	Social Development Specialist	1
19.	Labor Specialist	1
20.	**SUPPORT STAFF**	
21.	Program Assistant (04 Nos.)	4
22.	Receptionist(s) (01Nos.)	1
23.	Office Boys (03 Nos.)	3
24.	Riders (01 Nos.)	1
25.	Security Guards (02 Nos.)	2
26.	Drivers (03 Nos.)	3
27.	Sanitary Workers (02 Nos.)	2
28.	Contingent Paid Staff / Internee (02 Nos.)	2

2.3.2. Expected Benefits

- Upgrade the livability status of the neighborhood – through environmental improvement, infrastructure rehabilitation and by creating spaces for social integration.
- Optimize the still existent cultural, social and recreational potential provided by the relevant structures and spaces through utilizing them as catalysts for public space design interventions that

are characterized by their inclusive, accessible, safe and comfort based designs - that rely on creating 'places' rather than 'structures'.

- Knit the destinations of public visitation in a manner that promotes improved public access and through facilitating patterns of circulation that are pedestrian in nature rather than motorized – facilitated both by route identification and associated street furniture that assists walkability
- Components of design would include street furniture to facilitate pedestrian movement, shaded trees, rerouting of motorized traffic and provision of parking spaces in a way that the neighborhoods environmental sensitivities are not degraded and elements of public conveniences are not obstructed.
- Minimalistic designs that create 'places' for inclusive social integration.
- Tap into the defining historical legacies of the area – multicultural, learning, public service – through public space design interventions that render these attributes as contributors' to pleasing experiences that the citizens of the city can enjoy through improved access, comfort and environmental suitability.

2.3.3. Project Schedule

The implementation phase of the project will be 3 years starting in April 2017.

2.3.4. Project Cost

Total project cost is estimated to be US$ 150 Million.

Chapter 3 ENVIRONMENTAL AND SOCIAL MANAGEMENT REQUIREMENTS

This section provides synopsis of policies, legislation, and guidelines that may have relevance to the proposed KNIP and administrative framework as well as institutional set-up relevant to the environmental and social assessment of the proposed Project.

3.1. National Laws and Regulations

Pakistan's statute books contain a number of laws related to the regulation and control of the environmental and social aspects. However, the enactment of comprehensive legislation on the environment, in the form of an act of parliament, is a relatively new practice. Most of the existing laws on environmental and social issues have been enforced over an extended period of time, and are context-specific. After the Eighteenth amendment in the constitution of Pakistan many federal subjects devolved to provincial legislation. The Concurrent List in fourth schedule of the constitution containing entries of subjects wherein federal and provincial legislation could legislate has been abolished. Since project coverage is in province of Sindh; therefore, only those national laws and regulations are discussed here which have application in the project. There are still several federal laws which have not been repealed by the provinces and applicable in provinces with its original titles. The laws relevant to the proposed project are briefly reviewed below.

3.1.1. National Environmental Policy, 2005

The National Environmental Policy, 2005 aims to protect, conserve and restore Pakistan's environment in order to improve the quality of life for the citizens through sustainable development. It provides an overarching framework for addressing the environmental issues facing Pakistan, particularly pollution of fresh water bodies and coastal waters, air pollution, lack of proper waste management, deforestation, loss of biodiversity, desertification, natural disasters and climate change. It also gives direction for addressing the cross sectorial issues as well as the underlying causes of environmental degradation and meeting international obligations.

The National Environmental Policy, 2005 while recognizing the goals and objectives of the National Conservation Strategy, National Environmental Action Plan and other existing environment related national policies, strategies and action plans, provide broad guidelines to the Federal Government, Provincial Governments, Federally Administrated Territories and Local Governments for addressing environmental concerns and ensuring effective management of their environmental resources.

3.1.2. National Sanitation Policy, 2006

The national Sanitation Policy, 2006 devised to provide a broad framework and policy guidelines for all level of governments to enhance and support sanitation coverage in the country.

The primary focus of the policy is on the safe disposal of excreta away from the dwelling units and work places by using a sanitary latrine and includes creation of an Open Defecation Free environment along with the safe disposal of liquid and solid wastes; and the promotion of health and hygiene policy in the country.

3.1.3. Antiquities Act 1975

The Antiquities Act of 1975 ensures the protection of Physical Cultural Resources (PCRs) in Pakistan. The act is designed to protect antiquities from destruction, theft, negligence, unlawful excavation, trade, and export. Antiquities have been defined in the Act as ancient products of human activity, historical sites, or

sites of anthropological or cultural interest, national monuments; etc. The law prohibits new construction in the proximity of a protected antiquity and empowers the Government of Pakistan to prohibit excavation in any area that may contain such articles of archaeological significance.

Section 19 - Prohibition, of destruction, damage, etc., of protected antiquities: of this act states that:

"No person shall, except for carrying out the purposes of this Act, destroy, break, damage alter, injure, deface or mutilate or scribble, write or engrave any inscription or sign on, any antiquity or take manure from any protected antiquity."

Section 20 - Restriction on repairs, renovation, etc., of protected immovable antiquity: of this act states that:

"The owner of a protected immovable antiquity shall not make any alteration or renovation in, or addition in, or addition to, the antiquity: Provided that he may, with the permission of the Director, make minor adjustments considered necessary for the day to day use of the antiquity: Provided further that the work for which permission has been given shall be carried out under the supervision of the Director or a person authorized by him in this behalf."

Section 20 - Execution of development schemes and new constructions in proximity to immovable antiquity: of this act states that:

"Notwithstanding anything contained in any other law for the time being in force, no development plan or scheme or new construction on, or within a distance of two hundred feet of, a protected immovable antiquity shall be undertaken or executed except with the approval of the Director."

The project involves rehabilitation of roads and underground utility works at the existing roads near PCRs, rehabilitation of food streets etc. There are 08 PCRs protected under this act and are located in Karachi District. Impacts envisaged may relate to the (i) repairs, renovation, etc., (ii) execution of civil works/ excavation in surrounding PCRs. The possible discovery of archeological sites or random findings during the execution of civil works will require measures to manage chance finds. Since the exact locations of subprojects are not known at this moment, a guideline for identification of physical cultural resources and determination of the suitability of the subprojects from the perspective of PCR is provided in the ESMF (**Annex E**). The ESMF also includes "Chance Find" procedures for protection of cultural property and contracts for subcontractors will include "Chance Find" procedures.

3.1.4. Land Acquisition Act, 1894

This Act is a colonial legacy which provides law for the acquisition of land needed for public purposes. The Act provides complete mechanism for determining the amount of compensation for land, trees, horticulture, to be made on account of such acquisitions. The law provides details of various peculiarities involved in acquisition of land such as preliminary investigation, objection to acquisition, declaration of intended acquisition, enquiry into measurements, value & claims, taking possession, reference to court and procedure thereon, apportionment of compensation, payment, temporary occupation of land, acquisition of land for companies, disputes resolutions, penalties and exemptions, etc. This Act has 55 sections addressing different areas. Section 4(2) of the Act mentions that it shall be lawful for any official authorized by the Collector to enter upon and survey, to dig or to do all other acts necessary to ascertain whether the land is suitable for such purpose.

The LAA and its implementation rules require that impacts assessment/valuation effort, land and crops are compensated in cash at market rate to titled land owners and registered land tenants/users, respectively.

Based on the LAA, only legal owners/title holders and tenants registered with Land Revenue Department or possessing formal lease agreements, are eligible for compensation or livelihood support. However, other national projects, have been awarded compensation and assistance, in good faith, to non‐title holders and other forms of PAPs (squatters /encroachers) based on their own resettlement policies.

The detail system of acquisition is provided in the Land Acquisition Act. However, the primacy of the valuation methodology for compensation is governed by the market value of the land and any other compensations deemed appropriate, commensuration with the prevalent conditions at site at the time of award by the land acquisition officer. Further the timing of the compensation is also to be determined by the aforesaid officer, normally accruing from the date of possession of land. Hence in letter and spirit the LAA 1894 and WB OP 4.12 have compatibility on the grounds of valuation and timing of payment of compensation.

Table 3.1: Comparison of Pakistan's Land Acquisition Act and WB OP 4.12

Pakistan 1894 Land Acquisition Act	WB OP 4.12
Titled land owners or customary rights holders only are recognized for compensation.	Lack of title should not be an excuse for denying compensation.
Registered landowners and sharecroppers/ lease holders are only eligible for compensation of crop losses.	Crop compensation is to be provided irrespectively from the registration status of the affected farmer.
Tree losses are compensated based on outdated officially fixed rates by the relevant forest and agriculture departments.	Tree losses are compensated according to market rates based on productive age or wood volume depending on tree type.
Land valuation based on the median registered land transfer rate over the 3 years.	Land valuation to be based on current replacement value.
Valuation of structures based on official rates, with depreciation deducted from gross value of the structure and 10% for salvage material.	Valuation of built‐up structures is based on current market value/cost of new construction of the structure, with no deduction for depreciation. PAPs can take the salvage material free of cost.
The decisions regarding land acquisition and the amounts of compensations to be paid are published in the official Gazette and notified in convenient places so that the people affected get aware of the same.	Information related to quantification and costing of land, structures and other assets, entitlements, and amounts of compensation and financial assistance are to be disclosed to the affected persons prior to project appraisal.
No provision for income/livelihood rehabilitation measure, allowances for severely affected PAPs and vulnerable groups, or resettlement expenses.	OP 4.12 requires rehabilitation for lost income and special AP expenses during the relocation process particular.

The hard components under KNIP will be undertaken on government land and existing ROW. However, there may be land acquisition required for developing parking places/plazas. Also on the existing ROW of subproject sites, it is observed from the reconnaissance survey that hawkers / shopkeepers encroaching the streets and sidewalks and placed their assets. Therefore interventions under this project may affect these assets of Affected Persons (APs). The impacts and measures to avoid, mitigate or compensate the loss of PAPs will be covered under Resettlement Policy Framework and subproject RAPs/ARAPs.

3.1.5. Labor Laws

3.1.5.1. Employment of Child Act, 1991

Article 11(3) of the Constitution of Pakistan prohibits employment of children below the age of 14 years in any factory, mines or any other hazardous employment. In accordance with this Article, the Employment of

Child Act (ECA) 1991 disallows child labor in the country. The ECA defines a child to mean a person who has not completed his/her fourteenth years of age. The ECA states that no child shall be employed or permitted to work in any of the occupation set forth in the ECA (such as **transport sector**, railways, **construction**, and ports) or in any workshop wherein any of the processes defined in the Act is carried out.

The PIU and their contractors will be bound by the ECA to not allow any child labor or bonded labor at the subproject sites.

3.1.5.2. The Bonded Labor System (Abolition) Act, 1992

Article 11(2) of the Constitution of the Islamic Republic of Pakistan prohibits all forms of forced labor. In accordance with this Article, The Bonded Labor System (Abolition) Act, 1992 provides for the abolition of bonded labor system in the country. Under section 4(2) of this Act, No person shall make any advance under, or in pursuance of, the bonded labor system or compel any person to render any bonded labor or other form of forced labor. The practice of bonded labor has become a punishable offence after enactment of this act (with imprisonment for a term which shall not be less than two years nor more than five years, or with fine which shall not be less than fifty thousand rupees, or with both). Vigilance Committees are formed at the district level to keep an eye on the working of law and help in rehabilitation of freed bonded labor.

The PIU and their contractors will be bound by the Act to compel its labor and the provisions of this Act will be ensured.

3.1.5.3. Workmen's Compensation Act, 1923

Workmen's Compensation Act, 1923 provides for the compensation to be paid by employer to workers or their legal heirs in case of death, permanent total disablement, permanent partial disablement and temporary disablement during working.

The Contractor(s) is liable to pay compensation in case of any accidents and PIU will ensure the compensation as per this Act.

3.1.5.4. Minimum Wages Ordinance, 1961

Section 9 (1) of this ordinance states that no employer shall pay any worker wages at a rate lower than the rate declared under this Ordinance to be the minimum rate of wages for such worker. 9 (2) Any employer who contravenes the provisions of this section shall be punishable with imprisonment for a term which may extend to six months or with fine.

The Sindh Finance Minister (Syed Murad Ali Shah) while announcing the Sindh Budget (2016-17) on 11 June 2016 has raised the minimum wage rate for unskilled workers from Rs. 13,000 to Rs. 14,000 per month with effect from July 2016[11].

The Contractor(s) is liable to pay at least minim wages to its unskilled labor and PIU will ensure payment of not less than the minimum wage as specified above.

3.1.5.5. The Industrial and Commercial Employment (Standing Orders) Ordinance, 1968

The ordinance which applies to construction industry and contractor, does not specify the hours of working in one shift however, standing orders under this act state that The periods and hours of work for all classes

[11] Finance Department, GOS

of workmen in each shift shall be exhibited in Urdu and in the principal language of workmen employed, in the industrial or commercial establishment on notice boards maintained at or near the main entrance of the establishment and at the time-keeper's office, if any.

The Factories Act, 1934 (Section-34), Mines Act, 1923 (Section 22-B, C), Shops and Establishment Ordinance, 1969 (Section 8) and Road Transport Ordinance, 1961 (Section-4) are used to determine working hours and rest time in different industries which are not applicable for construction works conducted by Contractor. Section 34 of the Factories Act provides that "no adult worker shall be allowed or required) to work in a factory for more than 48 hours in a week; if the factory is seasonal, 50 hours a week and if the work is of continuous nature, he may work for 56 hours in a week. As for the daily hours, these may not be more than 9 hours a day (in case of seasonal; 10 hours). Any adult worker is required to work overtime, if asked, and the rate of overtime payment is double the usual pay (Section 47). Overtime is not payable to the contract workers, employed on piece rate basis.

3.1.5.6. ILO Conventions - Ratifications for Pakistan

Pakistan has ratified 08 fundamental and 26 technical ILO conventions in which following are relevant to the project:

- C029 - Forced Labor Convention, 1930 (No. 29)
- C111 - Discrimination (Employment and Occupation) Convention, 1958 (No. 111)
- C138 - Minimum Age Convention, 1973 (No. 138)
- C001 - Hours of Work (Industry) Convention, 1919 (No. 1)

C029 - Forced Labor Convention, 1930 (No. 29)

Article 1 of the convention states that each member undertakes to suppress the use of forced or compulsory labor in all its forms within the shortest possible period. Article 2 of the convention states that the term forced or compulsory labor shall mean all work or service which is exacted from any person under the menace of any penalty and for which the said person has not offered himself voluntarily.

C111 - Discrimination (Employment and Occupation) Convention, 1958 (No. 111)

For the purpose of this Convention, discrimination includes any distinction, exclusion or preference made on the basis of race, color, sex, religion, political opinion, national extraction or social origin, which has the effect of nullifying or impairing equality of opportunity or treatment in employment or occupation.

C138 - Minimum Age Convention, 1973 (No. 138)

Article 1 of the convention states that Each Member which ratifies this Convention shall specify, in a declaration appended to its ratification, a minimum age for admission to employment or work within its territory and on means of transport registered in its territory; subject to Articles 4 to 8 of this Convention, no one under that age shall be admitted to employment or work in any occupation.

C001 - Hours of Work (Industry) Convention, 1919 (No. 1)

The term industrial undertaking under this convention includes (c) construction, **reconstruction, maintenance, repair,** alteration, or demolition of any building, railway, tramway, harbor, dock, pier, canal, inland waterway, **road**, tunnel, bridge, **viaduct, sewer, drain**, well, telegraphic or telephonic installation,

electrical undertaking, gas work, waterworks or other work of construction, as well as the preparation for or laying the foundations of any such work or structure;

Article 2 of the Convention states that the working hours of persons employed in any public or private industrial undertaking or in any branch thereof, other than an undertaking in which only members of the same family are employed, shall not exceed eight in the day and forty-eight in the week. The limit of hours of work prescribed in Article 2 may be exceeded in case of accident, actual or threatened, or in case of urgent work to be done to machinery or plant, or in case of "force majeure", but only so far as may be necessary to avoid serious interference with the ordinary working of the undertaking.

3.2. Provincial Laws and Regulations

3.2.1. Sindh Environmental Protection Act, 2014

Legislative assembly of Sindh province of Pakistan passed the bill on 24th February 2014 to enact Sindh Environmental Protection Act 2014. The Act envisages protection, improvement, conservation and rehabilitation of environment of Sindh with the help of legal action against polluters and green awakening of communities. It equally lays emphasis for the preservation of the natural resources of Sindh and to adopt ways and means for restoring the balance in its eco-system by avoiding all types of environmental hazards. This act has also provided for Sindh Sustainable Fund derived from various sources such as voluntary contributions or fees generated etc. This fund is utilized for protection, conservation or improvement of environment.

3.2.2. Sindh Solid Waste Management Board Act, 2014

The SSWMB Act, 2014 enacted to establish a board for collection and disposal of all solid waste, to arrange effective delivery of sanitation services, to provide pollution free environment and to deal with other relevant matters. The Board established under the Act headed by the Chief Minister or his nominee and constitutes of thirteen other ex officio members of other relevant departments.

3.2.3. Sindh Environmental Quality Standards (SEQS)

With the SEPA Act, 2014 the Sindh EPA revised the Environmental Quality Standards (EQS) with full consultation of the private sector, industrialist, trade and business associations and NGOs and approval of Sindh Environmental Protection Council has developed Sindh Environmental Industrial Wastewater, Effluent, Domestic Sewerage, Industrial Air Emission, Ambient Air, Noise for vehicles, Air Emissions for Vehicles and Drinking Water Quality Standards 2015 vide Notification No.EPA/TECH/739/2014. Only a few of these standards will be applicable to the Nosie and liquid effluents discharged to the environment from the activities under the proposed project. The SEQS is presented in **Annex A**.

3.2.4. Sindh Cultural Heritage (Preservation) Act, 1994[12]

Sindh Cultural Heritage (Preservation) Act of 1994 was passed by the Provincial Assembly in February 1994 and was enacted in April 1994. This act aims to preserve and protect ancient places and objects of architectural, historical, archaeological, artistic, ethnological anthropological and national interest in the Province of Sindh.

The act enables the Government to declare any premise or object of architectural, historical, archaeological or national value, after consultation with the Advisory Committee. The act also states that if it is apprehended

[12] Sindh Cultural Heritage (Preservation) Act, 1994 – Gazette of Sindh (April, 1994)

that any person intends to destroy, remove, alter, deface or imperil the protected heritage or to build on or near the site thereof in contravention of the terms of an agreement for its preservation under section 8 of the act, the Committee may issue an order prohibiting any such contravention.

Under this Act government has constituted an advisory committee constitute of a Chairman and six other members may be appointed by Government.

The act prohibits any person who intends to destroy, remove, alter, deface or imperil the protected heritage or to build on or near the site thereof in contravention of the terms of an agreement for its preservation under section 8, the Committee may an order prohibiting any such contravention.

The act enables the Government if apprehends that a protected heritage is in danger of being destroyed, injured or allowed to fall into decay, Government may Acquire it under the provision of the Land Acquisition Act, 1894, as if the preservation of a protected heritage were a "public purpose" within the meaning of that Act. The Committee is responsible to maintain and preserve every protected heritage in respect of which Government has acquired any of the rights mentioned in section 7 or which the Government has acquired under section 12 of the act.

The act also mentions that if any person including the owner destroys, removes, injures, alters, defaces a protected heritage maintained by Government under this act or in respect of which an agreement has been executed under section 8 of the act, shall be punishable with fine which may extend to on lakh rupees, or with imprisonment which may extend to three years, or with both.

The project involves rehabilitation of roads and underground utility works at the existing roads near PCRs, rehabilitation of food streets etc. There are 203 PCRs protected under this act and are located in Karachi District. Impacts envisaged may relate to the (i) repairs, renovation, etc., (ii) execution of civil works/ excavation in surrounding PCRs. The possible discovery of archeological sites or random findings during the execution of civil works will require measures to manage chance finds. Since the exact locations of subprojects are not known at this moment, a guideline for identification of physical cultural resources and determination of the suitability of the subprojects from the perspective of PCR is provided in the ESMF. The ESMF also includes "Chance Find" procedures for protection of cultural property and contracts for subcontractors will include "Chance Find" procedures.

3.2.5. Sindh Local Government Act, 2013[13]

Sindh Local Government Act was passed in 2013 and extends to the whole of Sindh Province. It aims to establish an elected local government system to devolve political, administrative and financial responsibility and authority to the elected representatives of the local governments; to promote good governance, effective delivery of services and transparent decision making through institutionalized participation of the people at local level; and, to deal with ancillary matters. It deals with the matters such as Constitution and Composition of Councils, Local Government Elections, Functions of the Councils, Local Taxation, Local Fund and Property, Administration of Service and Transitional Provisions. In the nutshell, the local governments are administered by this act which defines their composition, functions, scope and other related matters.

Metropolitan governance in Karachi is framed by the Sindh Local Government Act 2013 (SLGA 2013), with a metropolitan entity for the entire city area and district-level municipal entities under it. Newly elected local governments (LG) for Karachi came into office in August 2016 after a gap of six years. LGs in Karachi

[13] The Sindh Local Government Act, 2013. Sindh Act NO. XLII OF 2013. (Sep, 2013)

include the Karachi Metropolitan Corporation (KMC – headed by elected Mayor and Deputy Mayor) at the metropolitan level and six District Municipal Corporations (DMCs – headed by elected Chairmen and Vice Chairmen) at the District level. These LGs collectively provide municipal functions in the urban areas of Karachi—i.e. the Karachi Division (an administrative unit consisting of six districts[14]) with municipal functions divided between KMC and DMCs. There is no formal coordination or relationship between KMC and DMCs, creating another layer in city governance. Government of Sindh (GoS) retains substantial control which limits the autonomy of these LGs, and a number of powers are available to GoS to oversee and regulate the functioning of LGs. GoS has also in the recent past taken over a number of key municipal/ urban functions and removed them from the mandate of LGs. As the province and the city governments are being run by rival political parties, this asymmetrical balance of power is adversely impacting delivery of services and contributing to a lack of vertical integration between various tiers of city governance.

3.3. The World Bank Operational Policies

The application of World Bank Operational Policies is described below in Table 3.1

Table 3.2: World Bank Safeguard Policies Triggered

S#	Environmental Assessment	Policy Reference	Triggered	Not Triggered	Remarks
1.	Environmental Assessment	OP/BP 4.01	✓		This project is classified as "Category B" project per the WB Environment Category since the activities under the project would be small-scale interventions in terms of rehabilitation, restoration, maintenance on the existing footprints to improve livability.
2.	Natural Habitat	OP/BP 4.04		✓	This OP is not triggered as the project components will not impact natural habitat.
3.	Pest Management	OP 4.09		✓	This policy is not triggered since the project components do not involve the use pesticide / pest management.
4.	Indigenous People	OP/BP 4.10		✓	There are no known indigenous people as defined by OP 4.10 in Karachi District.
5.	Physical Cultural Resources	OP/BP 4.11	✓		The World Bank's general policy regarding cultural properties is to assist in their preservation, and to seek to avoid their elimination. As discussed above, the project involves rehabilitation of roads and underground utility works at the existing roads near PCRs, rehabilitation of food streets etc. There are 211 sites of archeological, cultural and historical significance distributed all over Karachi District and in subproject sites. Therefore, this OP is triggered. While PCR sites will not be touched by the Project, there may be impacts envisaged on them due to execution of civil works in surrounding areas. Also,lesser known monuments may be present in areas where civil works take place.. The

[14] Karachi Division is an administrative unit comprising six districts of Karachi, namely: East, West, South, Central, Korangi and Malir There is one DMC for each of these six districts. Rural areas of the Division, which lie in the periphery of the city, fall under a separate LG, the District Council, with its own elected council and chairperson. From 2001 to 2010, under a previous LG law, the entire Karachi Division was consolidated as the City District Government Karachi and was run by a single elected Nazim (mayor). For more details see https://en.wikipedia.org/wiki/Government_of_Karachi

					possible discovery of archeological sites or random findings during the rehabilitation of cultural landscapes and/or the execution of civil works will require measures to manage chance finds. Since the exact locations of subprojects are not known at this moment, a guideline for identification of physical cultural resources and determination of the suitability of the subprojects from the perspective of PCR is provided in the ESMF (**Annex E**). The ESMF also includes "Chance Find" procedures for protection of cultural property and contracts for subcontractors will include "Chance Find" procedures.
6.	Involuntary Resettlement	OP/BP 4.12	✓		There is no land acquisition and permanent resettlement under the Project. Civil works components under KNIP will be undertaken on government land and existing ROW. They will repair, refurbish and improve existing infrastructure and public spaces. However, there may be land acquisition required for developing parking places/plazas. Temporary access to land may be required for storage of machinery on site. Also on the existing ROW of subproject areas, it can be observed that hawkers / shopkeepers have encroached the streets and sidewalks and placed their assets on sidewalks. Temporary impacts on livelihoods are expected to take place due to civil works.. Therefore OP 4.12 has been triggered. The impacts and measures to avoid, mitigate or compensate the loss of PAPs will be covered under Resettlement Policy Framework and subproject RAPs/ARAPs.
7.	Forestry	OP 4.36		✓	This OP is not triggered since the sub-projects will not be located in the forest areas.
8.	Safety of Dams	OP 4.37		✓	This OP is not relevant since the proposed project does not involve construction of dams.
9.	Projects on International Waterways	OP/BP 7.50	✓		This OP is triggered as the subproject interventions involve the rehabilitation and improvement of sewerage and storm water drainage systems in the subproject areas, which currently pollutes the two tributaries (i.e. Lyari River and Malir Rover) of Indus River System which is as per Indus Water Treaty designated as International Waterway between India and Pakistan. These tributaries of Indus River System run exclusive in Pakistan which is lowest downstream riparian. As per this OP, rehabilitation work is exempted from notification under section 7(a).

3.3.1. Environmental Assessment (OP 4.01)

The World Bank requires environmental assessment (EA) of projects proposed for Bank financing to help ensure that they are environmentally sound and sustainable, and thus to improve decision making. The OP defines the EA process and various types of the EA instruments. The proposed project may consist of

activities which can potentially have negative environmental and social impacts, hence the Policy is triggered and this ESMF has been developed. Since the activities under the project would consist of rehabilitation, restoration, maintenance of the existing infrastructure and public spaces to improve people's livability, the level of environmental impacts is likely to be low to moderate. This project is classified as "Category B" project per the WB Environment Category since no irreversible, long-term and significant adverse impacts are foreseen to take place as a result of its implementation.

The OP 4.01 also defines ESMF as "An instrument that examines the issues and impacts associated when a project consists of a program and/or series of sub-projects, and the impacts cannot be determined until the program or sub-project details have been identified. The ESMF sets out the principles, rules, guidelines and procedures to assess the environmental and social impacts. It contains measures and plans to reduce, mitigate and/or offset adverse impacts and enhance positive impacts, provisions for estimating and budgeting the costs of such measures, and information on the agency or agencies responsible for addressing project impacts. The term "Environmental Management Framework" or "EMF" may also be used."

The Project intends to finance a variety of types of interventions (e.g. food streets, markets and bazaars; community amenities and public toilets; improved paving for sidewalks, pedestrian crossings and roads; street lighting, landscaping, street furniture including MSW containers and bins, or navigation signs; playgrounds, sports fields, or community centers; reorganized street parking or improved bus facilities; repaving roads with rehabilitation of selected underground network; reorganizing parking at selected locations; and better street crossings at appropriate locations) that can have adverse but small nature environmental impacts. **The ESMF checklist is designed to identify these potential impacts, and direct communities and project teams to find practical ways of avoiding or mitigating them. If sub-project screening used by implementing agencies that more detailed planning work is required, they can require that an acceptable sub-project ESMP be prepared before the project application can be considered further.**

3.3.2. Natural Habitat (OP 4.04)

The conservation of natural habitats, like other measures that protect and enhance the environment, is essential for long-term sustainable development. The Bank therefore supports the protection, maintenance, and rehabilitation of natural habitats and their functions.

This OP is not triggered as the project interventions will not have any impact on natural habitats

3.3.3. Pest Management (OP 4.09)

Through this OP, the WB supports a strategy that promotes the use of biological or environmental control methods and reduces reliance on synthetic chemical pesticides. This policy is triggered for A4N component as the component comprising activities engaging with pesticides and pest management.

This policy is not triggered since the project components do not involve the use pesticide / pest management.

3.3.4. Indigenous People (OP 4.10)

For purposes of this policy, the term "Indigenous Peoples" is used in a generic sense to refer to a distinct, vulnerable, social and cultural group possessing characteristics in varying degrees.

There are no indigenous people in the project area. Hence OP 4.10 is not triggered.

3.3.5. Physical Cultural Resources (OP 4.11)

The World Bank's general policy regarding cultural properties is to assist in their preservation, and to seek to avoid their elimination. The specific aspects of the Policy are given below.

- The Bank will assist in the protection and enhancement of cultural properties encountered in Bank-financed projects, rather than leaving that protection to chance. In some cases, the project is best relocated in order that sites and structures can be preserved, studied, and restored intact in situ. In other cases, structures can be relocated, preserved, studied, and restored on alternate sites. Often, scientific study, selective salvage, and museum preservation before destruction is all that is necessary. Most such projects should include the training and strengthening of institutions entrusted with safeguarding a nation's cultural patrimony. Such activities should be directly included in the scope of the project, rather than being postponed for some possible future action, and the costs are to be internalized in computing overall project costs.
- This policy pertains to any project in which the Bank is involved, irrespective of whether the Bank is itself financing the part of the project that may affect cultural property.

The project involves rehabilitation of roads and underground utility works at the existing roads near PCRs, rehabilitation of food streets etc. There are 211 sites of archeological, cultural and historical significance distributed all over Karachi District and in subproject sites. Therefore, OP 4.11 is triggered.

Since the exact locations of subprojects are not known at this moment, a guideline for identification of physical cultural resources and determination of the suitability of the subprojects from the perspective of PCR is provided in the ESMF (Annex E). The ESMF also includes "Chance Find" procedures for protection of cultural property and contracts for subcontractors will include "Chance Find" procedures.

3.3.6. Involuntary Resettlement (OP 4.12)

The WB"s experience indicates that involuntary resettlement under development projects, if unmitigated, often gives rise to severe social and economic risks. This policy includes safeguards to address and mitigate these risks. The overall objectives of the Policy are:

- Involuntary resettlement should be avoided where feasible, or minimized, exploring all viable alternative project designs.
- Where it is not feasible to avoid resettlement, resettlement activities should be conceived and executed as sustainable development programs, providing sufficient investment resources to enable the persons displaced by the project to share in project benefits.
- Displaced persons should be assisted in their efforts to improve their livelihoods and standards of living or at least to restore them.

The civil works components under KNIP will be undertaken on government land and existing ROW. However, potential sites are known to be areas where mobile vendors and hawkers ply their trade. Further, several shopkeepers are known to have encroached upon the streets and sidewalks and placed their assets on them. Therefore, interventions under this project may affect these livelihoods and assets of local people. Therefore, this policy is triggered.

The impacts and measures to avoid, mitigate or compensate the loss of PAPs will be covered under Resettlement Policy Framework and subproject RAPs/ARAPs.

3.3.7. Forestry (OP 4.36)

The objective of this Policy is to assist the WB's borrowers to harness the potential of forests to reduce poverty in a sustainable manner, integrate forests effectively into sustainable economic development, and protect the vital local and global environmental services and values of forests.

This policy is not triggered because the interventions of the project component will be developed in urban areas of Karachi District and will not relevant to any reserved forest protected under Forest Department, Government of Sindh. Therefore, this OP is not triggered.

3.3.8. Safety of Dams (OP 4.37)

The Policy seeks to ensure that appropriate measures are taken and sufficient resources provided for the safety of dams the WB finances.

This OP is not relevant since the proposed project does not involve construction of dams.

3.3.9. Projects on International Waterways (OP 7.50)

This OP defines the procedure to be followed for projects the WB finances that are located on any water body that forms a boundary between, or flows through two or more states.

This OP is triggered as the subproject interventions involve the rehabilitation and improvement of sewerage and storm water drainage systems in the subproject areas, which currently pollutes the two tributaries (i.e. Lyari River and Malir Rover) of Indus River System which is as per Indus Water Treaty designated as International Waterway between India and Pakistan. These tributaries of Indus River System run exclusive in Pakistan which is lowest downstream riparian.

As per this OP, rehabilitation work is exempted from notification under section 7(a).

3.3.10. Disclosure of Operational Information (BP 17.50)[15]

The World Bank recognizes that transparency and accountability are of fundamental importance to the development process and to achieving its mission to alleviate poverty. Transparency is essential to building and maintaining public dialogue and increasing public awareness about the Bank's development role and mission. It is also critical for enhancing good governance, accountability, and development effectiveness. Openness promotes engagement with stakeholders, which, in turn, improves the design and implementation of projects and policies, and strengthens development outcomes. It facilitates public oversight of Bank-supported operations during their preparation and implementation, which not only assists in exposing potential transparency issues, but also enhances the possibility that problems will be identified and addressed early on.

In accordance with this Policy, the present ESMF will be disclosed to public and also available on the World Bank's InfoShop. The ESMF's Urdu translation will be available at the official website of the PIU (http://www.urbandirectorate.gos.pk/) or P&D. The subproject specific ESMPs and RAPs/ARAPs will also be available on the official websites of PIU. For all other subprojects potentially causing low level of environmental and / or social impacts, the subproject assessment and mitigation checklists will be maintained on file at the PIU throughout the life of the project.

[15] Safeguard Policies, A Quick Review – The World Bank, Tiblisi (April, 2008)

3.4. Obligations under International Laws/Treaties

Pakistan is signatory of several Multilateral Environmental Agreements (MEAs), including:

- UN Framework Convention on Climate Change (UNFCCC),
- Kyoto Protocol,
- Montreal Protocol,
- UN Convention to Combat Desertification,
- Stockholm Convention on Persistent Organic Pollutants (POPs),
- Cartagena Protocol.

These MEAs impose requirements and restrictions of varying degrees upon the member countries, in order to meet the objectives of these agreements. Therefore the provisions of these laws and treaties are to be taken care of if any of the project activity falls in the jurisdiction of any of the above mentioned MEAs.

3.5. Administrative Framework

Environmental issues are governed by Provincial Government. The Government of Sindh (GOS) has designated its Ministry of Environment and Alternative Energy, to administer matters related to the environment in Sindh.

3.5.1. Institutional Setup for Environmental Management

The highest environmental body in the country is the Pakistan Environmental Protection Council (PEPC), which is presided over by the Chief Executive of the country. Other bodies include the Pakistan Environmental Protection Agency (Pak-EPA), provincial EPAs (for four provinces, AJK and Northern Areas), and Environmental Tribunals. The Federal government has also formed the Federal EPA, which is headed by a Director General and has wide-ranging functions given in PEPA 1997. These include the preparation and coordination of national environmental policy for approval by the PEPC, administering and implementing the PEPA 1997 and preparation, revision or establishment of NEQS. The Provincial Environmental Protection Agencies are formed by the respective Provincial Governments. A Director General who exercises powers delegated to him by the Provincial Government heads each Provincial EPA. IEEs and EIAs are submitted to provincial EPAs for approval.

3.6. Environmental and Social Guidelines

Two sets of guidelines, the Pakistan-EPA's guidelines and the World Bank Guidelines are reviewed here. Since Sindh EPA has not formulated separate guidelines therefore, Pakistan EPA's guidelines have been benefited from. These guidelines address the environmental as well as social aspects.

3.6.1. Environmental Protection Agency's Environmental and Social Guidelines

The Federal EPA has prepared a set of guidelines for conducting environmental and social assessments. The guidelines derive from much of the existing work done by international donor agencies and NGOs. The package of regulations, of which the environmental and social guidelines form a part, includes the PEPA 1997 and the NEQS. These guidelines are listed below followed by comments on their relevance to proposed project:

- **Policy and Procedures for Filing, Review and Approval of Environmental Assessments, Pakistan Environmental Protection Agency, September 1997:** These guidelines define the policy context and the administrative procedures that govern the environmental assessment process from the project pre-

feasibility stage to the approval of the environmental report. The section on administrative procedures has been superseded by the IEE-EIA Regulations, 2000.

- **Guidelines for the Preparation and Review of Environmental Reports, Pakistan Environmental Protection Agency, 1997:** The guidelines on the preparation and review of environmental reports target project proponents and specify:
  - The nature of the information to be included in environmental reports
  - The minimum qualifications of the EIA conductors appointed
  - The need to incorporate suitable mitigation measures at every stage of project implementation
  - The need to specify monitoring procedures.
- The terms of reference for the reports are to be prepared by the project proponents themselves. The report must contain baseline data on the Study Area, detailed assessment thereof, and mitigation measures.
- **Guidelines for Public Consultation, Pakistan Environmental Protection Agency, May, 1997:** These guidelines support the two guidelines mentioned above. They deal with possible approaches to public consultation and techniques for designing an effective program of consultation that reaches out to all major stakeholders and ensures the incorporation of their concerns in any impact assessment study.
- **Guidelines for Sensitive and Critical Areas:** The guidelines identify officially notified protected areas in Pakistan, including critical ecosystems, archaeological sites, etc., and present checklists for environmental assessment procedures to be carried out inside or near such sites. Environmentally sensitive areas include, among others, archaeological sites, biosphere reserves and natural parks, and wildlife sanctuaries and preserves.

3.6.2. World Bank Social Guidelines

The principal World Bank publications that contain environmental and social guidelines are listed below.

- Environment, Health, and Safety (EHS) Guidelines prepared by International Finance Corporation and World Bank in 2007
- Pollution Prevention and Abatement Handbook 1998: Towards Cleaner Production
- Environmental Assessment Sourcebook, Volume I: Policies, Procedures, and Cross-Sectoral Issues.
- Social Analysis Sourcebook

The screening checklist (as presented in **Annex B**) is prepared for the subprojects under KNIP would need to comply with the above guidelines. In case of any conflict between the above guidelines and the ones discussed under Section 3.6.1, the WB guidelines will be followed.

Chapter 4 ENVIRONMENTAL AND SOCIAL BASELINE CONDITIONS

This section of the Report presents a broad picture of the existing environmental and social conditions of the Karachi city. Available secondary data from published literature and previous studies conducted by Consultant in the area, case studies, district census reports, and other documents was used to develop the baseline profile. Map of District Karachi with its surroundings is shown below:

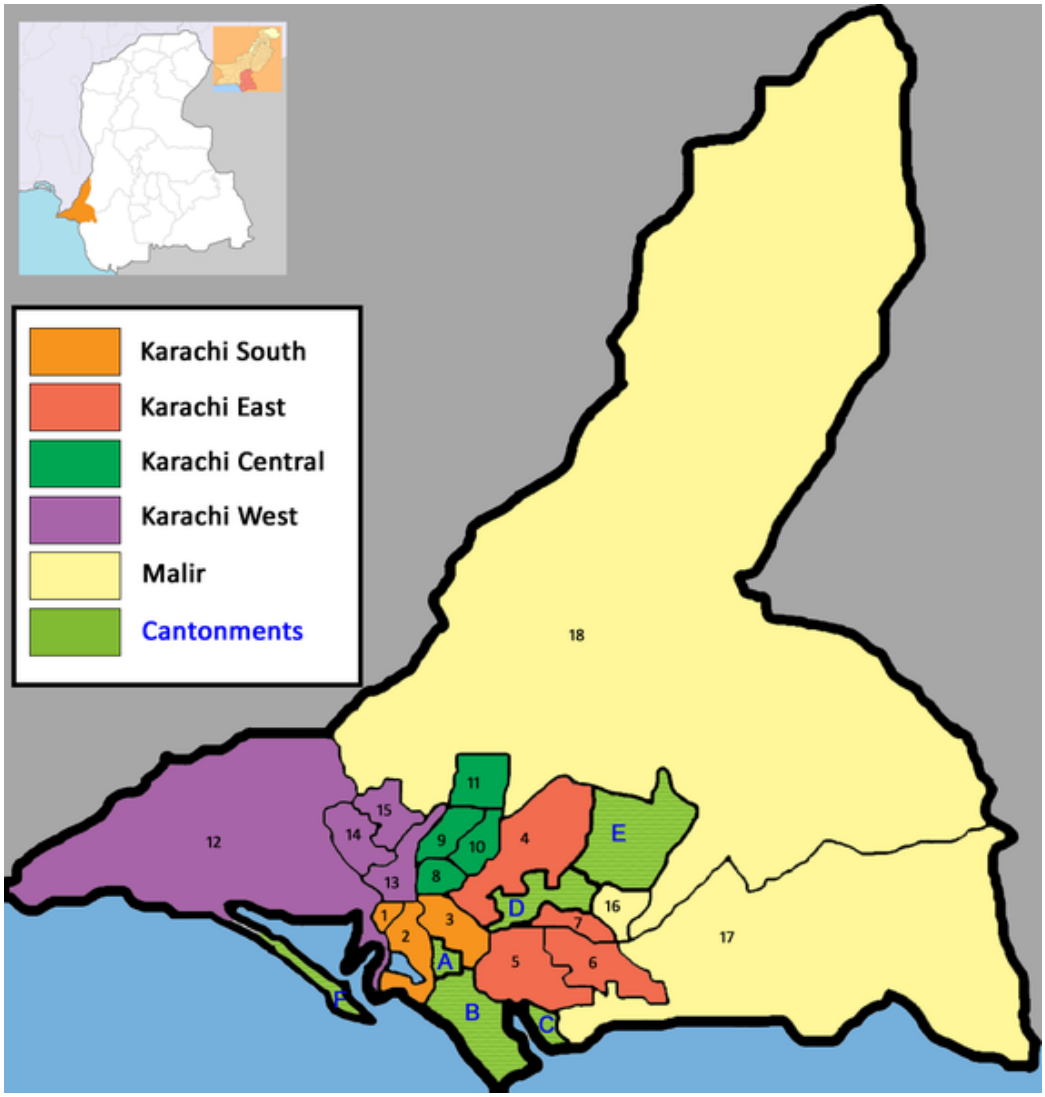


Figure 4.1: Location map of District Karachi[16]

4.1. Physical Environment

Watershed, geology, soil characteristics, hydrology and seismicity: Baseline data on the air shed describes the climatic conditions and quality of air. Similarly baseline data on watershed describes the hydrology and quality of surface and groundwater as well as water availability. Data on geology, geomorphology, soil characteristics and seismicity are needed to evaluate the terrestrial resources with respect to quality of minerals and soil characteristics, particularly stability.

[16] Karachi Metropolitan Corporation Website (www.kmc.gos.pk)

4.1.1. Meteorology & Air Quality

Karachi is located just above the tropical zone i.e. 24° north. It is situated along the coast of Arabian Sea. Both these factors influence the climate of Karachi. It can be characterized by dry, hot and humid condition. There is minor seasonal intervention of a mild winter from mid-December to mid-February into a long hot and humid summer extending from April to September, with monsoon rains from July to mid-September.

4.1.1.1. Temperature

The air temperature in Karachi Division and its coastal areas is generally moderate throughout the year due to presence of sea. Climate data generated by the meteorological station at Karachi Air Port represents climatic conditions for the region. Table 4.1 and 4.2 (below) show that the annual mean maximum temperatures ranged between 32 and 33°C and averaged at 32.6°C, whereas, the annual mean minimum temperatures ranged between 21.0 and 22.5°C and averaged at 21.8°C, at the Karachi Airport Meteorological Station keeping in view the temperature data being recorded for past eleven years (2001 to 2013). During winter the range of variation of temperature is slightly large.

Table 4.1: Mean Monthly Maximum Temperature °C

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
2001	27.2	29.6	33.1	34.6	35.1	34.9	32.2	32.3	33.1	36.0	33.5	30.4	32.7
2002	27.0	28.2	33.3	35.4	35.6	35.1	32.2	31.6	31.4	36.5	32.7	28.1	32.3
2003	27.6	28.5	32.4	36.6	35.7	34.9	34.1	32.6	32.5	37.0	32.2	28.3	32.7
2004	26.6	29.9	36.2	35.4	36.8	35.6	33.8	32.7	32.8	33.7	33.1	29.4	33.0
2005	24.9	26.3	31.5	35.3	35.4	36.0	33.2	32.2	34.2	35.2	33.1	28.4	32.1
2006	26.0	31.3	31.8	34.0	34.6	35.3	33.8	31.0	34.2	35.0	33.4	26.3	32.2
2007	26.9	29.4	31.4	37.7	36.0	36.4	N/A	N/A	N/A	N/A	N/A	N/A	33.0
2008	24.4	26.9	34.3	34.4	33.9	35.1	33.5	31.9	34.7	35.5	32.5	27.2	32.0
2009	26.2	29.8	33.0	36.0	36.8	35.7	34.5	33.0	32.8	35.9	33.0	28.6	32.9
2010	27.5	29.2	34	35.7	36.5	34.7	34.6	33.2	34.5	35.9	32.7	28	33.0
2011	26.9	28.5	33.2	35.8	35.3	35.3	34.2	32.8	32.9	N/A	N/A	N/A	N/A
2012	25.7	26.9	31.7	35.1	35.5	34.6	33.2	32.7	33.2	35.0	32.7	28.2	32.0
2013	26.7	28.0	33.3	34.0	35.1	36.5	33.8	32.1	33.0	35.7	32.3	28.3	32.4

Source: Pakistan Meteorological Department

Table 4.2: Mean Monthly Minimum Temperature °C

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
2001	11.5	14.9	19.6	23.8	28.1	29.0	27.1	26.5	25.9	24.4	18.6	15.8	22.1
2002	12.8	13.8	19.5	23.9	27.0	28.2	29.6	25.6	24.8	22.5	17.7	14.9	21.7
2003	12.7	16.9	19.8	24.2	26.5	28.2	23.6	27.0	25.3	20.9	15.2	12.0	21.0
2004	12.9	14.5	19.1	24.8	27.3	28.8	27.5	26.3	25.3	22.4	18.0	15.4	21.9
2005	12.3	11.3	20.3	23.0	26.4	28.3	27.2	26.6	26.6	22.9	18.9	13.0	21.4
2006	11.7	18.1	19.6	24.5	27.5	28.5	28.3	26.3	26.8	25.7	19.4	14.0	22.5
2007	13.0	17.3	19.7	24.7	27.6	28.6	N/A	N/A	N/A	N/A	N/A	N/A	21.8
2008	10.1	11.1	19.6	24.0	27.3	29.1	27.9	26.8	26.6	23.8	17.6	14.9	21.6
2009	14.7	16.5	20.8	23.8	27.6	28.7	28.1	27.5	26.5	22.6	17.0	13.9	22.3
2010	12.2	14.7	21.3	25.1	28	28.2	28.3	27.2	25.8	23.9	17.4	11.1	21.9
2011	11	14.5	19.7	23.1	27.1	28.8	27.8	28.6	26.5	N/A	N/A	N/A	N/A
2012	11.2	11.9	19.1	24.5	27.2	28.0	27.9	26.9	26.4	22.7	18.6	14.2	21.5
2013	11.6	15.1	19.2	24.2	27.1	29.3	28.0	26.6	25.5	25.4	18.1	13.0	21.9

Source: Pakistan Meteorological Department

4.1.1.2. Precipitation

The rain fall in the Karachi coastal zone is extremely low and erratic; therefore this region falls in the semi-arid climatic zone. Heavy rains exceeding 50 mm (sometimes 100 mm) in a day are common during the monsoon season in north-eastern humid and sub-humid parts of Pakistan and Kashmir which is known as the gateway of the monsoon for the country. However, such events only occasionally occur southward where the climate is mainly arid. Karachi's heavy downpour on 28 July 2003 is one such example. Table 4.3 shows the last thirteen years precipitation data recorded at Karachi Airport station. The record suggests that July and August are the wettest months and that the maximum rainfall recorded in Karachi during 2001-2009 & 2012-2013 period was 270.4 mm during the month of July 2003, while the maximum annual rainfall was 324.9 mm during the year 2003, followed by 301.1 mm in 2006 and 279.9 mm in 2009.

Table 4.3: Monthly Amount of Precipitation (mm) at Karachi Air Port

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
2001	0.0	0.0	0.0	0.0	0.0	10.6	73.6	16.2	N/A	0.0	0.0	0.0	33.46
2002	0.0	2.4	0.0	0.0	0.0	N/A	N/A	52.2	N/A	0.0	0.5	0.4	13.87
2003	6.4	21.8	0.0	0.0	0.0	16.3	270.4	9.8	N/A	0.0	0.2	0.0	54.15
2004	13.7	0.0	0.0	0.0	0.0	N/A	3.0	5.6	N/A	39.3	0.0	4.3	13.18
2005	6.6	12.8	N/A	0.0	0.0	N/A	N/A	0.3	54.9	0.0	0.0	17.1	18.34
2006	N/A	0.0	N/A	0.0	0.0	0.0	66.2	148.6	21.9	0.0	3.1	61.3	60.22
2007	0.0	13.2	33.4	0.0	0.0	110.2	N/A	N/A	N/A	N/A	N/A	N/A	52.26
2008	8.0	Trace	1.1	0.0	0.0	0.0	54.0	37.5	Trace	0.0	0.0	21.0	24.32
2009	3.0	Trace	0.0	Trace	0.0	2.6	159.9	44.0	68.9	0.0	0.0	1.5	55.68
2012	0.2	0.0	0.0	0.0	0.0	Trace	Trace	8.1	121.0	0.0	0.0	22.8	152.1
2013	Trace	20.0	2.8	30.0	0.0	Trace	5.5	105.4	4.0	1.2	0.0	0.0	168.9

Source: Pakistan Meteorological Department

4.1.1.3. Wind Speed & Direction

The wind is another important feature of coastal region. It is variable and is faster in summer than in winter. The highest velocity has been observed during monsoon. The velocity increases from morning on wards to the evening. Northerly to North-Easterly winds prevail during the morning hours, changing to Westerly and South-Westerly directions for rest of the day. The wind usually blows from 7.4 to 20.5 Km/h during summer. The wind blows throughout the year with highest velocities, during summer it has direction from south-west to west. During winter, wind blows from north to northeast and shifts southwest to west in the evening hours. This high velocity wind usually carries sand and salt, resulting in erosion as well as corrosion. The wind velocity varies between 3-15 m/s. The wind direction and speed between the two monsoon seasons viz. summer and winter are rather unsettled or large variations are noted both with respect to speed and direction. The wind speed and wind direction of Hyderabad is given in Table 4.4 and Table 4.5 and wind speed and wind direction of Karachi is given in Table 5.9 and Table 5.10.

Table 4.4: Mean Monthly Wind Speed (m/s) at 12:00 UTS (Karachi)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
2001	2.6	3.4	4.3	5.6	7.5	8.1	6.8	7.3	5.5	3.7	2.0	2.4	4.9
2002	3.6	3.9	4.0	6.5	8.5	8.2	9.8	7.3	7.7	3.3	2.9	3.2	5.7
2003	4.0	5.0	5.4	5.2	7.7	8.8	6.7	7.1	6.0	3.2	3.1	3.0	5.4
2004	3.4	3.7	4.0	6.0	8.0	9.0	10.0	9.5	7.3	3.8	1.0	2.5	5.7
2005	3.6	4.2	4.8	5.1	7.1	7.5	9.0	6.9	6.4	3.9	2.0	1.5	5.2
2006	2.0	3.0	3.0	6.2	8.0	7.7	8.3	6.2	4.7	4.2	2.2	3.0	4.9
2007	2.0	3.7	4.0	4.0	6.0	6.3	N/A	N/A	N/A	N/A	N/A	N/A	4.3
2008	4.3	7.6	8.2	10.5	12.6	7.6	11.0	9.3	8.7	6.6	5.1	3.9	7.9
2009	7.0	7.2	7.9	9.3	9.8	9.7	9.5	9.3	9.1	6.1	5.0	3.9	7.8

Source: Pakistan Meteorological Department

Table 4.5: Mean Monthly Wind Direction at 12:00UTS (Karachi)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2001	S54W	S43W	S42W	S45W	S46W	S45W	N52W	S59W	S44W	N56W	S45W	S06W
2002	S67W	S52W	S51W	S55W	S51W	S42W	S54W	S45W	S48W	S56W	N54W	S41W
2003	S60W	N50W	S45W	S48W	S45W	S68W	S60W	S47W	S43W	S54W	S50W	S27W
2004	N27E	S46W	S53W	S49W	S52W	S54W	S54W	S62W	S56W	S47W	S45W	N86E
2005	N63E	S51W	S50W	S52W	S63W	S48W	S54W	S49W	S87W	S54W	S52W	N23W
2006	S48W	S62W	S50W	S57W	S64W	S60W	S67W	S78W	S51W	S53W	S49W	N79E
2007	S30W	S62W	S47W	S55W	S58W	S47W	S41W	S55W	S60W	S48W	S48W	N45E
2008	N45E	S47W	S54W	S51W	S52W	S39W	S50W	S52W	S46W	S39W	S38W	N45E
2009	N45E	S45W	S41W	S58W	S46W	S46W	S56W	S49W	S56W	S42W	S39W	S45E

Source: Pakistan Meteorological Department

4.1.1.4. Ambient Air Quality and Noise

Urbanization and motorization have taken place in Karachi with inadequate government and technological support for sustainable development plans. The negative externalities of the transport sector have gradually harmed the environmental conditions in urban areas and are continuing to exacerbate the quality of life. The unchecked growth in vehicle numbers combined with an aging and ill maintained vehicle stock has degraded the road environment which has resulted in severe congestion on the roads along with serious levels of air and noise pollution.

Motor vehicle and motorcycle ownership is growing at a rate of approximately 14 per cent per annum (over 500 new vehicles joining the road network each day). This is potentially the most significant threat to Karachi's opportunity to improving the quality of life of city residents. This extraordinary rate of growth has major adverse implications for pedestrians, air quality, the public transport system, road safety and the overall livability and accessibility of the city (ADB, 2007).

An air quality assessment was done by EMC Pakistan Pvt. Ltd. under "EIA of Proposed Bus Rapid Transit Project" in proposed BRT corridors which also includes some project locations in which interventions are planned under KNIP. Below table provides the results of air quality assessment:

Location	SO_2 ($\mu g/m^3$)	NO ($\mu g/m^3$)	NO_2 ($\mu g/m^3$)	CO (mg/m^3)	SPM ($\mu g/m^3$)	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)
Numaish intersection	59.90	189.40	104.13	5.52	226.73	80.04	24.45
KMC Market	71.86	177.84	92.46	5.42	194.13	85	29.31
Tower	131.65	252.97	97.18	6.56	212.48	81.22	26.32
SEQS	120	40	80	5	500	150	75

Source: Courtesy of EMC Pakistan Survey Team

The above results show that the NOx and SO_2 emissions are exceeding due to vehicular emissions and traffic congestion on these intersections.

Arsalan (2002) divides Karachi into five risk zones. The 'very high risk' and 'high risk zones' cover more than 18 sq.km of the area which covers the main areas of urban activity in Karachi (Figure 4.2). A population that is little less than one million always have to suffer the aftermath of polluted risk. These, being the most congested areas of the city, show that the noise level has risen above the tolerance limits (Zaidi, 1990). It is further reported that the areas in the vicinity of the city center seem to be suffering the same level of noise pollution, which are not among the very high risk areas of air pollution.

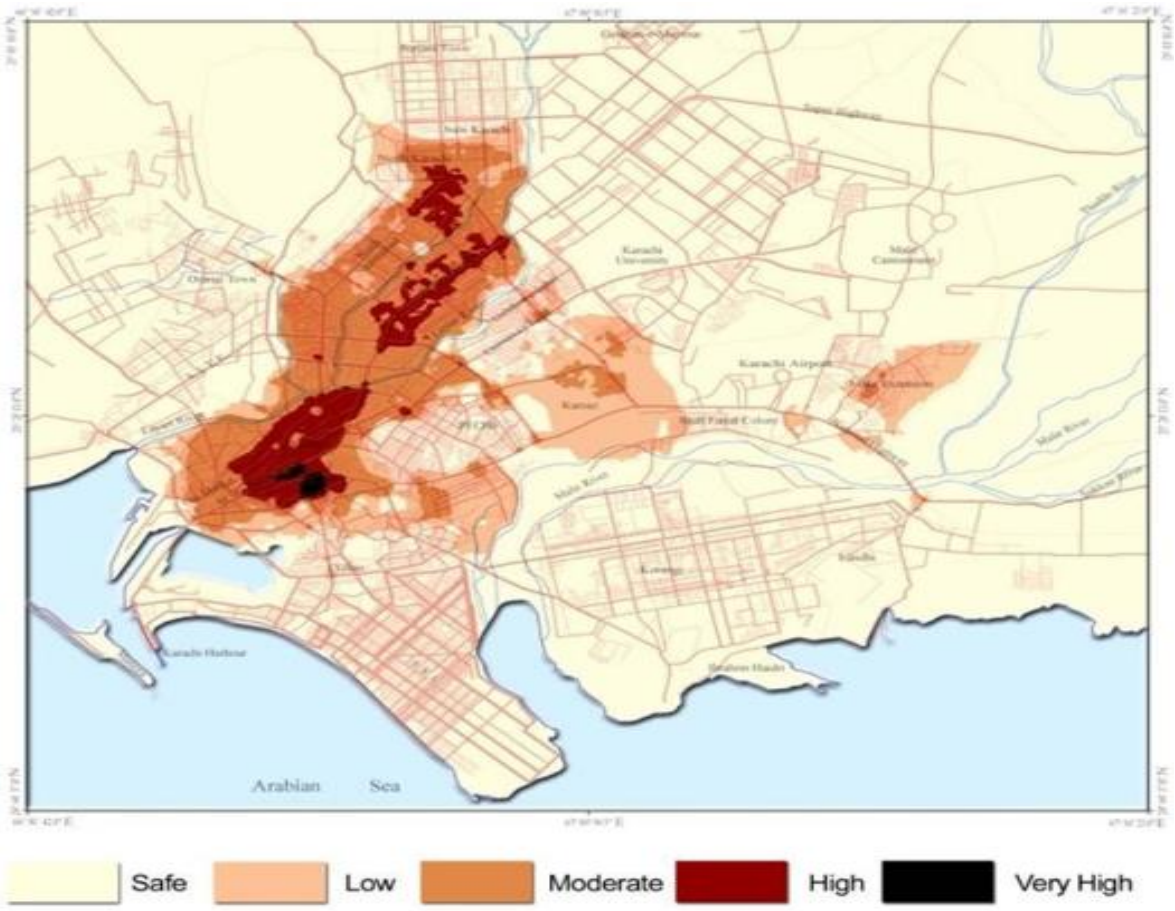


Figure 4.2: Risk of air pollution to the dwellers of Karachi (Source: Multi-criteria risk assessment - Arsalan, 2002).

4.1.2. Geomorphology of Karachi

Karachi is located in the south of Sindh, on the coast of the Arabian Sea. It covers an area of approximately 3,600 km2, comprised largely of flat or rolling plains, with hills on the western and northern boundaries of the urban sprawl. The city represents quite a variety of habitats such as the sea coast, islands, sand dunes, swamps, semi-arid regions, cultivated fields, dry stream beds, sandy plains, hillocks. Classified according to physiographic features, Karachi City District can be divided into three broad categories: Hilly Region (Mountain Highland), Alluvial Plain (Piedmont Plain) and Coastal Areas (Valley Floor).

The metropolitan area is divided by two non-perennial river streams namely Lyari and Malir Rivers. The Malir River flows from the east towards the south and center, and the Lyari River flows from north to the south west. Gujjar and Orangi are the two main tributaries of the Lyari River while Thaddo and Chakalo are the main tributaries of the Malir River. The dry weather flow of both rivers carries urban sewage that is ultimately drained in the Arabian Sea. Among the various physiographic features, low flat-topped parallel hills devoid of vegetation, interspersed with widespread plains and dry riverbeds are the main topographic characteristics of the city.

4.1.3. Geology[17]

According to Bender and Raza (1995), the geological structural setup of Karachi region belongs (Southern India Basin which is a result of the rifting during Triassic, oblique collision of the Indo-Pakistan plate with

[17] Preparatory Survey (II) on Karachi Circular Railway Revival Project, 2013, prepared by JICA

the Afghan blocks during the Late-Cretaceous and Palaeogene, and by post collision deformation during Neogene and Quaternary periods. Tectonically, the counter clockwise movement of Indian plate during Eocene time, after its collision with Eurasian plate, has resulted in the formation of Karachi Embayment. It has remained as a trough in the recent geological time. It was followed by structural deformation in the late Pleistocene to middle Pleistocene related to the Himalayan Orogeny.

This arc forms the southern-most part of the Kirthar Mountain and the southwestern margin of Lower Indus Basin. It is bounded by Ornach-Nal Fault in the west and Hyderabad High in the East. The southern part of the embayment is submerged in the sea and still receiving sediments from different sources. It is comprised of a series of parallel to sub parallel short, narrow, serrate, accurate (convex to east) ridges and wide, dome-shaped anticlinal hills. It forms nearly 200 km long and 50 km wide zone between Karachi and Sehwan. The Bhit range, Bhadra range, Lakhi hills and Lakhra hills are some of its more prominent components. The altitude of the Hills varies from 250 m in the south to about 1,100m in the north. The Naing, Baram and Malir River are the main streams draining this region.

The Trough is characterized by thick Early Cretaceous sediments and also marks the last stages of marine sedimentation. This localized deposition represents a unique feature where no hiatus in sedimentation occurs. Sembar and Goru (Cretaceous) of several meters thickness, overlain Parh Mughal Kot and Pub formations. The Paleocene sequences are marked by Rani Kot formation. The Eocene is represented by Ghazij Shale and carbonates of Kirthar and Laki formation. The Oligocene is represented by the Nari formation which is underlain by Gaj formation of Miocene age. The submerged part of embayment is still receiving sediments from sources of proto Indus drainage system (Shoaib & Rafi, 2004).

Figure 4.3 shows the geological features of Karachi District.

4.1.4. Hydrogeological Features[18]

The city of Karachi lies in the Hab River Basin and the Malir River Basin. The Malir River Basin is drained by the Malir River and the Layari River. The aquifer of Karachi is, therefore, mainly recharged by seepage from Hab River, Hab Dam as well as the Malir and the Layari Rivers. The Hab River lies on the western frontier of Sindh and, for some distance, the boundary between Sindh and the Baluchistan provinces. It is located about 30 km to the west of Karachi, along the Karachi- Lasbela boundary. It falls into the Arabian Sea near Cape Monze, with a total drainage course length of 336 km.

During the past several years, a number of pumping wells have been installed to meet requirements for the irrigation-water supply (to cultivate vegetables, fruits and produce dairy and poultry) and drinking-water supply for Karachi. Excessive pumping of groundwater and continuous lowering of water-table is likely to result in intrusion of seawater into the Malir Basin under natural seepage conditions and under artificially induced conditions of recharge of saline seawater in the coastal aquifer(s) of Karachi.

4.1.4.1. Recharge sources

Five possible water-sources are contributing to the groundwater recharge in Karachi. The first possible source is the rainfall. As the city of Karachi suffers from deficit of precipitation (only rainfall), the contribution to shallow groundwater storage from rain is very little.

[18] Preparatory Survey (II) on Karachi Circular Railway Revival Project, 2013, prepared by JICA

However, rainfall in the hinterlands and other areas surrounding Karachi may significantly contribute to the groundwater flow-system. The two freshwater sources are the Hab Lake/Hab Dam and the Indus River. Water from Hab Dam and the Indus River is piped to various residential zones in Karachi for drinking and irrigation purposes. The spring water discharges into Malir River and Layari River and the municipal/industrial waste effluents added to these rivers are also contributing to groundwater storage as a fourth recharge source. Seawater intrusion along Karachi coast is the fifth possible source.

4.1.4.2. Shallow Groundwater

Physical and chemical data of shallow groundwater (depth less than 30 meters) shows that the shallow wells, located in the vicinity of coast and in the proximity of polluted rivers, have relatively higher values of electrical conductivity, salinity and population of Coliform bacteria. The shallow groundwater is moderately saline, representing electrical conductivity values in the range of 1.1 to 1.9 mS/cm and salinity in the range of 1 ppt. The pH of shallow groundwater varies from mildly acidic (~6.3) to mildly alkaline values (~7.9). Areas with quite poor sanitary conditions have relatively low values of pH (~6.3 to 6.8). Shallow groundwater below 20 meters is slightly reducing. The dissolved oxygen is in the range of 1.5 to 7.9 mg/L. Turbidity of shallow groundwater varies between 3.6 NTU and 95 NTU. The concentration of HCO_3^- (356-514ppm, n=4), Cl^- (82 - 169 ppm, n=4) and $SO4^{-2}$ (38-117 ppm, n=4) in shallow groundwater is very reasonable.

4.1.4.3. Deep Groundwater

In general, Deep groundwater is mostly saline and has high electrical conductivity (range: 1.9-19.1 mS/cm) and salinity (range: 1.7-7.4 ppt), as compared to shallow groundwater.

Based on hydro-chemical data of water samples collected from pumping wells, it is assumed that the shallow mixed deep groundwater discharged by large-scale pumping wells mainly represents the deep groundwater from confined aquifer.

4.1.4.4. Groundwater Recharge Characteristics/ Sea water Intrusion

Presently, coastal Karachi is known to have five sources of recharge to its groundwater reserves.

i. Rainfall,
ii. Indus River water supply
iii. Hab-River and Hab Lake water supply
iv. Polluted Layari and Malir rivers/ contributory channels draining mixtures of domestic industrial and agricultural wastewater, composed of pre-said three sources

4.1.4.5. Seawater

The possibilities of major contribution to groundwater recharge of shallow / phreatic aquifer directly by local rainfall seems very small, due to very poor frequency of rainfall events and rainfall intensities in the Karachi and high evaporation rates. The long-term (15 years annual record) mean monthly average precipitation for Karachi is between 0-15 mm during the months of January to June, 23 - 91 mm during the months of July to September, and 0-7 mm during the months of October to December.

The remaining four sources play a significant role in recharge of the shallow aquifer-system and deep groundwater system (confined aquifer) in coastal Karachi.

Unpolluted seawater of Karachi coast is characterized by a $\delta^{18}O$ value of ~ +1 ‰ VSMOW and a chloride content of ~23000 ppm. Both, the Layari River and Malir River waters, as well as the Indus River water and the Hub Lake water, have extremely very low aqueous contents of chloride and sulfate ions as compared to seawater. The average mean value of $\delta^{18}O$ in polluted river waters is ~ 5 ‰ V-SMOW and in shallow groundwater is -5.9 ‰ V-SMOW.

The relatively deeper ground waters representing confined aquifer have a mean $\delta^{18}O$ value of -4.3 ‰ VSMOW and excessively high values of aqueous chloride and sulfate.

4.1.5. Seismology of Karachi region

Karachi is located close to a plate boundary and within reach of earthquakes on numerous tectonically active structures surrounding the city. Geologically, Karachi is located on the southern margin of the geological trough which lies in the southern extension of the Kirthar range. The trough is delineated by severely deformed mountain ranges namely the Mor Range, Pab Range and Bela ophiolite/melange zone to the west, Kirthar Range to the north and the east, and by the Indus delta and the Arabian Sea creeks to the south. The trough may be subdivided into three principal regions.

A. Northern relatively uplifted region.
B. Southern submerged region
C. Western monocline

According to the seismic zone map of Pakistan prepared by Geological Survey of Pakistan and Pakistan Meteorological Department (PMD), the sub-project sites lie in Zone 2B where minor to moderate damage can occur, as given in Fig. 4.4 and zones are defined in table 4.7.

Table 4.6: Seismic Zones	
Seismic Zone	Peak Horizontal Ground Acceleration
1	0.05 to 0.08g
2A	0.08 to 0.16g
2B	0.16 to 0.24g
3	0.24 to 0.32g
4	>0.32g

Source: Guidelines of "Pakistan Building Code (PBC-2007)"

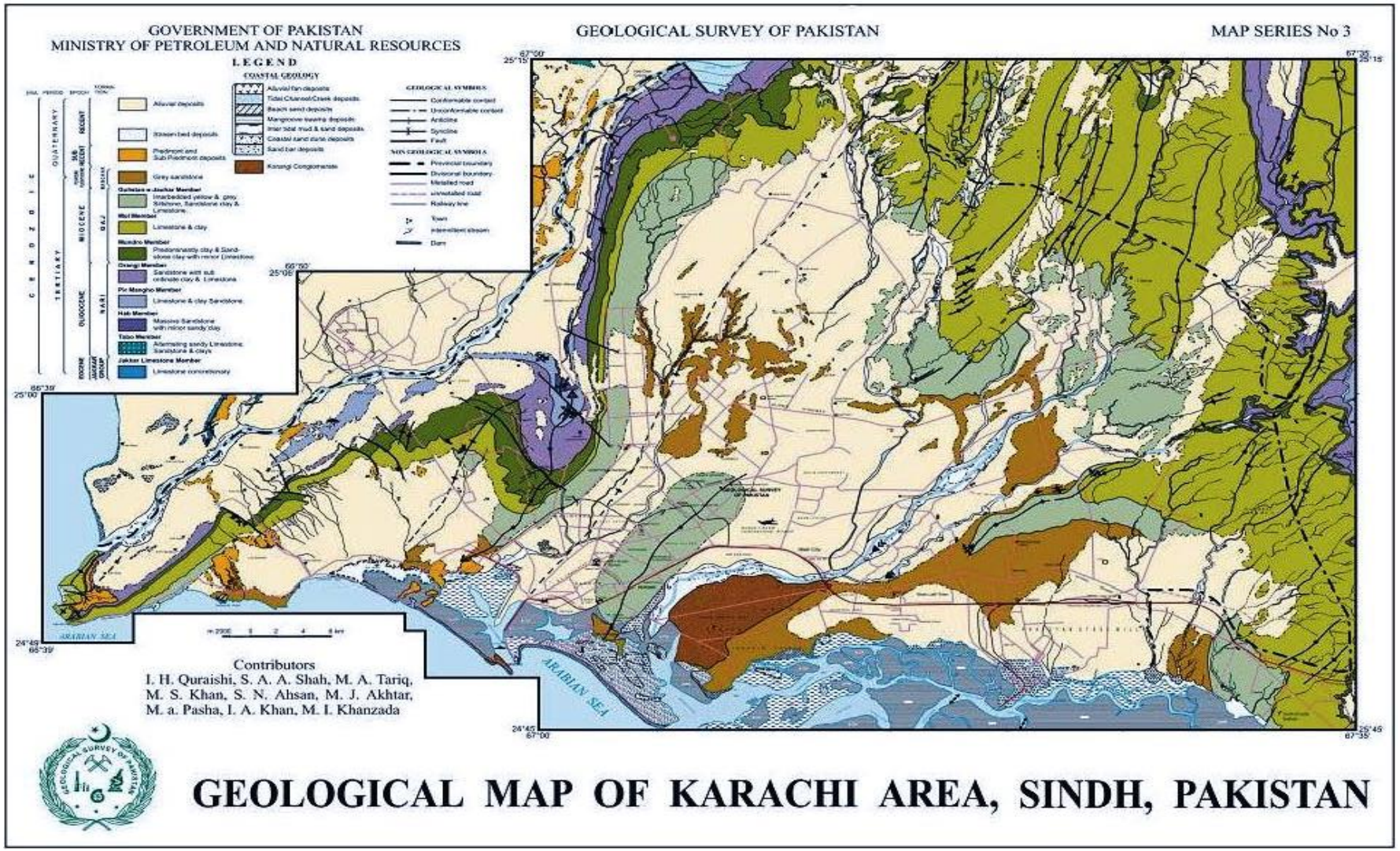


Figure 4.3: Geological Map of Karachi[19]

[19] Geological Survey of Pakistan

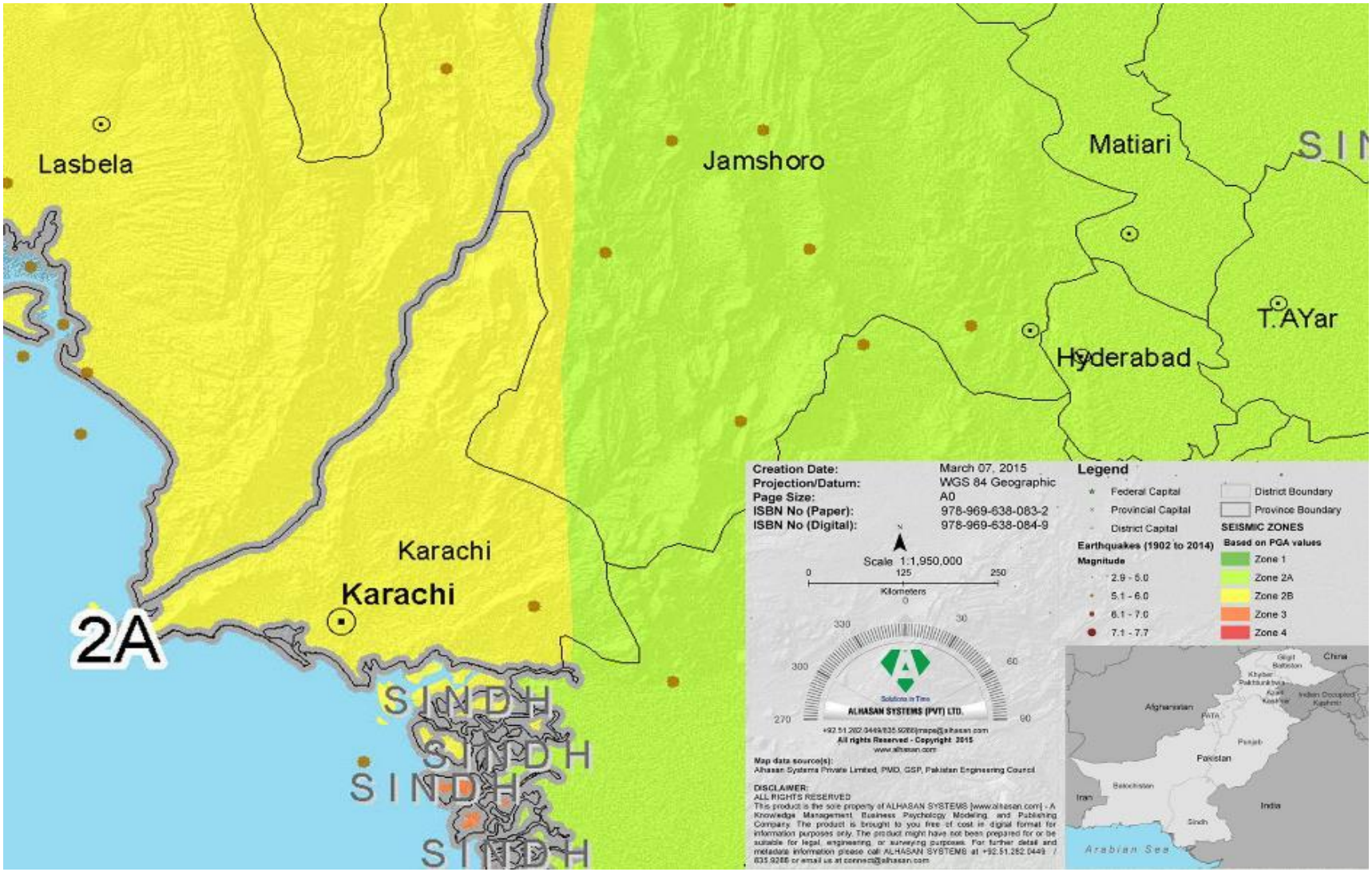


Figure 4.4: Seismic Zones of Sindh[20]

[20] Map data source(s): PMD, GSP, Pakistan Engineering Council – Prepared by Al hasan Systems Private Limited

4.2. Ecological Baseline[21]

Condition of the physical environment described above suggests that it would be difficult for natural vegetation to survive under harsh climatic conditions, accentuated by drought, and multiplied by land clearance activities demanded by the forces of urbanization. Natural vegetation is restricted all over the urban area to depression areas where moisture would be available for greater part of the year and longer period of time.

4.2.1. Flora of Karachi

The native vegetation is of the desert scrub type comprising a wide variety of bushes and shrubs, including karir (*capris aphylia*), babul (*Acacia nilotica*), khor (*Acacia senegal*), khabar (*Salvadora oleoides*), kandi (*Prosopsis senegal*), kikar (*Acacia arabica*), lai (*Tamarix gallica*), *tamarix aphylla, populus euphratica* (willo or bahan), *Aerua javanica, Maerva arenaria, Abutilou sp, Amaranthus viridis, Cordia gharaf, Rhazya sticta,* karil (*capparis aphyila*), acacia or siris (*acacia lebbek*), papal (*ficus religiosa*) and tamarind (tamarindus indica).

The biodiversity of vegetation on the sandy plains and low hills of urban Karachi is characterized by ephemeral species plus trees and shrubs, including *Prosopis cineraria, Acacia nilotica, Tamarix aphylla, Lycium shawii, Salvadora oleoides, Zizyphus sp., Calligonum polygonoides* and *Leptadenia pyrotechnica*. The shallow slopes with varied soils on recent and sub-recent substrates at low altitudes chiefly on plains have the trees *Zizyphus nummularia, Salvadora oleoides*, and *Capparis decidua*, and shrubs *Grewia tenax, Seddera latifolia,* and *Rhazya stricta* that are the most commonly found species, together with the grasses *Ochthochloa compressa, Cymbopogon jawarancusa* and *Aristida funiculata*. With *Prosopis cineraria, Indigofera oblongifolia* and *Euphorbia caducifolia,* the above combination of species makes up most of the total vegetation coverage of Karachi Division.

The two principal habitat types on the course of Lyari and Malir Rivers to central areas of Karachi City District are arid hills, and low-lying sandy areas. Vegetation of the hill slopes and hillsides comprise mainly camelthorn (*Prosopis spicigera*), wild caper (*Capparis decidua*) and large succulents such as *Euphorbia caudicifolia*.

The sandy areas are typically vegetated with a sparse cover of small trees such as *Acacia senegal, Zizyphus nummularia* and *Prosopis cineraria,* and shrubs and shrublets such as *Leptadenia pyrotechnica, Calotropis procera, Rhazya stricta, Inula grantioides, Zygophyllum simplex* and *Sueda fruticosa*.

4.2.2. Fauna of Karachi

The impoverished as well as degraded environment resulting from non-availability of surface as well as groundwater and discharge of untreated wastewater into Lyari and Malir Rivers has irreversibly reduced the biodiversity of the indigenous as well as introduced vegetation and hence it offers very little chance for the survival/growth of fauna in the macro environment of Karachi Division.

There are even otherwise no habitats of large and small animals, birds or reptiles within Karachi Division. Domestic livestock, particularly goats, sheep and camels, are found grazing in the suburban towns. Water availability is the main constraint for the distribution of many animal species. Large wild mammals are virtually absent in the areas within Karachi. There are a number of characteristic bird species that have

[21] Environmental Impact Assessment of proposed Bus Rapid Transit Project in Karachi, August 2014; Client: Karachi Metropolitan Corporation and prepared by EMC Pakistan Pvt. Ltd.

adapted to the agricultural environment in the outskirts and suburban areas. These include Indian Roller, common mynah, pigeon, and house sparrow.

4.3. Socioeconomic Profile

This section presents a broad profile of the prevailing socioeconomic situation in the project districts of Karachi. This baseline has been prepared through information available from secondary literature as well as reconnaissance surveys conducted in the city. Safeguard instrument (ESMP or Checklist) to be prepared for each subproject will include district-specific baseline conditions. The subsequent section will include the existing conditions of utilities and public infrastructure, transport, poverty, education, health, demography, labor and employment etc.

Table 4.7: Administrative Profile of Karachi

	Area (sq.Km)	No of Districts	No of Union Councils	No of Mouza
Karachi	3,675	6	178	75

Source: City District Karachi, Pakistan Development Prospects 2013

4.3.1. Demographic Profile

The average population density Karachi is 4,653 persons per square km, based on population projection 2013. The population of Karachi constitutes about 31 percent of the province's total population. The population of Karachi, according to the census of 1998, was 9,856,000. The average population growth in 1981-1998 was 3.75 percent per annum. Population of Karachi was estimated to be 17.1 million in 2013. Urban population constitutes about 95% and the remaining is rural population. Average household size, as of 1998 census, was 6.7.

As the sub-projects will be located in District South, Koragi and Malir; the population of each district based on 1998 Census is as follows:

- District South including Saddar 2,431,286
- District Korangi 3,253,485
- District Malir 2,242,142

Based on the estimated population of each town for 2015 (Table 4.2), sub-project towns have a population of above 2.7 million. Moreover, it is also important to note that Malir District has by far the largest area of 2,836 sq. km. However this is largely attributed to Gadap Town with a land area of appoximately 2,100 sq. km dominated by rural characteristics.

Table 4.8: Population Characteristics of Karachi's Districts and Towns (2015)

Districts	Towns	Area (Km^2)	Estimated Population (2015)	Male	Female	Estimated Population Density (per sq. Km)	Sex Ratio
Central	Gulberg	14.03	759,087	400,061	359,026	54,104.6	**111**
Central	Liquatabad	7.67	1,086,498	572,616	513,882	141,655.5	**111**
Central	N.Nazimabad	16.99	830,568	437,734	392,834	48,885.7	**111**
Central	New Karachi	19.66	1,145,239	603,574	541,665	58,252.2	**111**
	Total	**58.36**	**3,821,393**	**2,013,986**	**1,807,408**	65,479.7	**111**
East	Gulshan e Iqbal	54.63	964,345	514,254	450,091	17,652.3	**114**
East	Shah Faisal Cantonment	35.3	849,806	453,174	396,632	24,073.8	**114**
	Total	**89.3**	**1,814,151**	**967,428**	**846,723**	**20,315.2**	**114**
Malir	Bin Qasim	552.11	630,035	352,213	277,822	1,141.1	**127**
Malir	Gadap	2,173.03	576,080	322,050	254,030	265.1	**127**
Malir	Korangi Creek Cantonment	22.22	121,821	68,102	53,719	5,482.5	**127**
Malir	Malir	15.32	792,386	442,973	349,413	51,722.3	**127**
Malir	Malir Cantonment	73.05	121,821	68,102	53,719	1,667.6	**127**
	Total	**2,835.73**	**2,242,142**	**1,253,439**	**988,703**	**790.7**	**127**
South	Clifton Cantonment	43.41	267,858	144,804	123,054	6,170.4	**118**
South	Jamshed	24.69	786,238	425,039	361,199	31,844.4	**118**
South	Karachi Cantonment	5	65,606	35,467	30,139	13,121.2	**118**
South	Layari	11.36	651,421	352,157	299,264	57,343.4	**118**
South	Saddar	29.24	660,164	356,884	303,280	22,577.4	**118**
	Total	**113.7**	**2,431,286**	**1,314,350**	**1,116,936**	**21,383.3**	**118**
West	Baldia	25.73	965,830	527,052	438,778	37,537.1	**120**
West	Kimari	391.75	914,021	498,780	415,241	2,333.2	**120**
West	Manora Cantonment	14.44	145,606	79,457	66,149	10,083.5	**120**
West	Orangi	23.82	1,720,890	939,088	781,802	72,245.6	**120**
West	Site	25.28	1,111,821	606,720	505,101	43,980.3	**120**
	Total	**481.03**	**4,858,169**	**2,651,098**	**2,207,071**	**10,099.5**	**120**
Korangi	Korangi	39.47	705,321	376,125	329,196	17,869.8	**114**
Korangi	Shah Faisal	12.7	1,147,809	612,089	535,720	90,378.7	**114**
Korangi	Landhi	41.1	1,400,355	746,764	653,591	34,071.9	**114**
	Total	**93.27**	**3,253,485**	**1,734,978**	**1,518,507**	**34,882.4**	**114**
	Grand Total	**3,671**	**18,420,626**	-	-	**5,017.9**	-

Source: Pakistan Emergency Situation Analysis, District Karachi, 2015 (Est. using 3.75% Growth Rate) – Alhasan Systems Private Limited April 2015

4.3.2. Physical Cultural Resources (PCRs)

A list of archaeological sites protected under Antiquities Act 1975 is presented in "Guidelines of Sensitive and Critical Area developed by Pak-EPA in 1997". The list is a 1996 Publication by the Pakistan Heritage Society Peshawar-Lahore and has been prepared by Mr. M. Rafique Mughal. There are a total of 211 archaeological/historical sites situated in the Karachi District.

PCRs of note in selected Districts under the Project:

Khokrapar Road

There is a Shrine of Hazrat Peer Mehboob-ul-Hasan Zaidi is located near Saoodabad Intersection; along the South bound side of the project road which is shown in Fig 4.13 below and can also be located on coordinates 24°53'58.87"N and 67°12'8.38"E. This shrine is not included in the list of protected gazette sites of Karachi.

Figure 4.5: Mazar of Hazrat Peer Mehboob-ul-Hasan Zaidi

Saddar Downtown Area

Most of the protected sites are located in the Downtown Saddar area which is one of the sub-project sites in which several interventions will be implemented. A total 97 buildings declared as "Protected Heritage" by the Government of Sindh (Under the Sindh Cultural Heritage (Preservation) Act 1994 on September 7, 1995.)) are located in Saddar Downtown Area. The names and locations are listed in **Annex D**.

4.3.3. Culture, Religion, Customs

Karachi is a cosmopolitan city in a true sense with a rich cultural diversity. The culture of Karachi embodies eastern, western and religious influences. Karachi saw the largest influx of immigrants at the time of independence. The city used to be a harmonious place where people from all walks of life came to better their lives. However, during the last decade, the law and order situation and ethnic conflicts have affected the city's vibrant lifestyle. Karachi, the city of Lights and the Bride of Cities (*Uroosul Bilad*), as it is often referred to, represents the typical culture of Pakistan. The corresponding graph shows the linguistic distribution of Karachi according to 1998 Census. The others category includes Gujarati, Dawoodi Bohra, Memon Brahui, Makrani, Khowar, Burushaski, Hindko, Dhatki, Dari, Thari, Marwari, Arabic, Persian and Bengali.

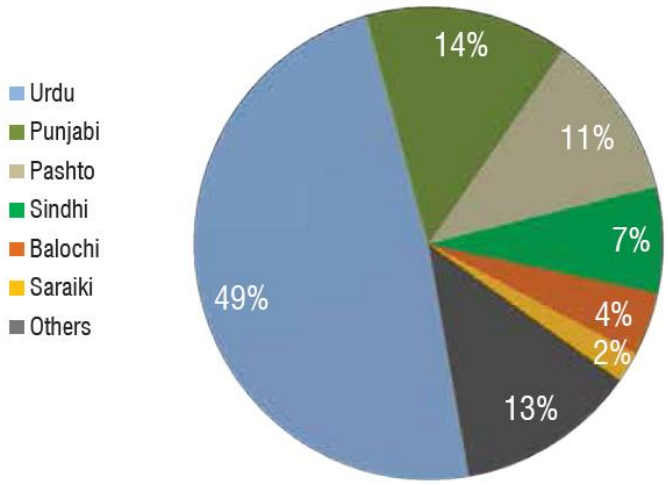


Figure 4.6: Languages Spoken in Karachi[22]

According to recent estimates[23], the religious breakdown of Karachi is as follows:

- Muslims - 96.5%
- Christianity – 2.49
- Hinduism – 0.86%
- Other (Ahmadi, Parsis, Sikhs, Bahai, Jews & Buddhist) - 0.40%

Arts, literature and poetry are deeply embedded in the city's culture, with events like Mushairas (an evening social gathering at which Urdu poetry is read), performing arts, theatre shows are frequently being held in the National Academy of Performing Arts and the National Arts Council. Kara Film Festival which is an internationally recognized event is held annually to promote cinematic ventures. Like its ethnically diverse population, Karachi's cuisine is also a beautiful amalgamation of all strata of the population having flavor of all the ethnic groups in Pakistan. The cuisines are highly influenced by the traditional recipes of migrants from India who are usually referred to as Urdu speaking Muhajirs. In comparison to the other parts of Pakistan, the food here is spicier with a strong aroma.

4.3.4. Gender Situation

Generally, women in Pakistan are among the most vulnerable sections of society. Women's access to and control over productive resources in the country is limited. Pakistan ranks amongst countries with high maternal and infant mortality rates[24]. According to the World Bank, the maternal mortality ratio (MMR) was 178 per 100,000 live births in 2015, down from 431 in 1990[25]. Vulnerability of women to discriminatory treatment varies across classes, region, and the urban / rural populations. The indicators for Gender Issues are commonly measured through the status of gender parity in wage employment, political representation and education[26].

[22] USAID, Pakistan Development Perspective, 2015
[23] CIA World Factbook, 2010
[24] World Bank Indicators - Data
[25] Maternal mortality ratio (modeled estimate, per 100,000 live births) by World Bank
[26] Report On The Status Of Millennium Development Goals Sindh – October 2012 UNDP

Labor force participation rates remain low for women in Sindh overall, at just 15.88 percent for the province as whole, compared to 70.3 percent for men[27]. Representation of women at the decision making level is also low. The provincial assembly of Sindh has 168 members, of which 29 are women; all of the women legislators have been nominated against seats reserved for women[28].

Karachi being the largest metropolitan city of Pakistan, has one of the highest female literacy rates in Pakistan which is 78%[29]. Gender Parity Index (GPI) for schools in Karachi is estimated to be 1.23, according to RSU Sindh Education Profile 2014-15. Number of female teachers in schools is more than double of the male teachers[30].

According to Sindh Education Foundation, the main constraints in the promotion of female primary education in districts of Sindh, including slums of Karachi, are poor school infrastructure, lack of female teachers; social insecurity and poverty.

4.3.5. Land Use and Urban Growth in Karachi[31]

In Karachi, the actual use of land has been primarily spreading around Saddar Town which forms the hinterland of the Port of Karachi. In general, vacant land is the largest land use category in Karachi City. Such vacant land especially dominates the perimeter areas of Gadap Town, Bin Qasim Town and Keamari Town. In areas where land use other than vacant land is noticeably observed, building lot such as residential, Commercial, Industrial use etc. is the most prominent, accounting for some 15%, followed by agricultural use at 8%, infrastructural use such as roads at 6%[32].

4.3.5.1. Residential Land Use

In Karachi City, urbanization is progressing from the old quarter to the area around the Port of Karachi. The inner city area (incorporating all towns except Gadap Town, Bin Qasim Town and Keamari Town) has been almost entirely urbanized. Systematic residential development is in progress in the Clifton cantonment (DHA) area near the city centre. In contrast, vacant land is conspicuous at urban planning sites in such towns as Gadap and Keamari located away from the city center.

[27] Report On The Status Of Millennium Development Goals Sindh – October 2012 UNDP
[28] Members by District – Provincial Assembly of Sindh, 2013 till Date
[29] PSLM 2014-15
[30] Sindh Education Profile 2014-15, RSU
[31] Karachi Transportation Improvement Project (KTIP) Study, JICA, 2010
[32] Karachi Transportation Improvement Project (KTIP) Study, JICA, 2010

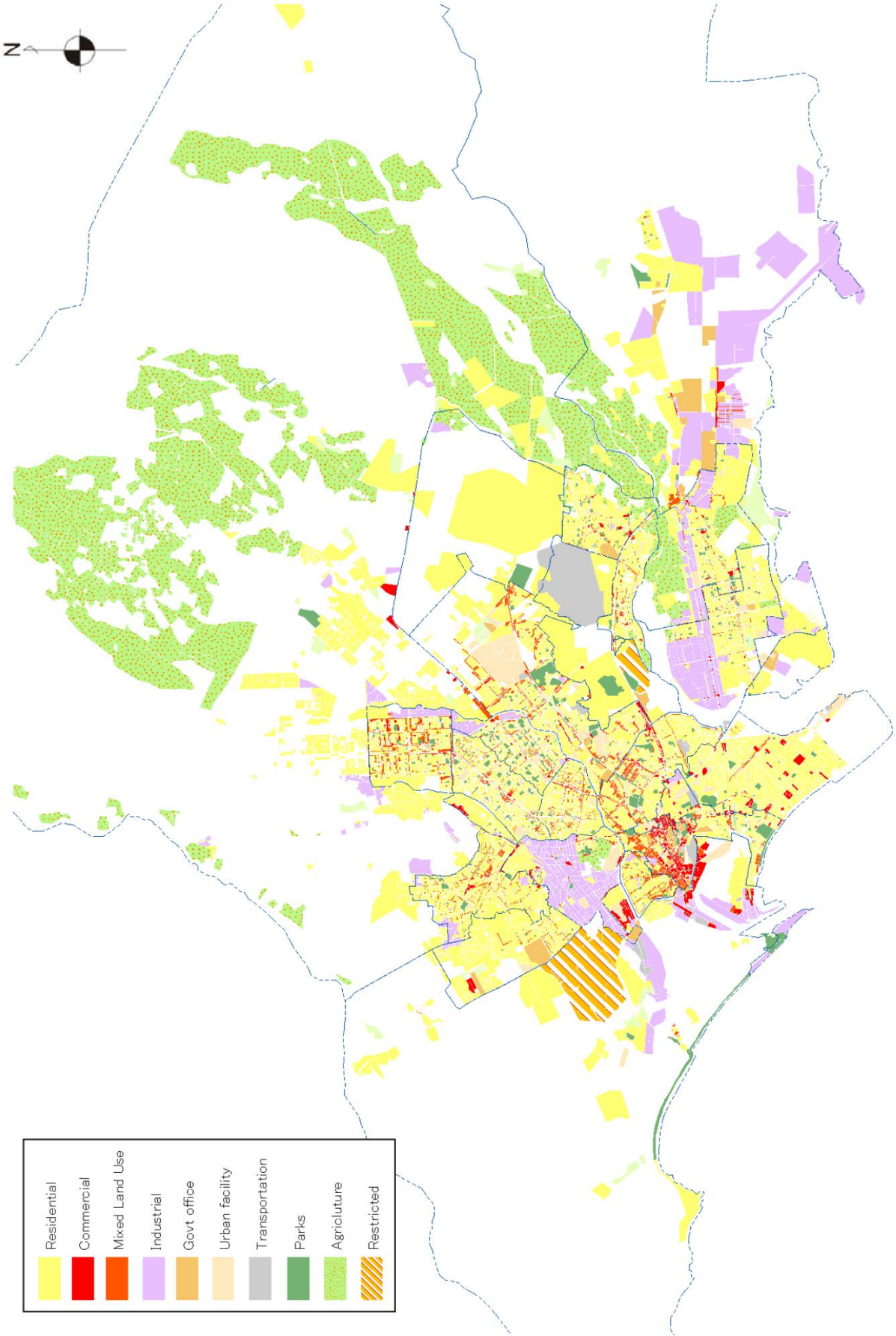


Figure 4.7: Current land use (2010) of Karachi (Source: Karachi Transportation Improvement Project (KTIP) Study, JICA, 2010)

4.3.5.2. Commercial Land Use

The Central Business District (CBD) is formed by Saddar Town and neighboring Keamari Town and Jamshed Town and is an area of concentrated commercial and business activities. The main municipal administration buildings are also located in the CBD, Keamari Town and Saddar Town accounts for 39% of the land area for commercial use in the city. The third towns in the area table of commercial land use are Clifton Cantonment (12%). In other towns, the commercial use of land is primarily observed along main roads[33].

4.3.5.3. Trend of Urbanization

Urban area from 2005 to 2010 is as follows. Urban sprawl is observed in Gadap town, Bin Qasim town, Clifton in cantonment. The built up area has increased by about 10% from 2005 to 2010. The under built up area has increased by about 40% for same five years[34].

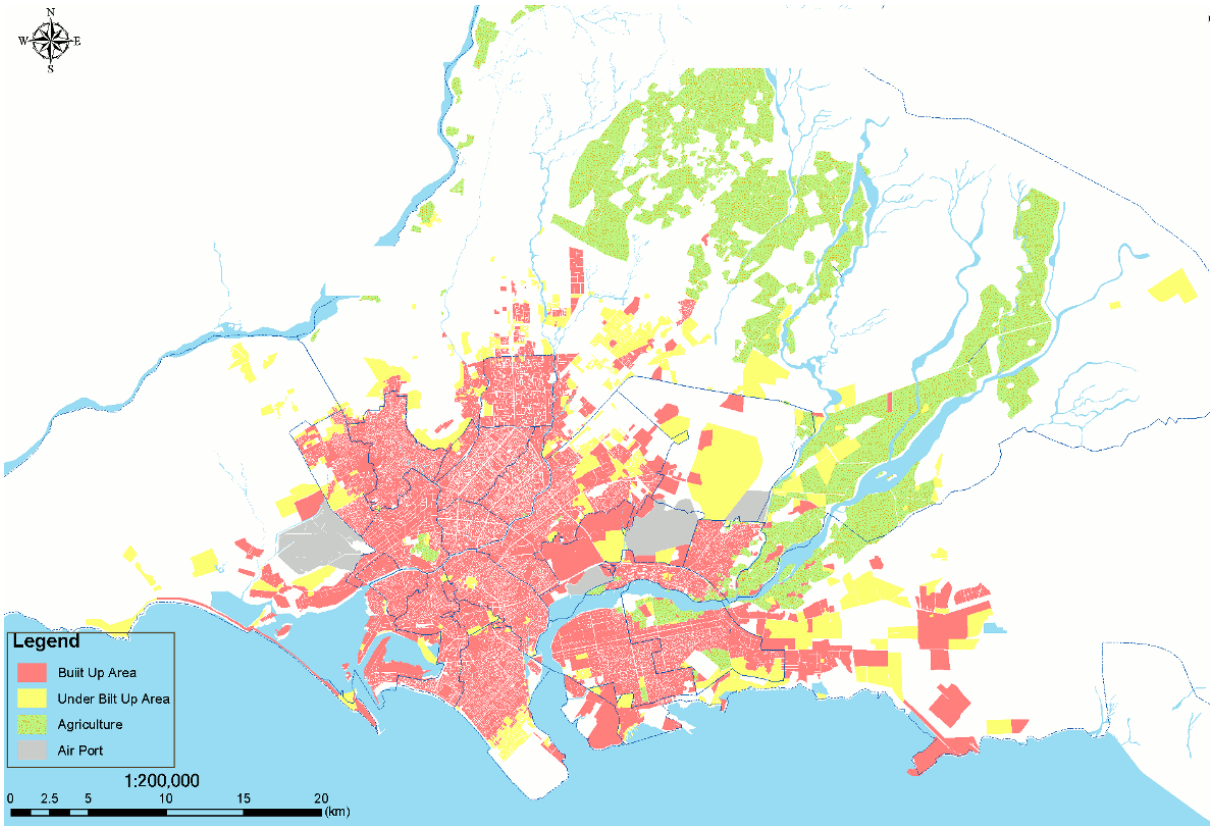


Figure 4.8: Spreading of Built up area; 2010 (KTIP Study 2010)

4.3.5.4. Characteristics of sub-project Land Use[35]

Korangi Town

Korangi Town is one of the industrial towns and covers an area of around 30% of the urbanized area. The relative area allocated to industry is significant to the town's role in the city.

[33] KTIP Study, JICA 2010
[34] KTIP Study, JICA 2010
[35] KTIP Study, JICA 2010

Bin Qasim Town

The major area of Bin Qasim town is presently being used for industrial purposes, and industrial development is continuing as hinterland of Bin Qasim port.

The selected area is in the jurisdiction of the Korangi District Municipal Corporation (DMC). Existing land use is a mix of residential and industrial with vibrant market spaces near residential areas and along main roads. The area includes part of the Korangi Industrial Trading Estate (KITE) which is one of the largest in the city. The industrial belt straddles the main Korangi transport corridors with residential areas housing low communities situated close to the industrial area. The area is situated south of the Malir River and connects to N5 National Highway as well as the Malir neighborhood on the other side of the Highway. Interventions under this sub-component will also include the road corridor that connects Korangi to the low-income Ibrahim Haideri village where a substantial population is engaged in fishing. Ibrahim Haideri is considered one of the largest fishing villages in Karachi, having an estimated population of 1.5 million[36].

Malir Town

Major land use of Malir town is residential. About 50% of Malir is urbanized area. Approximately 20% of the area is used for agriculture purposes and the rest of the 30% of the area is undeveloped[37].

The Malir area within the jurisdiction of Korangi District Municipal Corporation (DMC) is bordered by international airport on the east, a military cantonment to the north, a national highway and railway line to the south, and the Thaddo "Nallah"/ stream on the west. It was once open countryside with fruit and vegetable farms but has since been converted to residential areas as the city expanded. This sub-component will focus on an arterial road corridor through this area: Khokrapar road from Saoodabad square to the Nallah leading to Memon Goth (approximately 3 kilometers in length), and allied works for neighborhood improvement. The road is about 100 feet wide with a dual carriageway and is heavily trafficked.

Saddar Town

Major portion of the area in this town is used for commercial purposes constituting the Central Business District (CBD) of Karachi. The CBD plays the role of financial center in Pakistan. The main service industry located here is dominated by finance institutions such as National bank, stock market and headquarters of major enterprises are located here.

Most of federal and provincial offices are also located in this town with Saddar as the commercial and administration hub of Karachi city.

Saddar Downtown is an area of approximately 1-2 square kilometers located within the city center and comprises prominent spaces such as the historic Empress Market, Burns Garden, Aram Bagh park, various higher education institutions and government/ administrative buildings, Pakistan Chowk area (a square comprising two traffic islands and serving as a junction for five roads providing an entry point into the popular Burns Road Food Street area), and significant cultural spaces including the Arts Council, National Academy of Performing Arts and the National Museum (located in Burns Garden).

[36] KTIP Study 2010
[37] KTIP Study 2010

This area also forms part of the historic pre-independence quarters of Karachi and serves a large segment of the city population, both as a destination – housing various commercial, educational and cultural facilities – and a transit area – a convening and starting point of a number of public transport routes. Existing land uses in the area include education; cultural activities; civic uses and city administration; recreation and open spaces; religious uses; market spaces (formal and informal); and residential.

4.3.6. Economy, Labor and Employment

Karachi contributes around 20% of the total GDP of Pakistan and generates about 65% percent of the national revenue. The city generates Gross Metropolitan Product of PKR. 1.607 trillion or $265 Billion at Purchasing Power Parity (PPP) and a per capita income of $ 6,917, which is much higher than national figure of $1,256.8[38]. Karachi's high GDP is based on its mega-industrial base, a high dependency on the financial sector and home to the biggest services sectors including IT. Textiles, gems & jewelry, cement, steel, heavy machinery, chemicals, food, banking and insurance are the major industrial segments contributing to Karachi's sizeable GDP. It is home to the largest stock exchange of Pakistan: the Karachi Stock Exchange. Almost entire port operations are carried out from two major ports of Karachi, Bin Qasim and Karachi.

Labor participation rates in the urban segments are low given that Karachi is the economic hub of the country and provide employment opportunities to a large migrant population from other parts of Pakistan. Another striking feature is the persistently large male-female gender gaps in most of the labor market indicators analyzed, pointing to both supply and demand side imbalances in the provincial labor market. The labor participation rate of urban Sindh – largely Karachi – is 39 percent (68.5 percent for males). The rates of employment in electricity, gas and water, construction, manufacturing, trade (including restaurants and hotels) in urban Sindh are much higher than in the nation. Urban Sindh's participation in finance is almost double the national rate. According to an estimate, 90% are migrants from different backgrounds and the population is estimated to be growing at about 5% per year, mainly as a result of internal rural-urban migration, including an estimated 50,000 migrant workers coming to the city every month from different parts of Pakistan[39].

4.3.7. Poverty[40]

According to statistics compiled using Pakistan Social and Living Standards Measurement Survey (PSLM) and Household Integrated Economic Survey (HIES) by Social Policy and Development Centre (SPDC) the percent of Pakistan's population that lives below the poverty line has increased to 36.79 percent in 2013 against 29.76 percent in 2004-05. A total of 37.31 percent people in the rural areas lived below the poverty line. In Karachi poverty is relatively low at 23.07 percent when compared to national average. Among other metropolitan cities, Rawalpindi (16%) is the only city that has lower poverty than Karachi.

Karachi has the largest slum areas or "Katchi Abadis" in Pakistan. More than 50 percent of its population lives in informal settlements. District Karachi contains 30 percent of Sindh province's population and 62 percent of its urban population. As a result, it exercises a strong influence on the economy and employment patterns in Sindh. Karachi being the hub of economic activities and higher wages attracts educated youth from the rural areas that seek employment in Karachi. Karachi is ranked first among all districts of Pakistan with least deprivation in key sectors. The district indices of multiple deprivations were calculated using latest

[38] City District Karachi, Pakistan Development Prospects 2013
[39] City District Karachi, Pakistan Development Prospects 2013
[40] City District Karachi, Pakistan Development Prospects 2013

available household survey (PSLM) and are based on non-monetary poverty correlates in education, health, housing quality, housing services and economics. Table 4.9 below shows the poverty scenario in Malir Town

Table 4.9: Incidence of poverty based on BISP poverty score method by dependency ratio and districts

Town	High	Medium	Low
Malir Town	38.48	22.16	8.53

Source: Poverty Profile of Pakistan (Benazir Income Support Programme)

The existing condition of subproject road is however comprised of labor class population earning around Rs.10,000-25,000 average per month[41] which is above poverty line. Roadside business earns their income through sale and purchase earning around Rs.15,000-35,000 average per month[42]. After Thaddo Nallah, Sumar Kandani village which is considered as Goth according to Figure 4.10.

The rate of poverty is 68 % in Korangi Town. After passing through Korangi Crossing, the area then enters into residential areas of Korangi Town. Generally it is considered that Korangi Town is a middle and lower middle income area. Although many development activities have been undertaken in Korangi town, the slum areas of the town are still in bad condition, due to low income and unemployment. The existing population of subproject area comprises of labor class population earning around Rs.10,000-20,000 average per month[43] The population of Ibrheem Haideri is however living jn poverty with high unemployment. The village mostly relies on fishing in the creek system of Karachi[44]. Francis town and Goth Ibraheem are considered as Katchi Abadi and Goth respectively according to Figure 4.10.

In terms of land use, major portion of Saddar Downtown area is u sedfor commercial purpose constituting the Central Business District of Karachi City. The CBD plays the role of financial center in Pakistan. The main service industry located here comprises of finance institutions such as National bank, stock market and headquarters of major enterprises are located here. Most of federal and provincial offices are also located in this area as Saddar is the commercial and administration hub of Karachi city.

4.3.7.1. Katchi Abadi/ Slums

Localities can be divided into two types in Karachi; planned and unplanned. Unplanned means slums / katchi abadi. About 60% of Karachi population lives in slums. Hundreds of families arrive in the city on a daily basis and are forsaken in the slums. Presently 72% of these Katchi Abadies have been notified i.e. accepted by the government, while more than 40% of the houses have been provided land title- remaining are under process[45]. These Katchi Abadis can be divided into two types:

1) Settlements established through unorganized invasions of state lands: These invasions took place at the time of partition. Most of them were removed and relocated in the 1960s. Almost all of them have been regularized
2) Informal subdivisions of state land (ISD): These ISDs can be further divided into two:

a) Notified katchi abadis: These are settlements that have been earmarked for regularization, which means the provision of a 99-year lease and the development of infrastructure, by the local government against a payment to the state.
b) Non-notified katchi abadis: These are settlements that are not to be regularized because they are on land the state requires for development, land which is valuable and which the private sector wishes

[41] Information gathered from RS survey.
[42] Based on the estimates of Reconnaissance Survey
[43] Information gathered from RS survey.
[44] Based on the estimates of Reconnaissance Survey
[45] Orangi Pilot Project Research and Training Institute [OPP-RTI]

to purchase, and or land that is ecologically unsafe addition to katchi abadis, there are settlements that are referred to as "slums[46]".

According to SKAA Quarterly Report 2001, there are 702 Katchi Abadis in Karachi. Of these, 539 abadis having 415,000 housing units have been officially declared as katchi abadis and of these, 483 have been identified as regularizable.

Karachi requires 80,000 housing units per year. However, only an average of around 27,000 building permits are issued per year. It is estimated that 28,000 new housing units are developed in katchi abadis annually. According to the KDP 2000 75% of Karachi's working population works in the informal sector. 12.8% residents of katchi abadis work at home and 34.4% walk to their place of work. A total of 66.2% work within the same zone.

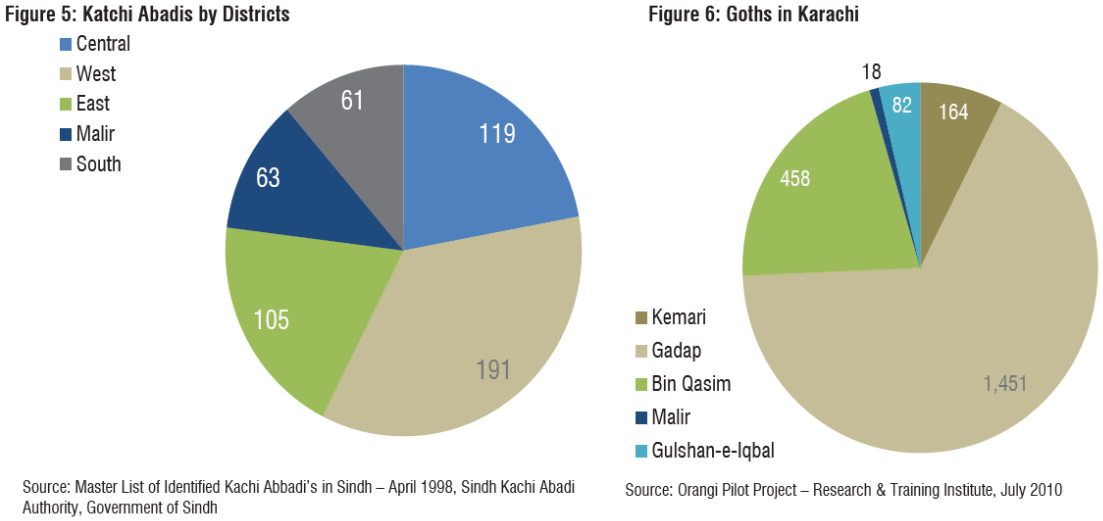


Figure 4.9: Katchi Abadis by Districts and Goths in Karachi[47]

[46] Hasan, A. & Mohib, M. (2003), Reporting on 'Slums' in Selected Cities – Retrieved on Dec. 28, 2013 - http://arifhasan.org/wp-content/uploads/2002/06/AH84-Reporting_on_slums.pdf
[47] Sindh Katchi Abadi Authority, GOS and Orangi Pilot project – Research and training institute July 2010

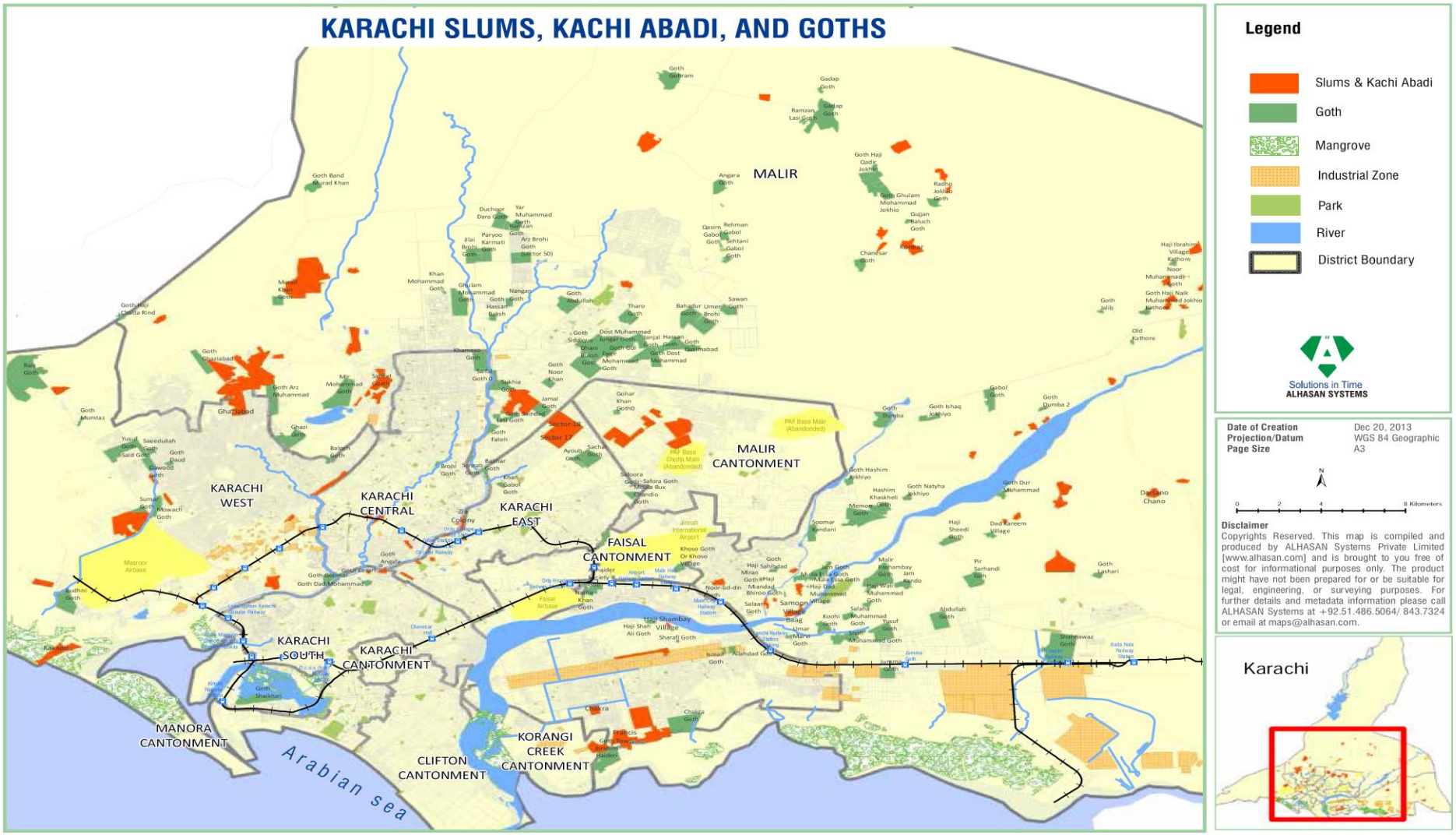


Figure 4.10: Karachi Slums, Katchi Abadi and Goths[48]

[48] Pakistan Development Perspective, USAID 2015

4.3.8. Sewerage and Sanitation

Karachi sewerage is going into sea, partially untreated, through the following outfalls/nallas (natural drains), rivers:

- Lyari river
- Malir river
- Nehr-e-Khayyam
- Fere Nallah
- Pitcher Nallah
- Kalong Nallah
- Railway Nallah

The sewerage facilities of Karachi are summarized below in the table.

Table 4.10: Sewerage facilities in Karachi

Sewerage Facilities	Total Amount
Sewage Treatment Plants	3 Nos.
Major Sewage Pumping Stations	6 Nos.
Sewage Life Pumping Stations	32 Nos.
Sewerage Cleaning Machines	23 Nos.
Lateral Sewers 8" – 15" dia.	1,844 miles
Sub-Trunk Sewers 15" – 24" dia.	500 miles
Trunk Sewers 30" – 66" dia.	200 miles
Total Length of Sewer 8" – 66"	3,544 miles
No. of Manholes	250,000

Source: City District Government Karachi Water and Sewerage Board, Planning Commission of Pakistan 2007

Untreated sewage flows continuously with the increase in water supply. Large amount of sewage flows into the adequate existing system. The sewers get surcharges and manholes overflow very frequently, causing unsanitary conditions in the city. Missing and broken manhole covers on roads cause not only serious accidents and are danger to life especially during monsoon rainfalls but a source of environmental pollution and other health hazards. A nominal quantity of sewerage is treated through water treatment plants, constructed at Gharo 1, Gharo 2, COD Hills, Pipri and North East Karachi. All plants treat water derived from the River Indus. The remaining resources from Dumlotee and from the Hub are disinfected by chlorination alone.

All the wastewater generated in the city is brought to Mauripur Salt beds and Korangi for treatment in oxidation ponds. Untreated sewage is discharged into the sea which not only adverserly affects marine life but also causes coastal pollution and health hazard. Uncontrolled discharge of industrial and trade wastes containing toxic chemicals and heavy metals and other non-degradable elements also cause serious pollution problems in the environment. According to law of the land; if industries discharge their wastewater into the receiving sewer or stream; they are required to treat their wastewater to the required standards before discharging it into the sewer or stream. Unauthorized connections from industries to the sewerage system discharging large amounts of toxic wastes which is causing damage to existing sewers and KWSB municipal treatment plants (i.e. TP-I, II and III).

Detailed sewerage system of sub-project towns is depicted in Figures below.

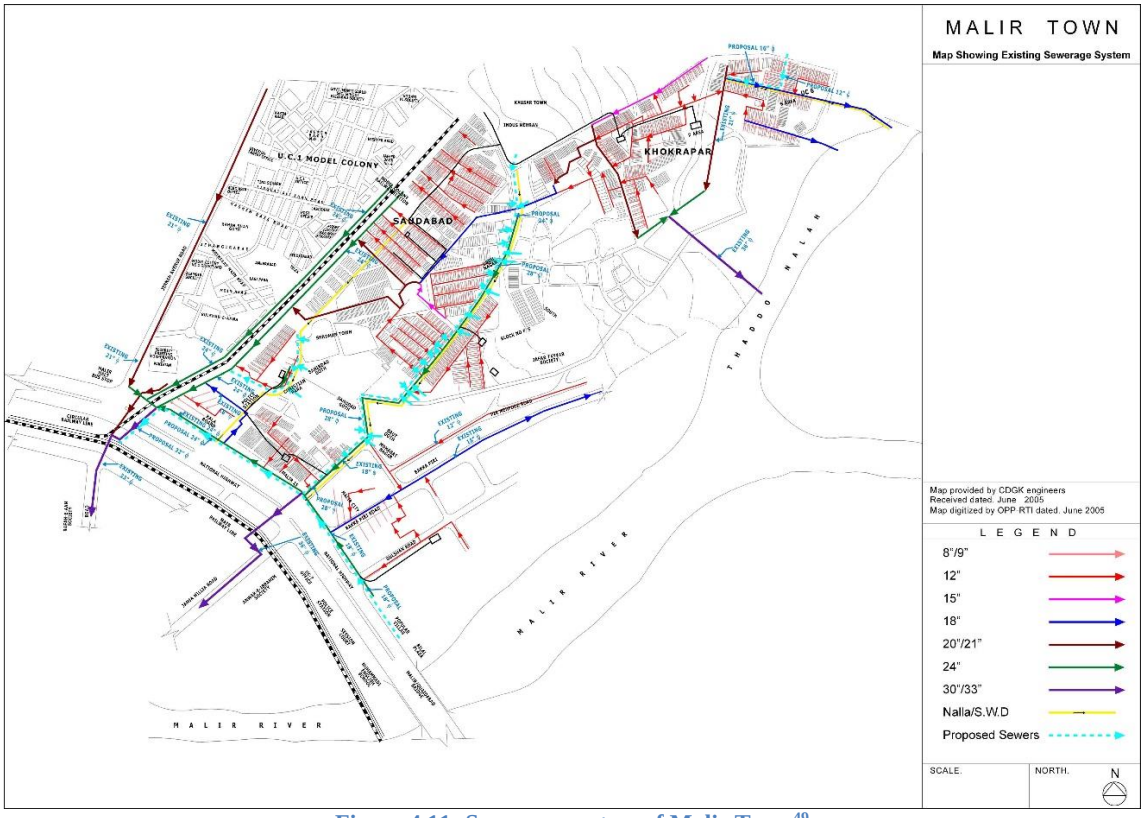


Figure 4.11: Sewerage system of Malir Town[49]

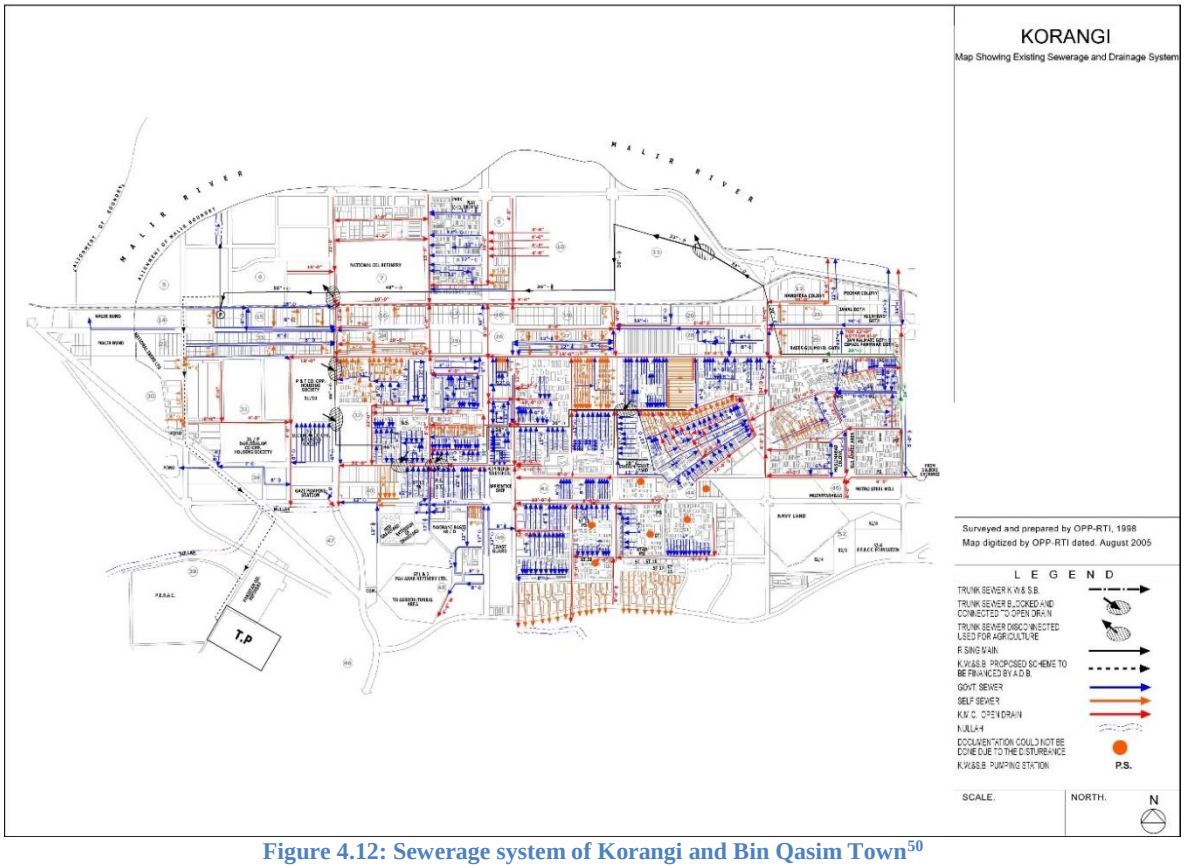


Figure 4.12: Sewerage system of Korangi and Bin Qasim Town[50]

[49] Korangi Pilot Project Research and Training Institute
[50] Korangi Pilot Project Research and Training Institute

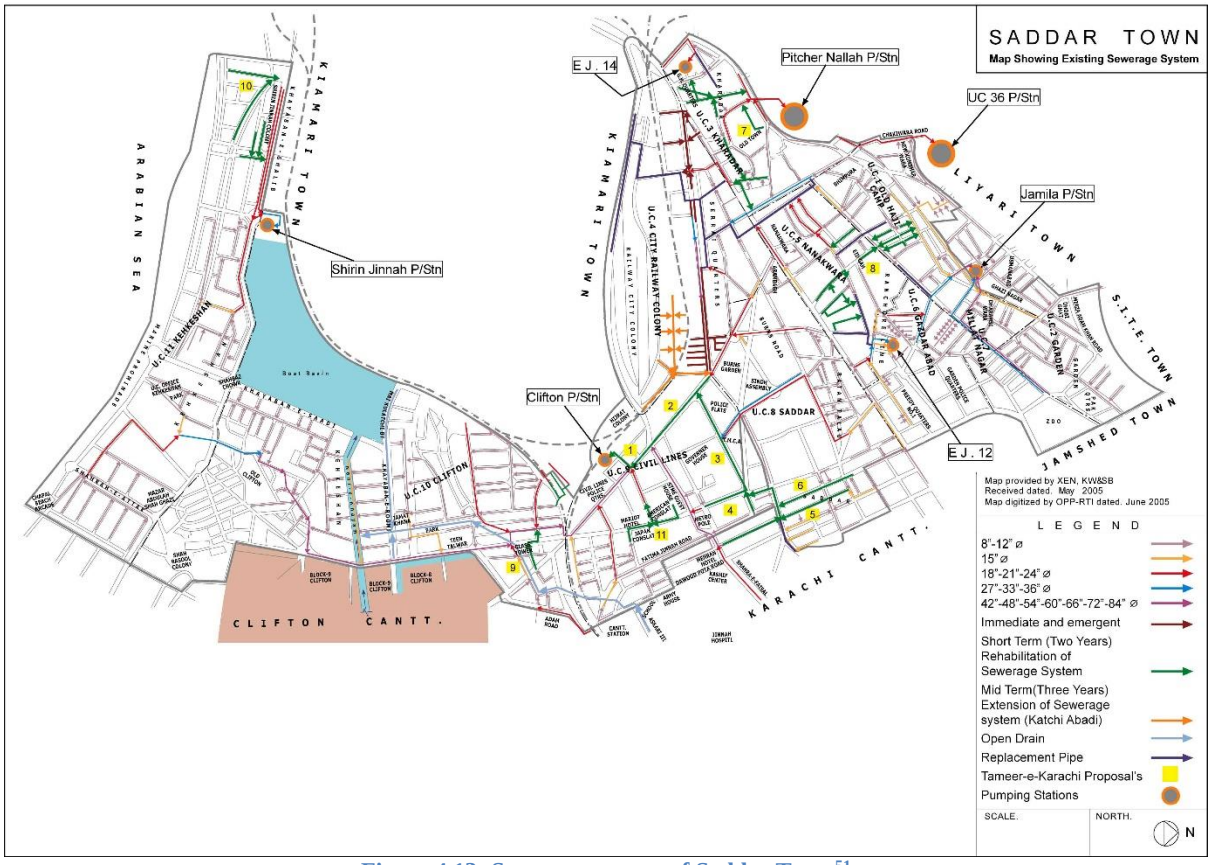


Figure 4.13: Sewerage system of Saddar Town[51]

4.3.8.1. Sub-Project Roads Sewerage Situation

Khokrapar Road

Due to ill-maintained sewerage system and encroachments on the footpaths, the existing sewerage and waste water disposal system of the sub-project area is in very poor condition. There are open drain that runs along the RoW of the south-bound track from Thaddo Nallah to Saoodabad roundabout and on some parts of the RoW of the North-bound track as shown in the table below:

Open drain in Khokhrapar

[51] Korangi Pilot Project Research and Training Institute


Sewage water in Khokrapar

The 9000 road and Saddar Downtown subproject area sewerage system is well-maintained and roads are free of wastewater.

4.3.9. Solid Waste Disposal

Karachi is divided into five zones (East, West, South, Central and Malir), eighteen (18) towns and 178 union councils. Karachi city generated more than 10,000 ton / day of municipal solid waste and dumped at the landfill site without proper planning and segregation. Out of the total amount of municipal solid waste 60% of the total amount of municipal solid waste are dumped on the landfill site and rest of 40% remain on the street and did not collect from the towns.

Out of 18 town only eleven town such as, Gulshan, Gulberg, Gaddap, Korangi, Liaquatabad, Landhi, Malir, North-Nazimabad, North Karachi, Shah Faisal and Bin Qasim towns dumped their garbage at the Jam Chakro landfill site and too much without any proper planning and segregation of the garbage. Rest of four towns dump their waste at the Govind Pass landfill town near Hub River due to its being much near to the town as compared to Jam Chakro landfill site. Three towns of them i.e., Jamshed town, Saddar town and S.I.T.E town are those that dumped their waste at both landfill sites.

Out of the total municipal solid waste generated, 80% contains recyclable material and the remaining 20% is organic type waste. On the basis of analysis of the municipal solid waste, the study reveals that pH is slightly alkaline, moisture content is less than 50% and the amount of heavy metal like, Lead, Cadmium, Chromium and Nickel are beyond the permissible limits. They are responsible for casting adverse impacts on the environment as well as for contaminating groundwater in the vicinity of the landfill site sites through leaching formation[52].

The existing system of solid waste management in the city is inefficient and inadequate to cope with the present and future need of increasing solid waste quantities. There are no planned disposal sites for the city. The current practice of the illegal dumping of solid waste in and around the city has created a serious environmental and public health problem. For sustainable development, it is essential to establish sound, economical and technical methods of solid waste management.

[52] World Applied Sciences Journal 29 (12): 1516-1526, 2014

Sindh Solid Waste Management Board – SSWMB has been established under the Sindh Solid Waste Management Board Act 2014 for effective Integrated Solid Waste Management in Sindh including Karachi. SSWMB is embarking in garbage collection from door to door and construction of garbage transfer stations, material recovery facilities, construction of composting facilities and energy generation etc.

4.3.9.1. Sub-Project Roads Solid Waste Condition

Due to lack of lifting solid waste during past years, people through waste on the streets and it gets accumulated in few locations of the sub-project alignments.

The table below shows the distribution of manpower and dustbins in each subproject town of Karachi city.

Table 4.11: Distribution of manpower and dustbins in each town of Karachi

S.No.	TOWNS	MANPOWER	NUMBER OF DUSTBINS
1	Saddar	155	108
2	Korangi	-	-
3	Malir	44	-
4	Bin Qasim	11	-
	TOTAL	**4170**	**4085**

Source: Karachi Solid Waste Management Master Plan 2020

Korangi Area

Median and west-bound track of 9000 road consist of thrown solid waste by the households as shown in the figures below:

Solid Waste at Median

Solid Waste on west-bound track and median

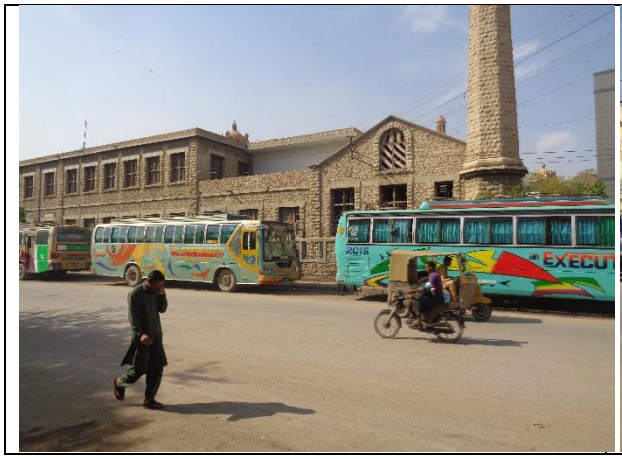
Malir-Khokrapar Road

Solid waste was found on various locations along the RoW and extensively on the median and the garbage collection point is not in the proper condition as shown in figures below:

	
Solid waste found dumped in front of Park	Poorly managed garbage transfer point
	
Solid waste was found dumped along the south-bound track	Solid waste dumping observed during the survey

Saddar Downtown Area

As presented in table 4.10 above, adequate manpower and dustbins are available for waste collection and transportation further to the disposal. Following figures taken during RS survey presents the cleanliness of the Saddar Downtown area.




4.3.10. Healthcare Facilities

Health care is one of the basic needs of any society and a primary requirement for development of a Nation. According to World Health Organization (WHO) standards countries should spend 5% of their GDP on health in order to provide reasonable health services. However, the health care has never been given its due importance and budget allocation has been on the low side this statement can be supported by a report published by UNDP in March 2013 which states that the Government spends only 0.8 percent of its GDP on health. The total spending of Government of Sindh on health department in the year 2012 was 7%. Health needs are being taken care of by both public sector as well as the private sector. There are in total 165 hospitals in Karachi, comprising of 12,892 beds, according the Sindh Districts Health Profile 2015.

Malir Subproject Area

Infant mortality is also common in this area. Major diseases among children are skin diseases, malaria, etc. The number of hospitals has also grown. The proposed area comprises of a large number of Medical centers and Hospitals and the list is given below:

- Government Saoodabad Hospital
- Khorapar No.2 Hospital
- Kawish Clinic
- Sindh Heart Hospital

Korangi Subproject Area

Infant mortality is also common in this area. Major diseases among children are skin diseases, malaria, etc. The number of hospitals has also grown. The proposed area comprises of a large number of Medical centers and Hospitals and the list is given below:

- Chinot General Hospital
- Baldia Hospital
- Siddique Clinic & Maternity Home
- Bilqees Hassan Poly Clinic
- Aziz Hospital Korangi

- Arhama Clinic
- Karachi Medical Center
- Falahi Markaz, Health Care Center
- Korangi Maternity Home
- Azam Medical Center
- Child Care Hospital
- Zehra Khatoon Clinic
- Layton Rehatullah Benovalent Trust (LRBT) Free Eye Hospital
- The Indus Hospital (Korangi Crossing)

Saddar Downtown Subproject Area

Health issues of the Project Area are generally associated with the lifestyle. Lifestyle-related diseases like hypertension, heart attack, diabetes, liver disease, depression and cancer are commonly reported in this area. Health facilities are quite adequate and of high standard within this town. There are a lot of private clinics and hospitals in Saddar town and its nearby areas, while the main hospitals which are at accessible distance from the project site are as follows:

- Kutiyana Memon Hospital
- Kharadar General Hospital
- Burhani Hospital
- Sindh Institute of Urology and Transplantation
- Civil Hospital
- Services Hospital

4.3.11. Educational Facilities

Quality education is the basic right of all citizens. For any society to prosper, it is necessary that all citizens have access to education. Being Pakistan's biggest city, Karachi possesses a reasonably good educational system with a large number of institutions (schools, colleges and universities). The city is considered as a prominent education center in Pakistan. The educational institutions not only serve the localities where these are located but also serve people coming from all over Pakistan, particularly in the area of higher education. According to Reform Support Unit, Education Profile 2014-15, there are about 3,097 schools in Karachi with total enrolment of 463,586 pupils.

Saddar Downtown Area

Educational facilities in the surrounding area of the Project are excellent. Availability and access to all levels of education is well provided because of efficient and effective management system to facilitate and promote higher education. Literacy rate among females is comparable with males. Training in technical skills is equally adequate. Skilled labour consisting of drivers, mechanics, water pump attendants are estimated to be less than 10 % of the total population in the Project area. Some of the prominent educational institutes in the surrounding areas include:

- NED University City Campus

- Sindh Madressa-tul-Islam University
- Sindh Muslim Science College
- DJ Science College

Malir Area

A large number of educational Institutions are providing primary to tertiary level education in this area. The prominent among these are Shafaq Public School, Al Mobeen School, Superior Grammar School, F.J Grammar School, Najam's Coaching Centre, Kamran Public High School, Green Peace Public High School, Al-Riyadh Grammar School, Hanifia Public School Campus 5 and F.J Grammar School Campus II. But these institutions do not facilitate the population of project area; because these are not affordable for local community and their socio-economic condition do not allow them to avail.

The adult literacy is quite low in the area. Some other schools and colleges are Green Land High Secondary School, Government Ayesha Boys Lower Secondary School, Government Saoodabad/Murad Memon School and Government Girls Secondary School.

Korangi Area

A large number of educational Institutions are providing primary to tertiary level education in this area. The prominent among these are Karachi Institute of Technology & Enterprises (KITE), Institute of Business Management, Reflections Campus-I. These institutions are ranked among the best educational institutions in Karachi. But these institutions do not facilitate the population of project area; because these are not affordable for local community and their socio-economic condition do not allow them to avail.

The adult literacy is quite low in the area. Some other schools and colleges are Raffai Grammar Secondary School, Altaf Hussain Boys & Girls Primary School, the Knowledge Academy, Deaf Sign Language Interprets warfare Organization, Millat Govt-Boys Secondary School-Korangi No 2, Kingston School & Collage, Govt. Degree Boys Collage, Kids Islamic University etc.

4.3.12. Electric Power[53]

Electricity in Karachi is produced and supplied by K-Electric, which has the exclusive license to supply electric power to Karachi and the adjoining area. It produces electricity from its own generation units with an installed capacity of 2341 MW. It also has power purchase agreements for 1021 MW from various IPPs (Independent Power Producers), WAPDA, KANUPP (Karachi Nuclear Power Plant) and through imports.

K-Electric's transmission system comprises a total of 1249 km of 220 KV, 132 KV and 66 KV lines with 62 grid stations and 128 power transformers. The Company's current transmission losses are less than 1.03%. K-Electric is rehabilitating and upgrading its transmission and grid stations with the state-of-the-art SCADA (Supervisory Control and Data Acquisition) system to monitor online and real time monitoring of the network, compatible with the fast industrial, commercial and residential development activities in the city. This will provide stable and uninterrupted power supply to customers.

4.3.13. Water Supply

The residents of Karachi get their water supply from two sources; River Indus and Hub dam. The approved quota for the Karachi city from River Indus is 1200 cusecs or 650 Million Gallons per Day (MGD). However,

[53] Website of K-Electric

the present water supply to Karachi from River Indus through various schemes is about 584 MGD. Hub dam supplies about 50 MGD. The Hub dam supply is rain fed so it fluctuates between about 30-75 MGD. Table 4.1 summarizes the water supply schemes from Indus River.

Table 4.12: Water Supply Schemes from Indus River to Karachi

S. No.	Water Supply Scheme	Supply (MGD)
1.	Haleji Scheme	30
2.	Greater Karachi Bulk Water Supply Scheme Stages I to IV	280
3.	K ll Scheme	100
4.	Additional Water Supply from GK BWS System	40
5.	Pakistan Steel	26
6.	Port Qasim Authority	7.5
7.	K III Scheme	100
Total Present Withdrawal		583.5
Approved Water Quota		650

Source: KW&SB

The poor residents of katchi abadis often depend on private water sellers or polluted water sources (broken mains, informal community taps, ponds, etc.). Karachi's private water sector consists of a network of transporters, who obtain water from one of the nine official or many unofficial filling points and supply it through tankers to the communities. From there, small-scale water carriers deliver water to the households[54].

Table 4.3 summarizes the percentage distribution of households by source of drinking water.

Table 4.13: Percentage distribution of households by source of drinking water

Area	Tap Water	Hand Pump	Motor Pump	Dug Well	Others
Karachi	84	1	1	1	13
Urban	85	1	1	1	12
Rural	54	5	7	9	26

Source: Pakistan Social and Living Standards Measurement survey (PSLM) 2014-15

The forecasted water demand for Karachi is shown in the Table 4.4.

Table 4.14: Karachi Water Demand Profile

Indicator	2005	2010	2015	2020
Population (million)	15.12	18.93	23.13	27.55
Domestic Water Demand (MGD)	414	518	633	752
Other User Water Demand (MGD)	-	33.8	423	518
Total Water Demand (MGD)	-	752	419	1151

Source: Karachi Strategic Development Plan 2020

4.3.14. Karachi Transportation System

The intra-city road network has a radial pattern, consisting of a series of arterials, a few circumferential roads with inconsistent links and a disproportionately large number of local and collector roads. In terms of connectivity, the network is deficient in secondary roads that provide feeder service to major thoroughfares. The weakness has basically arisen from the piece-meal development focused on residential schemes in the past. Although the maintenance of Karachi's roads has been poor and problematic, in recent years substantial improvements have been effected through construction of flyovers, underpasses, remodeling of intersections and road rehabilitation. To cater for the heavy traffic to and from the Karachi port, two logistic bypasses

[54] Roohi Abdullah. World Bank, The Role of Private Vending in Developing Country Water Service Delivery: The Case of Karachi, Pakistan, June 1999

have been completed, and for the same purpose the Lyari expressway is being constructed. These would well serve an integrated logistic system.

Of 24.2 million trips taken every day in Karachi, the public transport (buses) is deemed to provide 50-60 percent of all trips, para-transit (taxis and rickshaws) and private cars account for about 20 percent of the trips. Pedestrian trips represent about 20 percent of all the trips[55].

4.3.14.1. Road Network

Three highways link Karachi to other parts of Pakistan. These are the Super Highway (M-9), National Highway (N-5) and RCD Highway (N-25). The Super Highway extends to Hyderabad while the National Highway extends to Hyderabad-Lahore-Peshawar - Torkham. The RCD Highway links Karachi to Chaman via Quetta.

Karachi has six trunk roads which extend radially from the central area. These are Korangi Road extending south eastwards, Shahrah-e-Faisal Road extending eastwards and connecting with the National Highway, University Road extending north eastwards, M.A. Jinnah Road that connects Shahrah-e-Pakistan Road extending north eastwards and connecting with the Super Highway, Chaudry Fazal Ellahi Road that connects with Nawab Siddiq Ali Khan Road via Nazimabad extending northwards and the RCD Highway extending north westwards via Maripur Road. Meanwhile, the Lyari Expressway runs along Lyari River from the river mouth at Maripur Road to Shahrah-e-Pakistan. The section on the left bank has been completed, but the section on the right bank is currently only partially completed.

4.3.14.2. Road Length

According to the KSDP-2020, the total length of roads in Karachi City is approximately 10,000 km. By type of road, local roads account for 93%. The combined length of expressways, principal arterial roads and minor arterial roads is less than 5% of the total.

Table 4.15: Road Length by Road Category

Expressway	Principal	Minor	Collector	Local	Total
77.2 km	265.9 km	169.1 km	243.3 km	9,197.8 km	9,944.3 km

Source: Karachi Master Plan-2020 Transport Sector Report Table 4.6.2

The arterial road network including expressways and highways in Karachi City is shown in table 4.11. Total length of the arterial road network is 884 kms.

Table 4.16: Arterial Road Lengths

Expressway	Highway	Highway Principal Arterial	Minor Arterial	Total
25.6 km	173.2 km	157.2 km	527.9 km	883.9 km

Source: KTIP Study (JICA)

4.3.14.3. Number of Privately owned Automobiles

The registered vehicles in Karachi can be observed from the following table. The vehicles are registered under the Excise & Taxation rules, Government of Pakistan. As a Part from this, a good number of vehicles playing in Karachi are registered in other cities. Numbers of unregistered vehicles are also observed in the city.

[55] KTIP Study, JICA, 2010

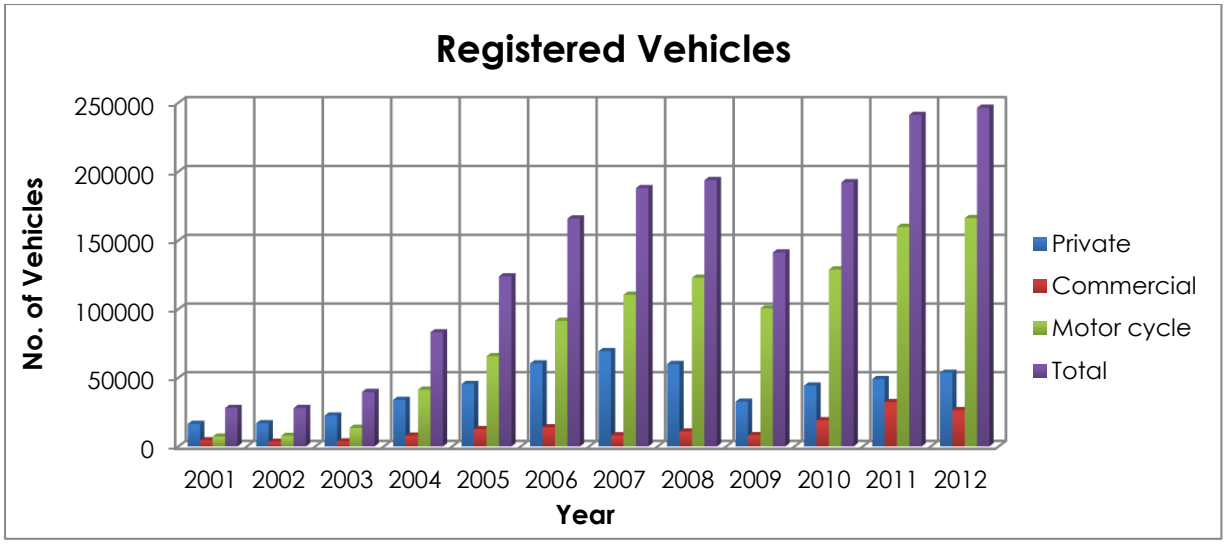


Figure 4.14: Number of Privately owned Automobiles[56]

There is no road-capacity related vehicle policy. Vehicles are being added at a rate of 413 units per day on Karachi roads whose capacity had been exceeded by a factor of 3 in the 1960s. This has resulted in inefficiency in the sector and higher costs to the user. There is lack of clarity regarding the participation of the private sector in the Transport Sector. The government has been unable to forge a clear set of policies that would help to forge an effective partnership between the public and private sectors for the development and growth of the Transport Sector in Pakistan.

4.3.14.4. Subproject Areas Roads system

Saddar Downtown Area

Saddar Downtown is an area of approximately 1-2 square kilometers located within the city center and comprises prominent spaces such as the historic Empress Market, Burns Garden, Aram Bagh park, various higher education institutions and government/ administrative buildings, Pakistan Chowk area (a square comprising two traffic islands and serving as a junction for five roads providing an entry point into the popular Burns Road Food Street area), and significant cultural spaces including the Arts Council, National Academy of Performing Arts and the National Museum (located in Burns Garden).

Malir-Khokrapar Road

North-bound Track comprises of approximately 39ft wide carriageway with a footpath of approx. 23.96ft which varies at different segments, and a median of 8.33ft. The road also consist of a service road (north bound) as well which runs from 0+00km up till 0+620 km of the alignment. South-bound Track is approx. 20ft wide with a shoulder of width which varies throughout the alignment.

Korangi Roads

Korangi's main road has a width of approximately 80ft including 40ft wide median. The road extends from the coast guard intersection till 2.25km of the alignment; at the "Chungi intersection". After that point, the road narrows to 35ft and gets further narrowed to 25ft.

[56] Motor Registration Civic Centre Karachi 2009-2012

4.3.14.5. Traffic Management

1) One-Way Traffic Control

One-way traffic control system was first introduced in CBD area and Landhi Town as shown in figure 4.10.

4.3.14.6. Parking Facilities

Figure 4.11 show multi-level parking facilities and off-street parking lots respectively. Of these, PM1 is located inside the CBD and is already operating. Other multi-level parking facilities are either at the construction stage or planning stage.

4.3.14.7. Traffic Jams

According to a research study "Factors Affecting Traffic Jam in Karachi and its Impacts on Performance on Economy[57]" main reasons for traffic jam in Karachi are shown in the figure below:

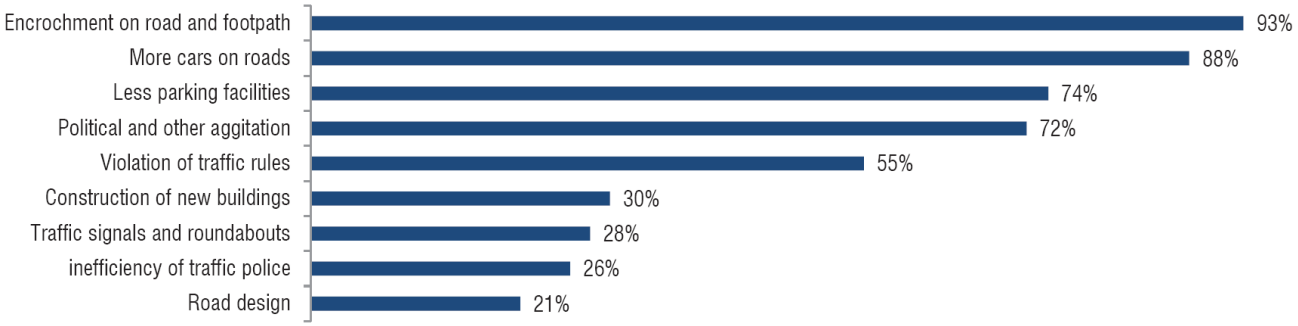


Figure 4.15: Reasons for Traffic Jam in Karachi

4.3.14.8. Public Transport

Railway

Currently, passenger trains are operated by Pakistan Railways (PR) for inter-city services only. PR is a state-owned railway service company under the Ministry of Railways of the GOP. The track of the inter-city railway runs parallel with the important east-west corridor along Shahrah-e-Faisal Avenue. The route is called as "Main Line". There were 15 trains departing and arriving Karachi Cantonment Station each day with 17,000 passengers, according to the Cordon Line Survey in KTIP Study.

Karachi Circular Railway (KCR) was introduced in 1969 by PR and provided the service until 1999. The length of the circular line is approximately 40km. The reason for its closure was that KCR could not attract public passengers due to its insufficient and inefficient services.

Bus

Buses are the major transport mode in Karachi. Minibus is a popular bus with a rich decoration and roof top seats. The usage of roof-top seats is prohibited in principal but the seats are commonly used by many passengers because of insufficient bus capacity.

57

http://www.kasbit.edu.pk/KBJVol_5/4%20Faiq%20Matin%20%20FINDING%20FACTORS%20OF%20TRAFFIC%20JAM%20IN%20KARACHI%20AND%20ITS%20IMPACT.pdf

There are approximately 10,000 minibuses in Karachi. It should be noted that the number of bus fleet has been decreasing while the population is increasing and the city is apparently expanding. Buses in Karachi are operated at average speeds of 15-24 km/h. The difference of travel speeds of buses between peak hours and off-peak hours is not large because of frequent stoppage both in peak hours and off-peak hours.

Figure 4.16: Minibus & Bus

Public Transport Survey was conducted in Karachi Transport Improvement Project (KTIP) Study (KUTMP 2030) to investigate bus frequency. Frequency for 12 hours (6:00–18:00) varies from 10 to 495. Route "W-11", which connects Tower and North Nazimabad, is the most frequent route, where a bus runs every 45 seconds in peak time. The 12-hours frequency of "W-11" in front of KMC building (along M. A. Jinnah Road) was as large as 495. There are about 30 routes concentrating on M. A. Jinnah Road, which is the busiest bus transit route. Route "D-7" is the second at 397, which connects Super Highway and Landhi through Rashid Minhas Road. Public Transport Survey recorded 132 routes during the survey in which 70% of bus routes have less than 100 bus trips within 12 hours.

Figure 4.17: The width of each road line represents the number of buses operated for both directions per day. (Source: Public Transport Survey in KTIP)

Following Bus routes are available in area of intervention

Bus Number	Route Name	Major Bus stops near project areas
45-A	Khokrapar No.4 to Hub River Road	Khokrapar No.4, Saudabad, Liaquat Market
National Pakhtoon Coach	Gulshan-e-Behar to Chaman Colony	Model Colony, Saudabad, Khokrapar No.1, Khokrapar No.4
S-2	Korangi 100 Quarter to Ayub Goth	Korangi 100 Quarter, Chungi Naka Coast Guard, Korangi No.2, Korangi No.1, Korangi Crossing
17-I	Ghous Pak to Pahalwan Goth	Ghous Pak, Coast Guard, Korangi No.2, Nasir Colony, Chamra Chowrangi
Rainbow Coach	North Karachi Sector 2 to Korangi No.1	State Bank, Pakistan Chowk, Shaheen Complex
Rainbow Flying Coach	North Karachi Sector No.2 to Gulshan-e-Hadeed Phase 3	State Bank, Pakistan Chowk, Shaheen Complex
Rehman Coach	Orangi No.14 to Khayaban-e-Shamsher	Pakistan Chowk, Dr.Ziauddin Road, Shaheen Complex
19-D	Faqir Colony to Gizri	Shahra-e-Liaquat, Fresco Chowk, Mohammad-Bin-Qasim Road, M.A Jinnah Road, Mansfield Street, Empress Market
4-G	Nai Abadi to Tower	Empress Market, Frere Road, Burns Road, M.A Jinnah Road
4-L	Maymar Complex to Tower	Empress Market, Burns Road, M.A Jinnah Road
5-D	Musa Colony to Dockyard	Empress Market, Frere Road, Burns Road, Bandar Road, Tower, Dockyard
8-A	P.I.B Colony to Keamari	M.A Jinnah Road, Frere Street, Preedy Street, Frere Road, Ingle Road
22-A	Rashidabad to Cantt Station	Baba-e-Urdu, Frere Road, Court Road, Sarwar Shaheed Road, Shahrah-e-Iraq, Masjid-e-Khizra, Burns Road, M.A Jinnah Road
Source: http://karachiroutes.blogspot.com/		

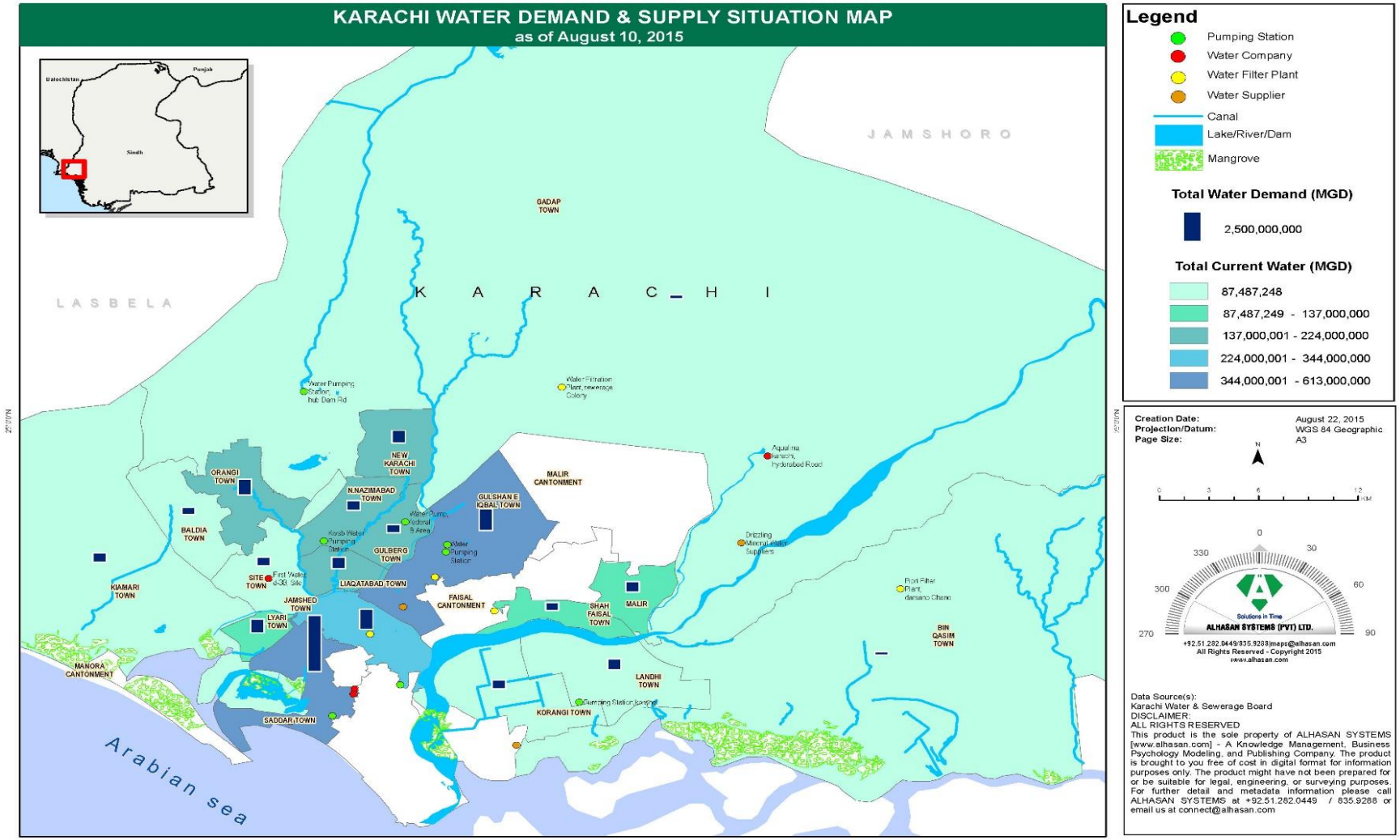


Figure 4.18: Karachi Water Demand Map[58]

[58] Alhasan Systems (Pvt.) Ltd.

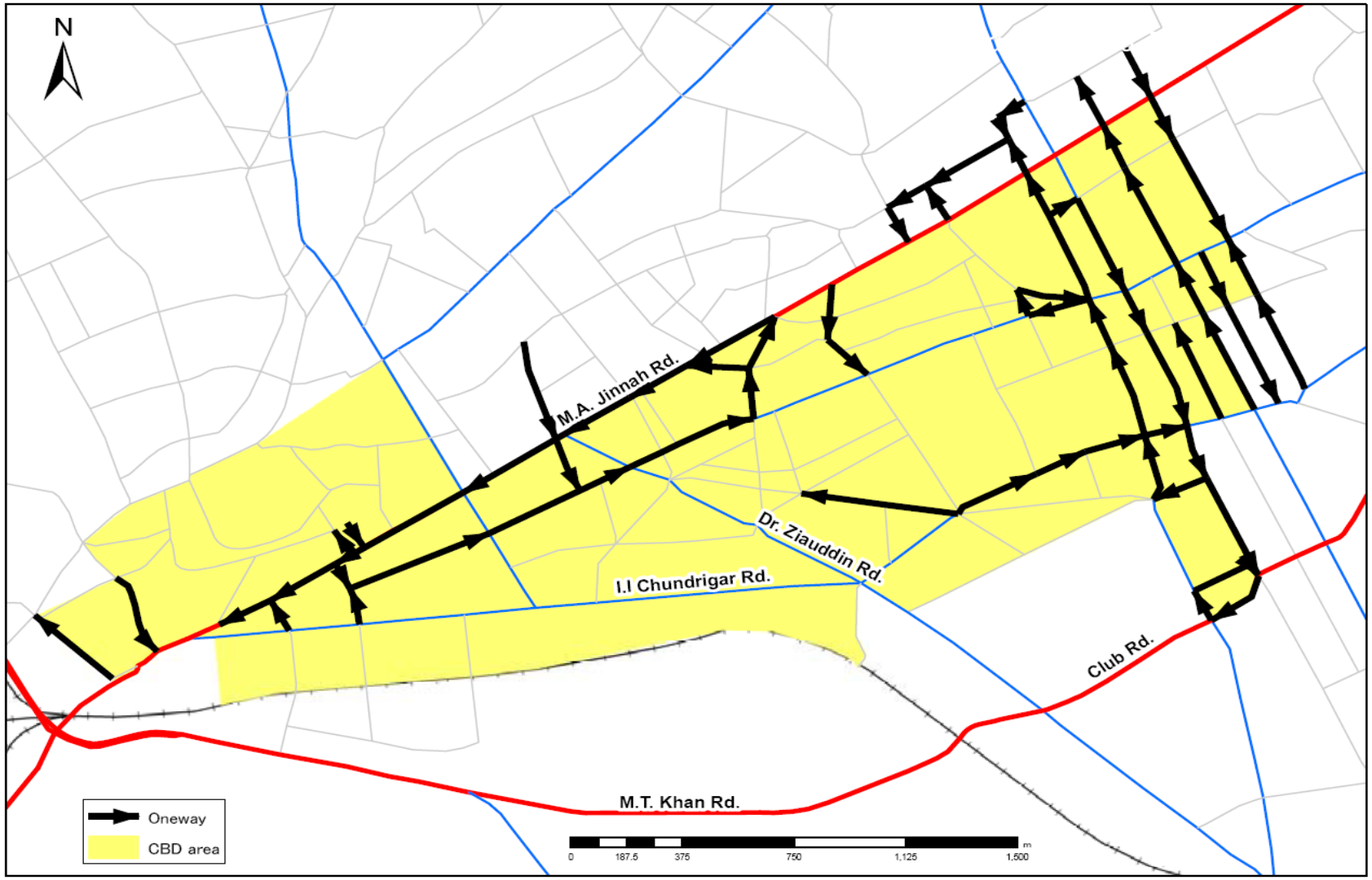


Figure 4.19: One-Way Roads in CBD[59]

[59] Karachi Transportation Improvement Project (KTIP) Study, JICA, 2010

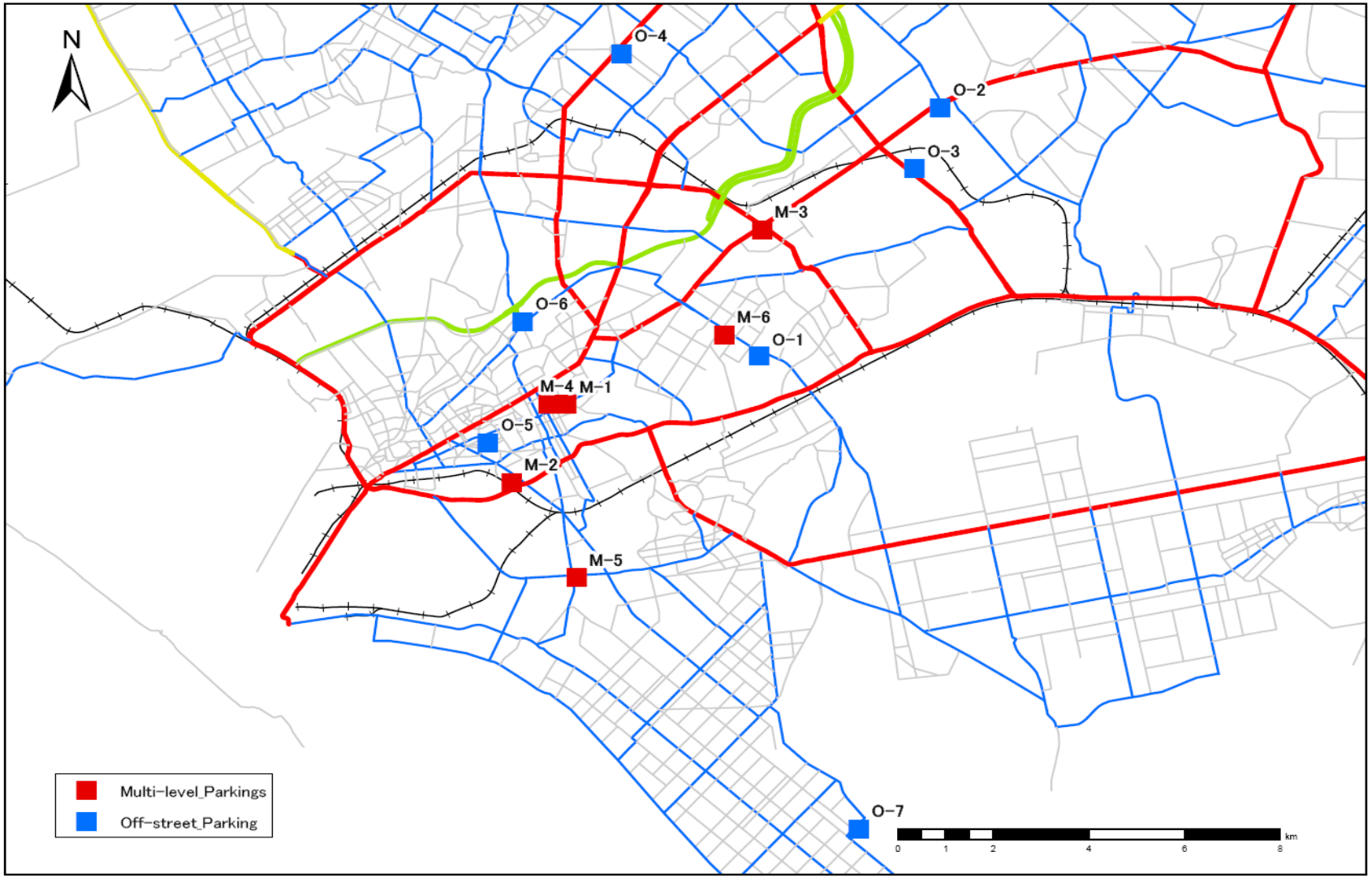


Figure 4.20: Location of Off Street Parking[60]

[60] Karachi Transportation Improvement Project (KTIP) Study, JICA, 2010

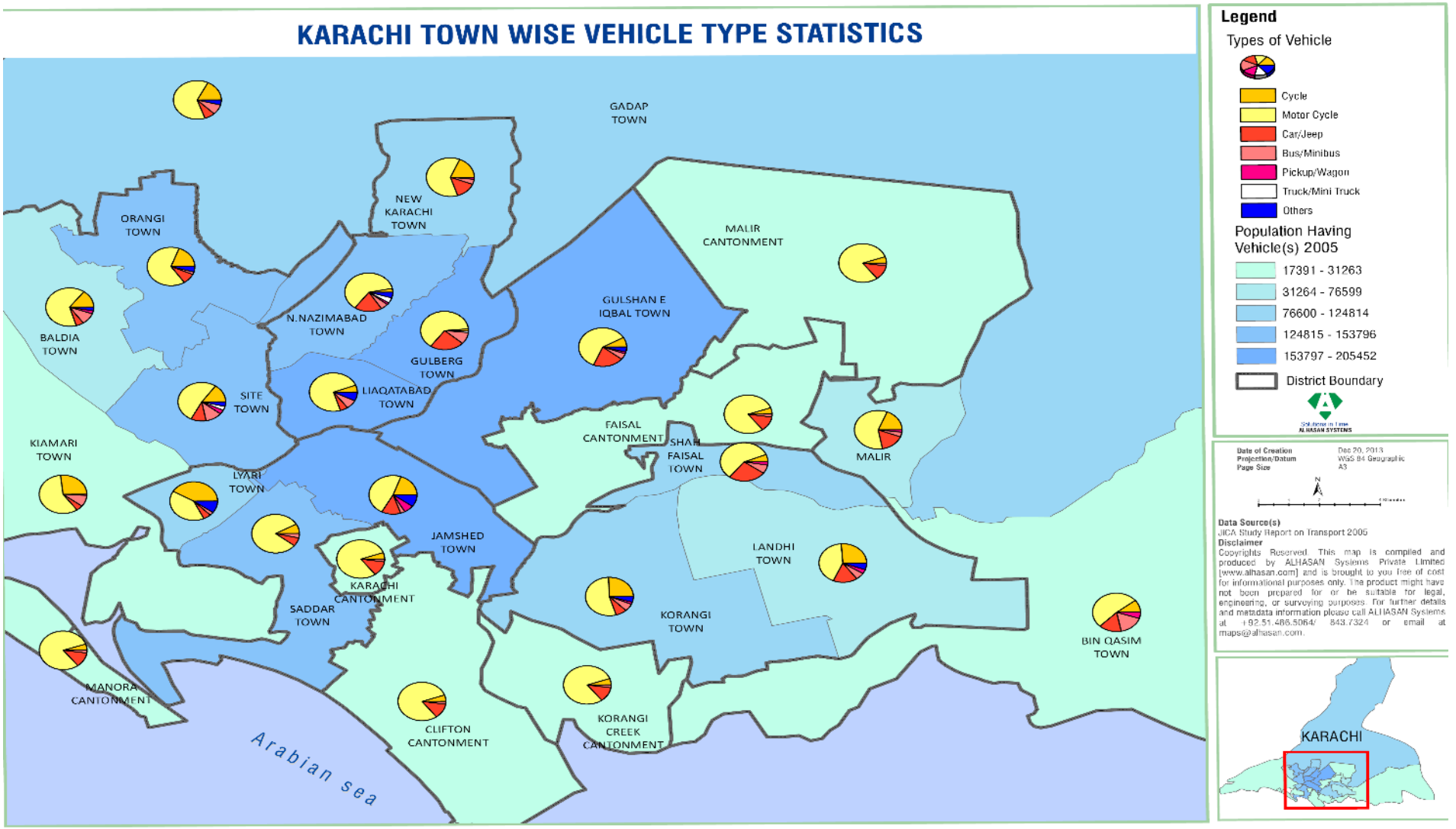


Figure 4.21: Karachi Town-wise Vehicle type statistics[61]

[61] JICA Study Report 2005

Inter-modal Transfer Facility

The major inter-modal transfers in Karachi are transfers between inter-city buses and local buses, transfers at the airport, and transfers at PR stations. There are four inter-city terminals in Karachi as follows:

- Karachi Cantt. Station (inter-city for National Highway),
- Lee Market Bus Terminal (inter-city for National Highway and Super Highway),
- Daewoo Bus Terminal (inter-city for Super Highway), and
- RCD City Terminal (Karachi – Baluchistan)

Car and taxi are the major modes of the feeder transport from/ to RCD City Terminal because public transport service between RCD City Terminal and the center of the city is poor. Illegal parking of inter-city buses is observed in Saddar Area because there is no inter-city bus terminal in Saddar Area except for Karachi Cantt. Station but the passenger demand is high.

4.4. Reconnaissance Surveys

After initial information was collected and reviewed, Reconnaissance Survey (RS) in each project location was conducted by ESMF Consultant to collect primary information for the sub-projects. The brief methodology and pictorial evidences of conducting RS is presented in **Annex C**.

4.4.1. Summary of Findings of RS

- The Downtown area of Saddar where Pakistan Chowk, Merewether Tower, Phase-III Empress Market area is located is considered to be a historical area where most of the protected heritage sites and old buildings are located. Also this area is considered to be the Central Business District (CBD) in which most of the main markets are located which not only impact the economy of Karachi but overall Sindh Province as well.
- Due to its economic importance, almost 80% of the population of Karachi is concentrated in this area during work and business hours resulting in severe traffic congestion. Despite the ban placed by traffic police on most of the streets of CBD, vehicles are parked on the street side encroaching one lane of the road which results in traffic congestion. On the other hand, pedestrian movement is also large as compared to other areas due to extreme traffic congestion in CBD and commercial activity. People prefer to travel on foot using roadsides and footpaths in CBD.
- The road network carries major traffic for the sub zones for access to education, government offices, commercial shops, food & restaurants and recreational points.
- Karachi is currently highly dependent on car and motorcycle use. Due to lack of public transport system, people also use Rickshaws as alternative mode for trips. These three modes have highest traffic volume within Saddar Area.
- Congestion is also visible during peak hours on major roads of the area. The roads are being utilized with beyond their capacity especially in Saddar area during peak hours. Traffic moves at slow speed in this area.
- There is presence of walkways alongside the roads but it does not encourage the use of Pedestrian due to following reasons:
    - Encroachment by shop owners
    - Parking of motorcycles

  - Does not have continuity or linkage
  - Most of the utilities run under the pedestrian walkways and are in bad condition
- On the walkways and street side in Saddar Downtown area, old Banyan and Burna trees are located which can be 50 – 80 years old. These trees not only provide shelter to the pedestrian but also provide shelter to native birds.
- The signals in the road are placed for traffic movement only; hence there is no presence of crosswalks on signals in all sub-project locations.
- There is no proper signage, lane marking and cross walks within the project boundary.
- Korangi area is considered as an industrial hub. On the roads of Korangi, heavy traffic is observed during business hours. Also during peak hours, industrial workers and laborers vehicles ply on the wide streets of Korangi. This area lacks natural vegetation but the islands between roads are encroached by Plant Nurseries.
- Malir-Khokrapar area is considered to be a Residential area which houses majority of labor class working in Korangi and Landhi industrial areas. One side of the double street in Malir-Khokrapar is flooded with sewerage water and is unavailable for road users. The median of the road has also become a dumping site of municipal waste. People usually throw waste on the medians due to lack of MSW bins or facilities. The Thaddo Nallah (natural storm water drainage) at the end of the road was dry at the time of RS survey.
- There were no permanent encroachments along the roadsides but mobile vendors and hawkers encroach upon the road and walkways and permanent shopkeepers place their assets on the walkways.

Chapter 5 PROJECT PREPARATION, APPROVAL AND IMPLEMENTATION

This Chapter assesses the potential impacts of the proposed project on environment and people. Also provided in the Chapter are the generic mitigation measures to minimize if not eliminate the potentially negative impacts, in order to ensure that the interventions under the proposed project do not cause environmental and/or social impacts beyond the acceptable level.

5.1. Environmental Safeguards Processing Steps

For each sub-project, implementation of environmental requirements will follow the following steps closely linking with activity planning, design and implementation steps.

- Step 1: Preliminary Environmental Information and Analysis
- Step 2: Preparing Environmental Management Plan
- Step 3: Environmental Clearances
- Step 4: Inclusion of Environmental Specifications and Environmental Management Plan in bid documents
- Step 5: Environmental Method Statements (for large investments)
- Step 6: Compliance and Monitoring

Based on type of construction required, all preliminary information analysis including Environmental Management Plans must be completed prior to awarding of contracts for construction.

5.2. Subproject Screening

The ESMF categorizes subprojects on the basis of their nature of activities, and potential impacts on environment and or people. The ESMF specifies a different type and extent of environmental and social assessment that will need to be carried out before initiating each category of subprojects.

Neighborhood Screening: The initial screening was done to identify potential neighborhoods using simple criteria to exclude neighborhoods and projects with any significant long term and irreversible environmental and social impacts. The criteria also included zones with potential demonstrative effects for the livability and accessibility improvements; complementarity with ongoing or future interventions for public space redevelopment; community engagement in marginalized neighborhoods and to support confidence building measures. The initial screening also ensured that neighborhoods in sensitive locations and requiring land acquisition are to be avoided.

Subproject Screening: All activities proposed for the subprojects shall be screened on the basis of pre-determined criteria which includes project development objectives, enhancement of public space assets, readiness and quick implementation, no major or irreversible environmental and social impacts and economic viability. Generally, subprojects with any significant long-to-medium term irreversible environmental and social negative impacts will be avoided. The assessment will be carried out with a help of a rapid assessment checklist included in Annex B. Subprojects having some negative but localized environmental and or social impacts will require Environmental and Social Management Plans (ESMPs) based on the TORs presented in **Annex H** and generic ESMP is presented in section 06.

The subprojects will include interventions such as food streets, markets and bazaars; community amenities and public toilets; improved paving for sidewalks, pedestrian crossings and roads; street lighting,

landscaping, street furniture including MSW containers and bins, or way finding signs; playgrounds, sports fields, or community centers; reorganized street parking or improved bus facilities; repaving roads with rehabilitation of selected underground network; reorganizing parking at selected locations; and better street crossings at appropriate locations. These components can potentially cause negative environmental and social impacts. However, exact nature, extent, and location of these subprojects is not known at this stage.

5.3. Project Approvals

Some of the subprojects may involve the requirement of taking approvals from local agencies and Government of Sindh departments. For example, civil work undertaken near any protected antiquity would require approval from Antiquities Department / Advisory committee, Government of Sindh and maintenance of roads will require approval from Sindh Environmental Protection Agency (SEPA). The Environmental and Social Safeguard (ESS) checklist or the sub-project ESMP will refine and pin point the requirement of approvals before the implementation of these sub-projects. The following table presents the requirement of approvals from local agencies:

Table 5.1: Requirement of Approvals

Anticipated subprojects	Approvals required	Remarks
Repaving roads with rehabilitation of selected underground network	Sindh Environmental Protection Agency (SEPA) as per section 17 of Sindh Environmental Protection Act 2014.	The sub-project ESMPs will be submitted to SEPA with the request for providing the approvals.
	Director of Antiquities Department, GOS / Advisory Committee formed under Sindh Cultural Heritage (Preservation) Act, 1994	The sub-project ESMPs will be submitted to the department including guideline for determination of the suitability of the subprojects from the perspective of PCR and requesting approvals.
Street crossings / pedestrian bridges at appropriate locations	If the proposed pedestrian bridges come across or passing very close to overhead electric cables, approval / consent will be required from K-Electric for the erection of these bridges.	-

5.4. Assessment of Potential Impacts and Generic Mitigation

The potentially negative impacts identified with the help of environmental screening discussed in Section 5.1 are assessed in the subsections below. The generic mitigation measures have also been provided here; additional measures may be added as a result of the subproject-specific environmental assessments to be carried out during the Project implementation.

5.4.1. Subprojects Siting

It will be ensured through screening checklist (sample presented in **Annex B**) that the subproject avoids any sensitive locations as well as land acquisition.

Sub-project sites will mainly be located on existing ROW of roads and streets and government acquired land, however, these streets and roads are encroached by hawkers and businesses (hereinafter referred to as Project Affected Persons (PAPs) as per OP4.12) placing their movable assets as mentioned in RS survey. The land/ROW encroached by the PAPs belongs to the GOS. Therefore anticipated impacts on PAPs and migratory/compensatory measure will be devised in Resettlement Policy Framework (RPF) and sub-project RAPs/ARAPs.

5.4.2. Generic Project Impacts and Generic Mitigation Measures

Anticipated Subprojects include implementation of infrastructural interventions in the city like procurement of material, road construction/rehabilitation, pavement improvement, footpath improvement, food street reorganization and improvement of parking spaces. The impacts associated with these activities are physical or economic displacement of squatters / encroachers, temporary traffic congestion, dust emissions, water/groundwater contamination, soil contamination, solid waste management, noise pollution, traffic management and occupational and community risks with regards to health and safety. As part of ESMF, generic impact assessment has been conducted.

Following a description of impacts on each environmental and social components is described along with mitigation measures:

Anticipated Impacts	Mitigation Measures
Impact on PCRs during construction	
It is envisaged that road improvement works will be initiated near PCRs. However, intrusion into the PCRs is not envisaged as the project interventions are not touching PCRs.	- Since the exact locations of subprojects are not known at this moment, a guideline for identification of physical cultural resources and determination of the suitability of the subprojects from the perspective of PCR is provided in the ESMF. The ESMF also includes "Chance Find" procedures for protection of cultural property and contracts for subcontractors will include "Chance Find" procedures. - Structural Engineer of PSC who will assess the stability of the archeological/ historical buildings and nature of interventions near them and decide what intervention can be done near sensitive PCRs. Where required, the services of specialists in old buildings will be engaged. - On the other hand, as mentioned in section 5.4, approvals must be taken from director of Antiquities department and Advisory committee.
Air Quality Deterioration	
Excavation on public roads and removal of old pavement of roads increase dust emissions; Re-routing of traffic and use of diversions may increase traffic congestion on local roads resulting in increase of dust and exhaust emissions from vehicles; Handling and transportation of cement, mortar, concrete and other dusty materials and handling and storage of aggregates in concrete plants; during construction of various infrastructural elements may lead to dust generation and nuisance to the general public, commuters, pedestrians and nearby households. However, these impacts are likely to be localized and not significant.	- Road construction operations should be carefully planned and scheduled and when the traffic movement is minimal e.g. early morning. - It is proposed that only one track at a time will be used for construction and remaining for traffic diversion and pedestrian movement. This will be confirmed after detailed traffic surveys and preparation of traffic management and diversion plan developed by traffic engineer. It will be ensured that residents and other people's access to their properties is not blocked. - Use of water suppression for control of loose materials on paved or unpaved road surfaces. Oil and oil by-products is not a recommended method to control road dust[62]. - Water should be sprinkled daily or when is an obvious dust problem on all exposed surfaces to suppress emission of dust. Wiping and sweeping should be adopted as a continuous activity to keep the surface area of the site clean.

[62] WBG General EHS Guidelines

	- Truck loads should be covered with tarpaulin. - Careful handling and working under moist conditions and monsoon season will be avoided as much as possible. - Construction site including soil and material piles at the site should be barricaded to avoid material escape, generation of dust. - Ready-mix can be used in the stages of the project wherever and whenever required and deemed appropriate. - The exposure of construction workers to dust should be minimized by provision of dust masks and mandating the workers to wear them. - Construction machinery, vehicles should be properly tuned and kept in good working condition, minimizing exhaust and vehicular emissions. It should be ensured that exhausts from these equipment and vehicles comply with relevant SEQS. - Excessive engine idling should be discouraged and machinery causing excessive pollution (i.e. visible clouds of smoke) should be banned from sites. - Monitoring of ambient air quality will be conducted as per EMMP during construction phase. - It is unlikely that vehicular emissions are going to increase after road rehabilitation as the traffic will become smoother. - Open burning of solid wastes, whether hazardous or nonhazardous, is not considered good practice and should be avoided, as the generation of polluting emissions from this type of source cannot be controlled effectively[63].
Noise	
During the construction works, noise will be generated from the operation of machinery, project-related vehicles and material transport. These activities may cause significant discomfort to local residents, shops, and pedestrians and may contribute to the existing noise pollution in the city.	- Machinery operation and high noise activities should be carefully planned and scheduled. - Where that is not possible, high noise activities should cease between 22:00 and 06:00 hrs. - Use noise-abating devices wherever needed and practicable. - Reducing equipment noise at source by proper design, regular maintenance & repair of construction machinery and equipment. - Mufflers or silencers should be used by project-related vehicles.
Water Conservation	
Construction activities in the project can have significant impact on water demand of the area due excavation / rehabilitation of water lines / sewerage lines.	- Water conservation practices should be adopted to prevent wastage of water. - The water supply lines to the construction sites should be checked and repaired for leaks, if any, in order to reduce wastage of water.

[63] WBG General EHS Guidelines

Storm water drainage	
Possibility of flooding from raising of pavements or widening/paving of shoulders when working in monsoon period.	- Avoid construction works in monsoon seasons. - Hydrology of drainage channels if passing through the sub-project sites should not be altered. - Strom water channels/side drains should be constructed to reduce flooding
Surface and Ground Water Quality	
The construction activities can have following impacts: - Spills from construction equipment fuel, construction vehicles and chemicals required during construction may resulting in contamination of groundwater in high water level areas of Karachi; - The contamination chances will be increase in conditions like post-monsoon season, shallow water table and sandy soils; - Inadequate disposal of waste material will result in contamination of land, nuisance to the public and pedestrian and residents; - Sediment laden runoff resulting from excavation activities.	- It will be ensured that the wastes from construction activities are not released into any surface or groundwater source e.g. local Nallah - Prohibit equipment wash-downs outside of the designated areas. - Provide on-site collection of disturbed soil, concrete fines, oils and other wastes generated during activities. - Excavation material /civil works related solid waste should be disposed of off-site or utilized properly. - There will be no labor camp for residing the workers as local labor will be hired. Only Porta cabins of Resident Engineers and PSC staff will be provided that will also serves as the shelter for labor during construction and provision of water. Therefore no generation of wastewater will be envisaged.
Utilities	
Interruption of electricity and water availability are envisaged.	- Relevant institutions such as KE and KWSB should be well-informed and taken on-board before and during the commencement of any activities and their recommendations should be well-incorporated. - Local community should be pre-informed and consulted prior cutting down these utilities.
Waste Management	
Typical solid waste generated during construction include waste concrete, empty cement bags, excavated material, chemical waste generated by general site practices, municipal waste by the site workers etc. The solid waste has the potential to cause negative impact on the surroundings if not properly managed and disposed of. It is likely to block nearby drainage channels that can ultimately cause localized flooding during the monsoon; Waste generated from road construction and up-gradation includes bituminous material, empty bituminous drums, existing wearing and base course scrap etc. Bituminous waste material can impact surface water quality if not properly disposed. Poor waste management practices would result in short term negative impact on the aesthetics of the surrounding. It can also deteriorate air quality.	- The existing wearing and base course scrap can be reused in sub-base course of the new roads or disposed at designated disposal site. - Wastes should be routinely collected from the designated area and disposed at waste disposal facilities. - Empty drums of bituminous material as well as bituminous material itself should be reused as far as possible, recycled back to the asphalt mixer or ultimately disposed at designated disposal sites equipped with geotextile membrane. - Construction sites should be equipped with temporary refuse bins. - The subprojects will be designed employing technologies that minimize generation of solid wastes. - Recycling of solid waste will be carried out as far as possible and practical. - Composting of biodegradable waste will be considered and adopted if practicable.

	- Disposal of solid waste will be carried out in a manner that does not negatively affect the drinking water sources, water channels, natural drainage paths, the existing waste management system in the area, local routes, and general aesthetic value of the area. - No wastes should be dumped at any location outside the site boundary/designated disposal site. - Training should be provided to working personnel for identification, segregation, and management of waste.
Soil Contamination	
Quality of soil at the construction site can be contaminated from either spills or ponding of water or degradation due to activities in the microenvironment of the site. Even though emulsified asphalt and asphalt mixture may temporarily cause odor nuisance during construction, its impact is temporary and not expected to trigger soil contamination.	- Fuel oils, lubricants, and chemicals should be stored in covered diked areas, underlain with impervious lining. - Washing and maintenance of vehicles and equipment should only be carried out at designated areas. - Regular inspections should be carried out to detect leakages in construction vehicles and equipment. - Appropriate implements such as shovels, plastic bags and absorbent materials should be made available near fuel and oil storage areas for removal of oil and contaminated soil.
Traffic Management	
It is envisaged that there would be substantial traffic disruption, congestion, diversion and spillover effect during the construction activities. Vehicular traffic management will have to be undertaken seriously to restrain unnecessary traffic jams that may cause annoyance to the commuters as they project intervention activities may encompass residential, commercial and business areas of Karachi.	- Designated parking areas will be provided for different type of project vehicles within and around the project site. - Traffic management plan will be introduced to manage smooth flow of vehicular traffic and to avoid traffic jam and long queues. - Sign postings, warning signs, diversion signs and barriers will be installed to alert public of all potential hazards including limited access to construction sites. - Ensure safe and continuous access to all adjacent office facilities, shops and residences during construction It is suggested that interventions that involves traffic management like provision of parking spaces, designated parking, prioritization of roads for pedestrian only should be implemented first to avoid traffic congestion while civil works on roads. - Movement of construction material to the project sites should be planned in that way it will not hampered major transport activity e.g. material may be transported at night time when the local trips are minimum. However care must be taken at locations where residents are located and the transfer of material should not be happened during sleeping hours.
Seismic Hazard	
Seismicity has to be considered in particular for the construction of parking plazas.	- No specific mitigation measure other than construction of the building facility in accordance with the Unified Building Codes is recommended.
Impacts on Flora	
The natural vegetation and biodiversity of the area would likely be disturbed by the commencement of infrastructural development activities. Clearing the	- Incorporate appropriate infrastructure design so as to minimize the removal of flora.

vegetation, in particular the old trees of the prevalent species in Karachi, will affect the ecology of the microenvironment.	- Damage to trees will be avoided and trees located along roadside will be protected during construction. - A survey and inventory shall be made of large trees in the project vicinity – large tree should be marked and cordoned off with fencing and their root to be protected.
Social Impacts	
Major social concerns and conflicts during the construction project activities may arise if all the stakeholders are not adequately informed, consented and taken into confidence about the project or its schedule of operations, before the commencement of project activities. If the proposed construction site is not appropriately cordoned off to restrain outsiders from entering the site, issues of trespassing may arise. Quarrels due to traffic congestion and unavailability of parking may also arise. Nuisance to local community and shop vendors is envisaged. The site may be cleared from hawkers and small vendors which may give rise to conflicts.	- Extensive consultation with stakeholders should be carried out beforehand and their feedback, concerns and input should be taken into account in the project planning and execution. - It will be ensured that the construction site is appropriately cordoned off but it will also be ensured that safe and continuous access to all adjacent office facilities, shops and residences during construction will be provided. - Provide alternative traffic arrangement/detours, if necessary so that traffic can be distributed and move on different roads; and, ensure that public/residents association is informed about such traffic diversions. - Provide information to the public through media – daily newspapers and local cable television (TV) services about the need and schedule of work, and alternative routes. - Designated temporary parking places should be provided during the construction phase.
Labor Issues	
The construction of civil works such as road rehabilitation, footpath and pavement improvement, parking plazas etc. poses an inherent risk of injury to labor from accidents. Poor housekeeping practices will lead to stagnant water as breeding grounds for insect vectors (causing malaria etc.). Hazards from handling equipment, ergonometric stress, lifting heavy materials etc. may cause injury to the labor.	To mitigate these potential H&S impacts prior to the commencement of civil works, following measures will be adopted: - Identify and minimize, so far as reasonably practicable, the causes of potential hazards to workers, including communicable diseases such as HIV/AIDs and vector borne diseases; - Avoid stagnation of water and initiate drainage/cleanup of stagnant water; - Provide for the provision of appropriately stocked first-aid equipment at work sites; - Provide for appropriate personal protective equipment (PPE) to minimize risks, such as but not limited to appropriate outerwear, boots and gloves; safety helmets; - Provide training for workers for the use of PPE; - WB Group's Environment, Health and Safety (EHS) Guidelines (attached at the end of this document) will be implemented; - No bonded and child labor will be permitted at site; - Major labor laws will be followed e.g. Minimum Wage, Hours of work, Overtime Payment. - Also laborers will be trained on appropriate interaction with local people especially women;

	- Include procedures for documenting and reporting accidents, diseases, and incidents; and - All safety precautions will be taken to address safety hazards for the nearby community. These precautions may include safety/warning signage, safety barrier around the construction site. - Lighting provided for labor during night time work should be adequate but spot lights that should not create nuisance to nearby local residence. - The construction contracts will include appropriate clauses to protect environment and public health. The sub-project ESMPs will be included in the bidding document; - There will be no labor camp for residing the workers as local labor will be hired. Only Porta cabins of Resident Engineers and PSC staff will be provided that will also serves as the shelter for labor during construction and provision of water. Therefore no generation of wastewater will be envisaged; - WB Group's Environment, Health and Safety (EHS) Guidelines (attached at the end of this document) will be implemented.
Local economy such as employment and livelihood	
Clearance of existing structures and private properties and prohibition of vending activities in ROW will force the PAPs to adapt their employment and livelihood to the new condition.	- The impacts and measures to avoid, mitigate or compensate the loss of PAPs will be covered under Resettlement Policy Framework and subproject RAPs/ARAPs. The RAPs will be implemented prior to the commencement of civil works. - The commercial zone proposed under the zoning of urban design will accommodate these vendors and mechanism to restore and monitor their livelihood will be part of sub-project RAPs/ARAPs. The RAPs will be implemented prior to the commencement of civil works.
If the crossing facilities are not appropriately developed in areas where there are markets and businesses, pedestrians will have difficulty in crossing roads. It will have a negative effect on the regional economy, in areas such as employment and livelihood.	- Adequate crossing facilities will be developed and included in the project for pedestrians as well as walkways will be improved.
Gender	
If pedestrian crossings are not developed in areas where stations of public transport are located along the target road, there may be negative effects on women who are wearing clothes that make it slow to walk or who are with children.	- Adequate crossing facilities will be developed and included in the project for pedestrians as well as walkways will be improved. - Due to the improvement in local road network, removal of mobile vendors in walkways and improved bus facilities, pedestrians including women and children have better access to crossing facilities and walkways.

5.5. Institutional Arrangements

To ensure compliance with environmental and social safeguards, Environment and Resettlement Unit (ERU) under PIU will be responsible for the overall implementation and monitoring of all environmental and social aspects depicted in ESMF at the PIU level.

PIU's ERU

To oversee the implementation of environmental and social safeguards issues especially resettlement, an Environment and Resettlement Unit (ERU) under PIU will be created comprising of one (01) Environmental Specialist, one (01) Resettlement Specialist, one (01) Social development specialist and one (01) Gender specialist and one (01) Labor Specialist. This unit will be responsible for all issues related to ESMP production, quality assurance, implementation and monitoring. **The ERU will hire a Consulting firm or individual consultants with requisite expertise to produce ESMPs for various subprojects. The ERU will conduct initial screening of all proposed sub-projects and determine the scale of environment and social impact. ERU will produce Terms of Reference for the task and facilitate all stages of ESMP production.**

Construction Contractor(s)

At field level, Construction Contractor(s) (hereinafter referred to as "CC") appointed for the sub-projects will be responsible for the implementation of subproject ESMPs and site specific management plans. CC will deploy their adequate ESS staff on-site to implement the site-specific plans. CC will also be responsible for onsite monitoring of environmental and social attributes. CC will provide trainings to his staff related to environment, health and safety.

Project Supervision and Contract Management Consultant

The Project Supervision and Contract Management Consultant (hereinafter referred to as "PSC") will be responsible for providing technical support to the PIU's ERU. They will be responsible for ensuring that site specific ESMPs are implemented by CC. In case, if site specific ESMP requires an amendment, PSC will technically review the mitigation plans provided by CC and provide their technical feedback to ERU on their suitability. Based on this technical feedback, the CC may amend or update specific plans. Once these are final, they will be submitted to PIU's ERU for approval.

PSC will also develop the training manuals, supervise the trainings and awareness raising activities provided by CC to its staff and communities, review the trainings carried out so far, identify non-compliances/gaps, and recommend changes, if any.

PSC will undertake day-to-day supervision of ESMP implementation by CC. They will oversee if the CC has undertaken the required mitigation measures at the appropriate time and with technical vigor.

Monitoring and Evaluation Consultant

In parallel, Monitoring and Evaluation Consultants (hereinafter referred to as "MEC") will be appointed to monitor and evaluate the project progress and ESMP implementation. MEC will independently monitor implementation of ESMP and report to PIU. MEC will report lapses by CC and supervisory role of PSC.

Safeguard staff and Resources

CC, PSC and MEC are expected to recruit adequate staff on social and environmental safeguards to fulfill the ESS requirements. Table below shows each position and its responsibilities under proposed implementation framework and figure 5.1 presents the overall ESMF implementation framework for the project.

Table 5.2: Implementation framework Responsibilities		
S#	**Position**	**Responsibilities**
At PIU Level (ERU)		
1.	Project Director (PD)	- PD will be overall responsible for ensuring the ESMF compliance throughout the project; - PD will ensure transparent and cost effective monitoring; - PD will engage PSC and MEC to carry out efficient monitoring of the project; - PD will hire a Consulting firm or individual consultants with requisite expertise to produce ESMPs for various subprojects.
2.	Environment Specialist	- The Environmental specialist (ES) will be directly responsible for guiding subproject ESMPs implementation, quality assurance and progress reporting; - Assure the quality of all site-specific plans prepared by CC and reviewed by PSC through onsite audits and by overlapping the plans with the baseline conditions; - Participate in the review and clearance of subproject plans for compliance with the Bank's safeguards policies; - Visit the subproject sites and audit the sites on the basis of approved site-specific plans to check its implementation and viability; - Approve and assure the quality of quarterly progress reports prepared by CC for further submission to World Bank and other stakeholders as defined in the ESMF and sub-project specific ESMPs.
3.	Resettlement Specialist	- The Resettlement Specialist under Resettlement Unit will be directly responsible for the quality assurance of resettlement planning. - Provide technical guidance and actively support the implementation of RAPs; - Guide the consultation process required for the implementation of the resettlement action plans; - Approve and assure the quality of quarterly progress reports prepared by CC for further submission to World Bank and other stakeholders as defined in the RPF and sub-project specific RAPs/ARAPs; - Participate in stakeholder consultation as per RPF/subproject RAPs and ESMPs.
4.	Social Development Specialist	- He/She will be responsible for overall social safeguards of the project particularly on social aspects of ESMPs; - Conduct stakeholder consultation and participation as per RPF/subproject RAPs and ESMPs; - Assist with the smooth functioning of GRM.
5.	Gender Specialist	- Collection of gender disaggregated socio-economic baseline information for each sub-project; - Explore ways in which women participate in decisions related to the sub-project designing, implementation and monitoring and resettlement planning; - Undertaking consultation with the female community members in the sub-project areas; - To establish measureable gender-related targets and indicators for sub-projects; - Establish a method for gender-focused and disaggregated monitoring and evaluation of the sub-projects.
6.	Labor Specialist	- He will be responsible for ensuring implementation of all applicable legal and other requirements related to occupational health, safety and welfare of construction labor through PSC; Visit the subproject sites and audit the sites to check the implementation of occupational health, safety controls adopted by CC and ask the PSC to report the compliance on the applicable legal and other requirements; - Check and verify the Contractual documents of CC in terms of occupational health, safety and welfare compliance.
7.	Communication Specialist	- Communication Specialist will assist in ESMP related communications - Preparation and translation of into local languages of relevant and clear information and dissemination material;

		- Distribution of easily understood information to all PAPs through PSC; - Communication through locally relevant channels; - Liaison with relevant local government departments and other agencies; and - Participate in local base NGO meetings to inform local NGOs about the work and explore possible areas of synergy with the community level work
Construction Contractor (CC)		
8.	Contractor(s) ESS Staff	- Responsible for the preparation of site specific management plans as specified in ESMPs like traffic management and diversion plan, waste management plan, protection of trees management plan, noise and dust abatement plan, labor health, safety and welfare management plan; GRM, public consultation, labor management plan; - Deploy their adequate ESS staff on-site to implement the site-specific plans; - Conduct monitoring of environmental attributes like air, noise, dust, water as specified in the ESMPs and generate quarterly reports which will be shared with MEC of PIU; - Maintain GRM register and complaint box on site; - Adhere to all the relevant labor legislations and ILO conventions.
Project Supervision and Contract Management Consultants		
9.	Project Supervision and Contract Management Consultants	- Supervise the implementation status of mitigation measures in the sub-project ESMPs/RAPs; - Supervise the Contractor(s) to adhere to all the relevant labor legislations and ILO conventions and ensure to put clauses regarding the adherence of these legislations into the Contractor(s) bidding documents; - Check whether contractor's proposal is according to other approved regulations to maintain health, safety and welfares of workers and productivity, and according to approved mitigation measures for negative impact to environment; - Provide technical safeguard training to PIU staff; - Supervise the training to CC staff, review the trainings carried out so far, identify non-compliances/gaps, and recommend changes, if any; - Assess usefulness and effectiveness of the trainings provided by CC to its staff and recommend ways and means to make training program more effective; - To design, capacity building, education and training in a gender-sensitive manner; - Identify any outstanding environmental and/or social issues/impacts associated with the subprojects already implemented, and recommend mitigation measures/ corrective actions where required; - Assist PIU in cooperation with other agencies to solve all issues of traffic, public impacts and others issues during project execution; - Structural Engineer of PSC will assess the stability of the archeological/ historical buildings and nature of interventions near them and decide what intervention can be done near sensitive PCRs; - PSC will also keep liaison with antiquities deptt. GOS.
Monitoring & Evaluation Consultant		
10.	Monitoring & Evaluation Consultant	- Responsibility for monitoring implementation and physical progress of the civil works including environmental and social safeguards; - Develop monitoring protocols and actively monitor safeguard compliance in the field. - Notify ERU on lack of compliance. - Monitor the Contractors' safety regulations, precautions on the sites and safety training of his staff and laborers; prepare reports for the Client in the event of accidents on the sites; monitor the use of under-age labor by the Contractors; - Prepare monthly and quarterly reports for submission to ERU

5.6. Disclosure of subprojects Information

The ESMF shall be uploaded on the project websites, hard copies shall be sent to all institutional stakeholders and all KMC / DMC offices. The ESMF shall be disclosed internally within the Bank and shall be released in InfoShop. Before start of physical works on the project, the ESMF shall be translated in local languages and shall be communicated to stakeholder communities/ businesses and will be uploaded on the PIU website - http://www.urbandirectorate.gos.pk/ or P&D website. The subproject specific ESMPs and RAPs/ARAPs will also be disclosed and available on abovementioned PIU website.

5.7. Monitoring Framework

ESMF monitoring will be carried out to ensure that the mitigation plans are regularly and effectively implemented. It will be carried out at three levels. The PIU level, at field level through PSC and MEC. At the PIU level, Environmental and Resettlement Unit (ERU) of PIU will overall responsible for monitoring including environmental and social safeguards. PSC will ensure compliance by CC and MEC will carry out independent monitoring of ESMP implementation at field level.

Table 5.3: Monitoring Framework

Level	Responsibility	Monitoring Tasks
Internal Monitoring		
PIU Level	Environmental and Resettlement Unit (ERU)	Consultation with communities/businesses especially women Assures the quality of monitoring reports prepared by CC and MEC
Field Level	Project Supervision and Contract Management Consultant	Enforce implementation of ESMPs and RAPs Prepare safeguard progress reports for PIU Report on all complaints/feedback from the community and stakeholders to PIU Carrying out monitoring at the field level as per sub-project ESMPs; Issue non-compliance/non-conformance report (NCR) to CC in case of non-compliances observed during monitoring
Field Level	Monitoring & Evaluation Consultant (MEC)	Responsible for independent monitoring implementation and physical progress of the civil works including environmental and social safeguards Monitoring the resettlement process as per Resettlement Action Plan (RAP) and prepare reports for PIU Carrying out monitoring of social impacts and labor issues as per subproject ESMPs and sub-project RAP/ARAP at the field level. Review the implementation status of mitigation measures in the sub-project ESMPs/RAPs Review monitoring of environmental attributes done by CC like air, noise, dust, water as specified in the ESMPs and review generated quarterly reports which will be shared with PIU, WB and SEPA. Identify any outstanding environmental and/or social issues/impacts associated with the subprojects already implemented, and recommend mitigation measures/ corrective actions where required.

A third party monitoring consultant will also be contracted once a year who will be responsible to monitor and vet the annual progress of project related to environmental and social issues and prepare the annual reports and submit it to PIU for quality assurance.

5.8. Reporting and Documentation

A robust reporting mechanism can enable project progress to be followed up, any prevalent hindrances to program implementation to be identified and rectification measures to be setup if so required. Such a system will allow project Execution Agencies /Counterpart agencies along with the PIU ESS staff to track the advancement of the program and reconcile these with the overall objectives and targets of the KNIP.

5.8.1. Reporting & Documentation

Regular and comprehensive reporting will be conducted during the course of the subprojects execution. PSC will ensure a constant surveillance of the project progress and deliverables through preparation and submittal of these reports to PIU. This will include the following:

Table 5.4: Reporting Requirements under each component

S#	Type of Reporting	Frequency	Responsibility
1.	Visit Reports and consultation with communities/businesses including women (with photographs)	Monthly during whole construction period of each subproject	PSC
2.	environmental and social monitoring checklists	One time activity at the inception of each sub-project	PSC
3.	Progress Reports	Quarterly	PSC to prepare report with support from MEC
4.	Training reports	Quarterly	PSC to submit report to PIU
5.	Environmental and Social Safeguard Monitoring reports	Quarterly	MEC
6.	Project completion report	End of project completion	CC submit reports to PSC for Review and further quality assurance by PIU

5.8.2. Project Completion Report

The ESMF specifies information to be included in the Project completion report to capture experience with implementation of the ESMF procedures. The purpose of this report is to provide:

- Assess compliance with ESMF procedures, learn lessons throughout project life;
- To assess the occurrence of, and potential for, cumulative impacts due to Project-funded and other development activities like development of BRT.

Chapter 6 ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

This Chapter presents the anticipated Environmental and Social impacts and generic mitigation measures to be taken with Environmental and Social Management Plan (ESMP) for the proposed project.

6.1. Positive Socio-economic and Environmental Impacts of Karachi Neighborhood Improvement Project (KNIP)

Most of the Project's environmental and social impacts will be beneficial, including for example the ease of mobility, pedestrian-only areas for the convenience of general public, dedicated food streets for the public to enjoy delicious cuisines in auspicious environment and business-friendly infrastructure development. The beneficial impacts of both, the interventionist and the institution capacity building and investment preparedness components of the KNIP are described briefly hereunder:

- As discussed earlier in the report that the economic activities and productivity generation of Karachi have been in decline due to various issues, mainly the poor and neglected infrastructure. Therefore, improving the infrastructure will contribute towards improved economy of the city.
- Shorter travel time on the target roads will contribute to the economic and industrial development in Karachi and surrounding area.
- Development of Pedestrian crossings on the target roads will benefit directly to women, children and elderly people.
- Employment generation for the businesses is also envisaged from the proposed project as the potential workforce may commute with ease and more frequent between their residence and business districts. The project will support, in particular, the working class of Karachi.
- Health of the general public is expected to improve as there will be less vehicular emissions due to less traffic jams, vehicle-free road corridors, as well as lower noise pollution.
- By adding road safety features in the design, vulnerable road users and children will benefit and feel more secure.
- Due to the improvement in local road network, removal of mobile vendors in walkways and improved bus facilities, pedestrians including women and children have better access to crossing facilities and walkways.
- Increased mobility of traffic in the Central Business District (Saddar Area) and Korangi Area increases the mobility of goods and consequently increases the businesses of the locals.
- The infrastructure development will reduce traffic congestion. As a result, precious time will be saved and could be utilized in the productive activities, which would otherwise be lost because of jams and other barriers because of underdeveloped infrastructure.
- The project itself is expected to directly generate several hundred jobs, particularly during the construction phase.
- The project is likely to address following sustainable development goals (SDGs) of the United Nations (UN):
    - **SDG-3 – Good Health and Well-Being**: The project would improve public urban spaces. Consequently, the transportation will be more manageable and orderly. Hence, the resulting

infrastructure would promote Good Health and Well-being by improving the ambient air quality.

- **SDG-8 – Decent Work and Economic Growth**: Infrastructure improvement will eventually lead to economic growth and enhancement of income generation activities.
- **SDG-9 – Industry, Innovation and Infrastructure**: The goal directly coincides with the project intervention activities for resilient infrastructure development.
- **SDG-11 – Sustainable Cities and Communities**: The project will result in Karachi being more sustainable and the communities being more inclusive, safe and livable.

6.2. Alternatives and Key Considerations

The analysis of the alternatives is a part of this ESMF process to select the best among all possible project options. The alternatives of a project are defined as the options that can help to meet the objectives of a project by different means including alternative project sites, technology or material, design or inputs. The key criteria when identifying alternatives is that they should be feasible and reasonable.

Selection of preferred alternative is based on scores of factors including cost, schedule of delivery, environmental and social impact and the cost for their redress. The drivers that affect potential alternative options and scenarios include: availability of project sites, current technologies; design changes that need to be introduced, operational situation, capital & recurrent costs, environmental & social issues, their potential impacts, and costs of mitigation.

The "No Action" alternative situation is taken into account to demonstrate the need of the Project. In consideration of the different drivers, potential alternatives within the Project are restricted to the following aspects:

- No Action alternative;
- Location of Parking places
- Types and Features of Public Toilets
- Types of Pedestrian Crossings
- Choice of Street Lighting

6.2.1. The 'No Action' Alternative

Under this alternative, the project would not be undertaken in any form. The main potential negative impacts associated with the adoption of a null alternative include the following:

- Traffic jams and the associated absenteeism and tardiness will persist and the people of Karachi will continue to suffer.
- Economic activities in sub-project sites especially in Saddar downtown which is an economical hub will continue to be hampered.
- New jobs, related to infrastructure development and ease of workforce to commute between the residential and business areas of the city will not be created.
- Goals of health, wellbeing and sustainability will not be materialized.

The "null" or "no action" alternative is not preferred as the project will benefit more in conjunction with fulfilling goals of infrastructure improvement under Karachi Neighborhood Improvement Project.

6.2.2. Location of Parking Places

The development of parking facilities / plazas under KNIP will provide positive impacts like i) Improving quality of life, ii) Taking vehicles off local streets, iii) Improving the movement of traffic in local roads and iv) obviously reduce congestion and air & noise pollution. However for the selection of parking facilities location following alternatives should be assessed before choosing the site location.

6.2.2.1. Accessibility

Parking to be provided in a structure to minimize footprint. Some short-term parking may be parallel in a queue lane or outside the structure to the extent practical.

6.2.2.2. Changes to Air Quality

Parking facilities / plazas may increase concentrations of air pollutants like CO, NOx, $PM_{2.5}$ etc. The location of the facilities so selected that it will not increase from permissible SEQS limits. The baseline concentrations should be analyzed and assessed before site finalization.

6.2.2.3. Protection of Community and Neighborhood Features

Parking facilities / plazas should not be conflicting with cohesiveness and residential/natural character of the neighborhood. Facilities close to the residential communities can produce nuisance to the residence like noise, privacy, blocking of sunlight, physical / economic displacement from the result of land acquisition. These factors must be considered before choosing the site.

6.2.2.4. Protection of Physical Cultural Resources (PCRs)

Parking facilities / plazas planned near PCRs can impact the tranquility and stability of the site. The visitors of the PCRs may feel annoyance due to the parking facility and vehicles maneuvering.

6.2.2.5. Cost and Constructability

Cost of construction is also a factor that should also be considered before locating the site.

6.2.3. Types and Features of Public Toilets[64]

A public toilet can be in a room or small building containing one or more toilets, which is available for use by the general public, or by customers or employees of certain businesses.

6.2.3.1. Segregation

Public toilets are commonly separated into male and female facilities as per the cultural norms, although some can be unisex, particularly the smaller or single-occupancy types. Clear signage may be designated for each gender. The location of the signs can be near the entrance to each toilet facility and clearly displayed at noticeable locations in main traffic passageways to direct the public to the toilets. Segregation may appeal female visitors to use public toilets as it may be considered more modest and private than the unisex toilets. However, the segregated toilets may require more space and amenities than the unisex toilet.

6.2.3.2. Accessibility for Disabled People

Accessible toilets may conveniently be used for the people with disabilities. However, they may require more space and enhanced design features than the general toilets.

[64] A Guide to Better Public Toilet Design and Maintenance Third Edition 2013 by Rest Room Association Singapore

6.2.3.3. Features

Toilets may be unattended or be staffed by a janitor or attendant. This may maintain the toilet but will increase the cost of operation. This can be compensated by charging small fee for using the toilet. However the introduction of fee may discourage the public from toilet use. Depending on the local cultural practices, public toilets can either be of the squat type or sitting type or combination of both. Pedestal (sitting) type Water Closets (WCs) shall preferably be wall hung, without leg support, so as to facilitate cleaning. Installation of squatting type WC pans in all cubicles is discouraged so as to cater to the needs of various demographic groups and an ageing population. A washing station may also be installed besides the toilet in order to prevent the disease transmission. Washing station will require the adequate water supply.

6.2.3.4. Design

Fixed public toilets can be preferred when portability is not needed. They will require to be connected with the sewer system or waste collection system which should be regularly emptied. The main entrance shall preferably have no door, and the cubicles, urinals and mirrors shall be away from the line of sight from the main entrance. For example, the door can be replaced by offset entrance maze which blocks the view yet allows easier, hands-free access. Electronic products for toilets such as flush valves and faucets require minimum maintenance but offer enhanced operations that promote sanitation and perceived cleanliness because of hands-free operation.

Public toilets may be mobile, and can thus be put in place where and when needed. In this sense, a portable toilet is a temporary outdoor enclosure which can either be connected to the local sewage system, or store the waste in a holding tank to be emptied by a vacuum truck. Portable toilets may be cleaned and the tank emptied on location, or they may be moved back to a central base for servicing.

An automatic, self-cleaning toilet can also be installed. However it will increase the investment and the cost of operation.

6.2.3.5. Location

Location of accessible toilets may not be too remote from the main traffic area to avoid long travel distance. It should be easily accessible for those with urgency for the users. Directional signs leading to such toilets may also be installed. The toilet should not be located in the immediate proximity of the houses so as to avoid the nuisance to households from foul odor and noise.

6.2.3.6. Lighting

A well-designed lighting system will save electrical energy and improve the appearance of the toilet. Poorly designed fixtures with discolored diffusers go a long way to make a toilet dingy. Dark and shadowy, off-colored lighting can create the impression that a toilet is not clean and may discourage its use by the public. Natural lighting can be used to help create a softer, friendlier environment and can save electrical energy and associated costs.

6.2.3.7. Materials

Materials which are durable and resistant to vandalism and neglect may preferably be used. Applied finishes such as paint may not be appropriate. For all wall finishes, it may be of materials which are impervious, durable such as ceramic tiles and phenolic panels etc. which can facilitate cleaning and resource conservation such as minimizing the use of water and cleaning agents. This also applies to floors, which may be constructed of waterproof non slip surfaces like ceramic tiles, natural stone, homogeneous tiles, terrazzo or

other impervious materials, so as to facilitate cleaning and resource conservation. Carefully selected and durable materials may reduce the need for maintenance and prevent misuse.

6.2.4. Types of Pedestrian Crossings

Pedestrian crossings are designated for pedestrians to cross a road. Crossings are designed to keep pedestrians together where they can be seen by motorists, and where they can cross most safely across the flow of vehicular traffic.

6.2.4.1. Signals

Signalized pedestrian crossings clearly separate when each type of traffic (pedestrians or road vehicles) can use the crossing. Non-signalized crossings generally assist pedestrians, and usually prioritize them, depending on the locality. Signalized crossing may involve additional costs and equipment. However it may be regarded as more safe for the pedestrians than the Non-signalized crossings.

6.2.4.2. Zebra Crossing

A zebra crossing is a common and low-cost type of pedestrian crossing used in many places around the world. Its characteristic feature is alternating dark and light stripes on the road surface, resembling the coat of a zebra. A zebra crossing typically gives priority to rights of way to pedestrians. This priority has to be ensured so as to persuade the public to use the crossing and avoid jaywalking.

6.2.5. Choice of Street Lighting[65][66]

6.2.5.1. Location

The location of the street light very close to the residential buildings and homes may cause nuisance to the residents because of light pollution, particularly to those who live in the bottom floors.

6.2.5.2. Technology

Commonly used technologies are Halogen Bulbs, High and Low Pressure Sodium Bulbs, High Intensity Gas Discharge Lamps, LED lamps, etc. The choice of technology may involve the requirement and cost assessment, as well as the impact of possible light pollution. Solar lights may also be considered as it will save the electrical energy however the initial costs are expected to be high.

6.2.5.3. Maintenance

Street lights are subjected to regular maintenance, so their height are ascertained accordingly. The cost of maintenance will also affect the selection of technology for street lights.

6.3. Environmental and Social Mitigation Plan

The generic mitigation plan prepared on the basis of impact assessment discussed in the previous section is presented in Table 6.1. The subproject-specific mitigation plans will be implemented in combination with the generic mitigation plan. These mitigation plans will be expanded and finalized once the subproject location and design details are known. These plans will be included in the subproject ESMPs. The site-

[65] Types of Light – National Optical Astronomy Observatory (NOAO) (2015)
[66] Design Standards for Urban Infrastructure – Street Lighting, by Territory and Municipal Services, Act Government, Australia (Oct, 2007)

specific ESMP will be included in the design of each subproject, and included in the bidding documents in case contracting is involved.

The subproject-specific ESMP shall form part of the project contract specifications.

B) Project description

Anticipated Subprojects at subproject sites (financed under project) under KNIP are;

a) Zoning and master planning
b) Rehabilitation and revamping food streets, markets and bazaars
c) Community amenities and public toilets
d) Improved paving for sidewalks, pedestrian crossings and roads
e) Street lighting, landscaping, street furniture including Municipal Solid Waste containers and bins, or way finding signs
f) Playgrounds, sports fields, or community centers
g) Reorganized street parking or improved bus facilities
h) Repaving roads with rehabilitation of selected underground network
i) Reorganizing parking at selected locations
j) Better street crossings at appropriate locations

The below table will separately present generic ESMP for project for which anticipated environmental and social impact may occur.

Table 6.1: ESMF Mitigation and Monitoring Plan

S #	Anticipated Effect	Potential Significance	Mitigation Measure(s)	Mitigation Responsibility	Monitoring Parameters	Monitoring Frequency	Monitoring Responsibility	Cost and Source of Funds
Social Aspects								
1.	Subproject Siting	Medium	✓It will be ensured through screening checklist (sample presented in **Annex B**) that the subproject avoids any PCRs and involuntary resettlement. ✓RPF prepared under this project should provide involuntary resettlement checklist. ✓Valuation and compensation of affected assets of community should be in line with RPF/Sub-projects RAPs/ARAPs and considered before the commencement of civil works. ✓Community consultations will be carried out before construction activities.	PIU in association with ESMF/ESMP/RPF/ RAP Consultant	Monitoring of ROW, Consultation records	At the start of each sub-project	PSC	Nil
2.	Prohibition of vending activities in ROW	Medium	✓The commercial zone proposed under the zoning of urban design will accommodate these vendors and resettlement and restoration of their livelihood will be done before commencement of civil works.	PIU in association with RPF/RAP Consultant	Consultation records with APs, Resettlement activities and livelihood restoration activities	During resettlement At the start of each sub-project and monthly for three months during income restoration stage.	PSC	Cost of income restoration / resettlement will be evaluated in RPF.
3.	Mobility of women along project roads	Low	✓Adequate crossing facilities will be developed and included in the project for pedestrians as well as walkways will be improved. ✓Adequate crossing facilities during construction will also be provided by taking care of women. ✓Due to the improvement in local road network, removal of mobile vendors in walkways and improved bus facilities, pedestrians including women and children have better access to crossing facilities and walkways.	Design Consultant	Monitoring of crossing facilities and diversions	Weekly	PSC	Nil
4.	Restriction of access and impediment of locals to resources	Medium	✓It will be ensured that the construction site is appropriately condoned off but it will also be ensured that safe and continuous access to all adjacent office facilities, shops and residences during construction will be provided. ✓Provide alternative traffic arrangement/detours, if necessary so that traffic can be distributed and move on different roads;	CC	traffic diversion sites, check access routes of pedestrians and construction sites, check consultation records	Weekly	PSC	Nil

Table 6.1: ESMF Mitigation and Monitoring Plan

S #	Anticipated Effect	Potential Significance	Mitigation Measure(s)	Mitigation Responsibility	Monitoring Parameters	Monitoring Frequency	Monitoring Responsibility	Cost and Source of Funds
			and, ensure that public/residents association is informed about such traffic diversions. ✓ Designated temporary parking places should be provided during the construction phase.					
			✓ Extensive consultation with stakeholders should be carried out beforehand and their feedback, concerns and input should be taken into account in the project planning and execution. ✓ Provide information to the public through media – daily newspapers and local cable television (TV) services about the need and schedule of work, and alternative routes.	Communication specialist		Before the start of interventions and during	PSC	Nil
5.	Impacts on Women, Children, and Vulnerable Groups	Low	✓ Environmental screening checklist will provide first stage information about impacts on poor, women and other vulnerable groups including needs and priority for social and economic betterment; ✓ In awareness raising, women should be targeted more than men. ✓ Ensure participation of vulnerable groups in project activities through consultations, to ensure planned investments take the well-being of such groups into consideration	PSC reporting to PIU	Consultation records, awareness raising records	Monthly	PSC	Nil
6.	Project development not informed by concerns/views, participation of women and other deprived groups. Increase the gap between the marginalized and the more influential and powerful people.	Low	✓ Identify all direct and indirect stakeholders ✓ Hold meetings with all community groups, wherever possible, using women to encourage participation of women in all stages of the project. ✓ Use group and individual discussions to identify and ensure vulnerable people are consulted. ✓ Explore with each group how they might be involved at each stage of the project. ✓ Identify the communication mechanisms most commonly used by women and ensure these are used to impact and receive information throughout the project	PSC reporting to PIU	Consultation records, awareness raising records	Monthly	PSC	
7.	Labor Issues	Low	✓ Preference will be given to labor from locally skilled and unskilled workers of Karachi. ✓ No bonded and child labor will be allowed d at site;	CC	Occupational health and safety of labor	Daily	PSC	Nil

Table 6.1: ESMF Mitigation and Monitoring Plan

S #	Anticipated Effect	Potential Significance	Mitigation Measure(s)	Mitigation Responsibility	Monitoring Parameters	Monitoring Frequency	Monitoring Responsibility	Cost and Source of Funds
			✓Major labor laws will be followed e.g. Minimum Wage, Hours of work, Overtime Payment. ✓Also laborers will be trained on appropriate interaction with local people especially women;		including PPE, consultation records			
			✓Prepare Labor Health and Safety Management plan defining the roles and responsibility of personnel who implement the plan	CC	Review and check the adequacy of the plan	Before the commencement of civil works	PSC	Nil
			✓Allocate ESS staff as per site-specific plans made by the CC.	CC	Check CC staffing details	Before the commencement of civil works	PSC	Nil
			✓WB Group's Environment, Health and Safety (EHS) Guidelines (attached at the end of this document) will be implemented	CC	Audit WB EHS guidelines provisions	Monthly	PSC	Nil
			✓Only labor trained to use construction equipment and machinery at site should be allowed to operate	CC	Check Training Certificate	At the time of induction	PSC	
			✓The PSC will include appropriate clauses to protect environment and public health. The present ESMF will be included in the bidding document.	PSC	Appropriate clauses in the bidding documents will be checked by supervision/monitoring consultant	At the finalization of Contractor(s)	PIU ESS staff	Nil
			✓Avoid stagnation of water and initiate drainage/cleanup of stagnant water.	CC	Supervision consultant will check signs of water accumulation at construction site	Fortnightly	PSC	Nil
			✓Provide for the provision of appropriately stocked first-aid equipment at work sites;	CC	Supervision/monitoring consultant will check First aid measures at construction site	After every accident, incident or a near miss	PSC	Included in Contractual Cost borne by Contractor
			✓Provide for the provision of appropriate personal protective equipment (PPE) to minimize risks, such as but not limited to appropriate outerwear, boots and gloves; safety helmets;	CC	Supervision/monitoring Consultant will check provision of	Daily	PSC	Included in Contractual Cost

Table 6.1: ESMF Mitigation and Monitoring Plan

S #	Anticipated Effect	Potential Significance	Mitigation Measure(s)	Mitigation Responsibility	Monitoring Parameters	Monitoring Frequency	Monitoring Responsibility	Cost and Source of Funds
					PPE for construction workers			borne by Contractor
			✓Provide training for workers for the use of PPE;	CC	Check training records	Monthly	PSC	Biannually, 4-day workshop @ Rs.15,000 per workshop inc. expenses
			✓Include procedures for documenting and reporting accidents, diseases, and incidents.	CC	Check procedures	Monthly	PSC	Nil
Environmental Aspects								
8.	Impact on PCRs during construction	Medium	✓Since the exact locations of subprojects are not known at this moment, a guideline for identification of physical cultural resources and determination of the suitability of the subprojects from the perspective of PCR is provided in the ESMF. The ESMF also includes "Chance Find" procedures for protection of cultural property and contracts for subcontractors will include “Chance Find” procedures. ✓Structural Engineer of PSC who will assess the stability of the archeological/ historical buildings and nature of interventions near them and decide what intervention can be done near sensitive PCRs. ✓On the other hand, as mentioned in section 5.4, approvals must be taken from director of Antiquities deptt. / Advisory committee.	CC	Construction near PCRs	Weekly and as per Chance Find procedures	PSC	Nil
9.	Air Quality deterioration due to dust emissions	Medium	✓Truck loads should be covered with any suitable material. ✓Construction sites including soil and material piles at the site should be barricaded to avoid material escape, generation of dust. ✓Ready-mix can be used in the stages of the project wherever and whenever required and deemed appropriate. ✓Soil/crush and temporary spoil piles should be covered or sprayed with water if generating dust.	CC	Ambient Air Quality parameters (SPM, NO, NO2, SO2, PM10, CO, PM2.5) – Mobile air quality Van will be used.	Initially fortnightly and when found within limits to quarterly	PSC	Cost of PPE, water spraying, vehicles tuning will be included in Contractual Cost borne by Contractor and will be assessed

Table 6.1: ESMF Mitigation and Monitoring Plan

S #	Anticipated Effect	Potential Significance	Mitigation Measure(s)	Mitigation Responsibility	Monitoring Parameters	Monitoring Frequency	Monitoring Responsibility	Cost and Source of Funds
			✓The exposure of construction workers to dust should be minimized by provision of dust masks and mandating the workers to wear them. ✓Construction machinery, vehicles should be properly tuned and kept in good working condition, minimizing exhaust and vehicular emissions. It should be ensured that exhausts from these equipment and vehicles comply with relevant SEQS. ✓Excessive engine idling should be discouraged and machinery causing excessive pollution (i.e. visible clouds of smoke) should be banned from sites.		Vehicular Emissions for Construction Vehicles (Smoke, CO, NOx, PM, Noise) – Mobile exhaust analyzers will be used. Monitoring conducted as per SEQS.			after finalization sub-project plans Rs.35,000 for 8hr ambient air monitoring per location Rs.10,000 per vehicle for vehicular emission monitoring
			✓Timing to start interventions on each sub-project site will be so selected that the cumulative impact will not be significant or synergistic e.g. working on consecutive /connecting roads simultaneously can aggregate the traffic jam and air quality deterioration.	CC	Check the traffic management plan and project schedule	Before commencement of any intervention	PSC	Nil
			✓Traffic diversion plan must be developed carefully especially for downtown Saddar area so that no further congestion on the diverted routes should not be occurred. ✓Road construction operations should be carefully planned and scheduled and when the traffic movement is minimal e.g. early morning.	CC	Traffic diversions as per plans	Daily	PSC	Nil
			✓Water should be sprinkled daily or whenever there is dust problem on all exposed surfaces to suppress emission of dust. Wiping and sweeping should be adopted as a continuous activity to keep the surface area of the site clean.	CC	Monitor Dust emissions (SPM) Monitoring conducted as per SEQS.	Daily, if required	PSC	Water sprinkling cost is included in Contractual Cost borne by Contractor and will be assessed after finalization sub-project plans
10.	Traffic Congestion and management	Medium	✓Designated parking areas will be provided for different type of project vehicles within and around the project site.	CC	Designated parking spaces	Weekly	PSC	Nil

Table 6.1: ESMF Mitigation and Monitoring Plan

S #	Anticipated Effect	Potential Significance	Mitigation Measure(s)	Mitigation Responsibility	Monitoring Parameters	Monitoring Frequency	Monitoring Responsibility	Cost and Source of Funds
			✓Traffic management plan will be introduced to manage smooth flow of vehicular traffic and to avoid traffic jam and long queues. ✓Ensure safe and continuous access to all adjacent office facilities, shops and residences during construction	CC	Flow of routine traffic	Daily	PSC	Nil
			✓It is suggested that interventions that involves traffic management like provision of parking spaces, designated parking, prioritization of roads for pedestrian only should be implemented first to avoid traffic congestion while civil works on roads.	CC	-	Before / during Implementation of Project activities	PSC	Nil
11.	Storm water drainage	Low	✓Avoid construction works in monsoon seasons. ✓Hydrology of drainage channels if passing through the sub-project sites should not be altered. ✓Strom water channels/side drains should be constructed to reduce flooding	CC	Check construction plans, check any obstruction in existing drains due to construction	Quarterly and spot checks are rainfall in Karachi	PSC	Nil
12.	Surface and Ground Water Quality deterioration due to spills from construction equipment, fuel, inadequate disposal of waste material	Low	✓It will be ensured that the wastes from construction activities are not released into any surface or groundwater source e.g. local Nallah ✓Prohibit equipment wash-downs outside of the designated areas. ✓Excavation material /civil works related solid waste should be disposed of off-site in KMC landfill sites.	CC	Check surface/ground water quality parameters (pH, TDS, TSS, Oil & Grease, Turbidity, Total Hardness, As, Pb, Coliform) – Grab samples will be taken and samples tested as per SEQS in EPA certified Laboratory	Quarterly	PSC	Waste disposal cost is included in Contractual Cost borne by Contractor and will be assessed after finalization sub-project plans Rs.20,000 per grab sample for water quality analysis
			✓Provide on-site collection of contaminated soil, concrete fines, oils and other wastes generated during activities.	CC	On-site waste collection facility	Weekly	PSC	Nil
13.	Waste Management during construction	Low	✓Construction sites should be equipped with temporary refuse bins.	CC	Temporary refuse bins/On-site waste collection facility	Weekly	PSC	Included in Contractual Cost borne by Contractor

Table 6.1: ESMF Mitigation and Monitoring Plan

S #	Anticipated Effect	Potential Significance	Mitigation Measure(s)	Mitigation Responsibility	Monitoring Parameters	Monitoring Frequency	Monitoring Responsibility	Cost and Source of Funds
			✓A waste management plan will be prepared for construction phase and implemented in letter and spirit. ✓Wastes should be routinely collected from the designated area and disposed at waste disposal facilities. ✓Recycling of solid waste will be carried out as far as possible and practical. ✓No wastes should he dumped at any location outside the waste designated site.	CC	As per Waste management plan prepared by contractor and approved by PIU/PSC	Monthly	PSC	Nil
			✓Training should be provided to working personnel for identification, segregation, and management of waste.	CC	Check training reports and records	Quarterly	PSC	Quarterly, 2-day workshop @ Rs.12,000 per workshop inc. expenses
14.	Possible Noise emissions from running of construction machinery	Medium	✓Machinery operation and high noise activities should be carefully planned and scheduled.	CC	Ambient Noise Monitoring (dB(A)) near residents and businesses – Handheld noise meter will be used for measurement	Fortnightly	PSC	Rs.10,000 for 8hr ambient noise monitoring per location
			✓Use noise-abating devices/barriers wherever needed and practicable.	CC	Ambient Noise Monitoring (dB(A)) as per SEQS	Fortnightly	PSC	Included in Contractual Cost borne by Contractor
			✓Mufflers or silencers should be used by project-related vehicles.	CC	Noise emissions of construction vehicles as per SEQS	Fortnightly	PSC	Included in Contractual Cost borne by Contractor
			✓Where that is not possible, high noise activities should cease between 22:00 and 06:00 hrs.	CC	Check working hours	Initially daily and if found within limits than it can be reduced to monthly and even quarterly	PSC	Nil

Table 6.1: ESMF Mitigation and Monitoring Plan

S #	Anticipated Effect	Potential Significance	Mitigation Measure(s)	Mitigation Responsibility	Monitoring Parameters	Monitoring Frequency	Monitoring Responsibility	Cost and Source of Funds
15.	Soil Contamination due to fuel spills or ponding of water or degradation due to activities	Low	✓Fuel oils, lubricants, and chemicals should be stored in covered diked areas, underlain with impervious lining. ✓Regular inspections should be carried out to detect leakages in construction vehicles and equipment. ✓Appropriate implements such as shovels, plastic bags and absorbent materials should be made available near fuel and oil storage areas for removal of oil and contaminated soil.	CC	Inspection of Fuel storage areas, construction site and project vehicle parking areas	Daily	PSC	Inspection cost is included in Contractual Cost borne by Contractor and will be assessed after finalization sub-project plans
16.	Impacts on Flora / clearing of trees due to project interventions	Medium	✓Old and mature tree should not be cut. Pruning of trees may be undertaken. A tree protection plan should be developed. ✓Damage to trees will be avoided and trees located along roadside will be protected during construction. ✓A survey and inventory shall be made of large trees in the project vicinity – large tree should be marked and cordoned off with fencing and their root to be protected.	CC	Inventory for the identification of road side trees, Tree monitoring	Weekly	PSC	Cost will be assessed after screening of each sub-project and after estimation of number of uprooted trees.

Note:

ERU = Environment and Resettlement Unit, PIU

CC = Construction Contractor(s)

PSC = Project Supervision and Contractor Management Consultant

MEC = Monitoring and Evaluation Consultant

Chapter 7 STAKEHOLDER CONSULTATION

7.1. Context

Stakeholder engagement is part and parcel of the development process. Without meaningful consultation with relevant stakeholders, the effectiveness and sustainability of any project is at stake. The participation of project stakeholders is therefore considered an essential component for the preparation of a robust ESMF. Local communities, their representatives, government and national and international NGOs and the civil society at large may all be able to contribute to, and benefit from, the dialogue directed at identifying and resolving key project-related issues. Stakeholder consultation presents an opportunity for mutual information-sharing and dialogue between the project proponent and stakeholders. An effective public consultation process provides concrete suggestions that can help improve project design, resolve conflicts at an early stage, identify management solutions to mitigate potentially adverse consequences and enhance positive impacts, and develop guidelines for effective monitoring and reporting of project activities throughout the project cycle.

In preparation for the ESMF, two major groups of stakeholders were identified: (i) local communities who are the direct beneficiaries of the project interventions and therefore identified as the primary stakeholders (ii) institutions who have an important role in enabling the realization of the project interventions and therefore identified as the secondary stakeholders.

This chapter provides an overview of the stakeholder consultation process that was adopted by the consultants and presents the findings of the stakeholder engagements with primary and secondary stakeholders. The key aspects, including consultation objectives, consultation tools/methodologies and stakeholders' feedback are discussed in the following sections.

7.2. Consultation with Local Communities and Businesses

Local communities and businesses are the direct beneficiaries of the KNIP. Community / businesses perceptions of the expected outcomes and the implementation process are necessary ingredients for ascertaining project success and adjustments to planned interventions. Moreover, organized community groups have an important role in promoting the program concepts and monitoring project activities at the local level.

Consultations with local communities were carried out in line with the following objectives:

- Inform the local communities/ businesses of the project concepts and planned project interventions
- Ascertain the community's/ businesses perceptions of the project concepts and planned project interventions
- Identification of potential positive and negative social and environmental impacts

Consultations were conducted in Pakistan Chowk area, Napier road, Shahrah-e-Liaquat, M.A. Jinnah Road, Railway Road, Kutchery Road, Ziauddin Ahmed Road and Kanji Tulsidas Street and Korangi Area and Malir-Khokrapar areas with residents, general shopkeepers of sanitary, electrical and related hardware, pan-shops, hawkers, cobblers, etc. A few people refused to reply to survey questions. Several preferred to remain anonymous but replied to questions. The consultations were conducted on 3rd and 4th December 2016.

Overwhelming majority of the respondents were not satisfied with the current situation of traffic, garbage and sewerage and infrastructure in their areas and it caused major nuisance as well as health issues such as asthma, allergies, COPD, etc. However, some such as small hawkers were fine with the current situation.

Most of the respondents had positive views of the proposed project interventions but they said that planning for road improvements and taking view from the public had been done several times in the past but there is no improvement on ground till to date and people suffer continuously.

About 80% of the respondents agreed with the idea that if the cars parked at roadside moved to dedicated places or parking plazas. They said that it will improve the traffic situation on the roads. They remaining 20% respondents said they would prefer to park besides the roads because the exemplar parking plaza of Saddar was not successful and people kept on parking on roads. They preferred to park near their shops on the road. They said they customers may get irritated to walk a significant distance from the parking plaza to the shop. They considered the effect of parking plaza on their businesses as negative.

Most of the respondents were not in favor of pedestrian-only roads. They said this is not required. They replied that only if the parking from roads is altogether removed or only side is allowed for parking, the traffic issue could be resolved and they would be fine with it. They replied that it is mainly police which fails to enforce the parking protocols.

The idea of a dedicated food street free from traffic and for pedestrians only, was also taken as not very appreciative. Respondents replied that when visitors may come from distant areas, in particular the female visitors, they will not like the idea that the car is parked at somewhere else and the visitors have to walk towards the food street. Some respondents said that pedestrian-only food street may have negative affect on the restaurants as many visitors will prefer to go to restaurants where they can easily reach with their cars and vehicles.

Regarding the removal of encroachments, some respondents who did not have legally owned shops said this will be agonizing but if they are moved, they will go somewhere else. Remaining respondents, who had proper shops, replied that it is better if the encroachers are removed as then the traffic will be smoother and businesses would increase. Most of the mobile vendors in Korangi roads and Malir-Khokrapar roads responded that they have always cooperated with the governmental authorities, including KMC, DMC and police, and they will also cooperate with the relevant authorities for the current project and will move to other places.

Generally, respondents had positive views for the proposed project interventions and they hoped that his time something could be seen improving, as compared with the previous unfulfilled promises and futile surveys and consultations. They pointed out that such surveys had been frequent and they were consulted many times but the surveyors but they could not see anything on the ground.

All the respondents were in favor of underground electric wires and utilities. Almost all of them were convenient with temporary disruption of services during the construction phase. They said that they may endure timely agony for long term benefits.

About the temporary disruption of businesses, majority of respondents said they can comprehend that some of the area would be excavated and consequently, there will be temporarily less influx of customers and consumers. But they would be fine with temporary disruption if they could reap the benefits of the improvement activities in the long term.

About the situation of general hygiene of the area, almost 95% of the respondents said they dislike the current situation and there is so much garbage on the street and in the area. They said the government fails to clean the area. Remaining 5% said they are fine with the general hygiene of area and roads and no realistic improvement can be done in this regard.

Regarding the sport facilities, most of the respondents said they had least interest in sports and they do not care if the sport facilities are improved or not. The remaining said improved sport facilities will have positive impact on the society.

Regarding the dedicated car parking areas or parking plazas, respondent said that parking plazas usually remain underutilized so they hardly think that any new plan in this regard will be successful. Respondents said people will not prefer to park in parking plazas if it is far from their residences or businesses or shops.

Generally, respondents had positive views for the proposed project interventions and they hoped that his time something could be seen improving, as compared with the previous unfulfilled promises and futile surveys and consultations.

The methodology of consultation from communities with photos is presented in **Annex F**.

7.3. Consultation with Institutions

Two consultation sessions were organized to include participation and consultation with institutions. The sessions were conducted dated 28th and 29th December, 2016 in Pearl Continental Hotel, Karachi and Korangi association of Trade and Industry (KATI) respectively inviting relevant secondary stakeholders from academia, relevant provincial and local government departments, local NGOs and development agencies. Stakeholders which are unable to attend the consultative sessions were engaged individually and their feedback will be taken. The detailed minutes of the meetings are provided in **Annex F.** The summary of concerns of stakeholders raised during the meetings are presented as follows.

The concerns of Sindh Environmental Protection Agency mostly related to social and resettlement impacts. Social issues are more important than environmental is this project. Since this project involves the framing of Resettlement Action Plans in latter stage; possible PAPs and communities should be taken on board in consultation process. Compensation to PAPs should be considered. Surveys must be conducted before start of any interventions which sets a cut-off date for PAPs. On the other hand, project interventions may affect water lines and existing utilities such as of electricity. These should be taken care of during construction.

Heritage sites in the area are visited by people regularly. Something traditional and eco-friendly can be placed in the area such as solar power provisions. Rides to the heritage sites can be provided to people through traditional carriages. Concept of vertical gardening and kitchen gardening can also be considered.

One time beatification and removal of garbage from the area is not permanent solution, the project should be sustainable and its sustainability should be ensured during the entire life cycle of the project. Also it is recommended to plant native trees along the intervention routes, instead of *Conocarpus* specie which is an invasive species and destroyed the ecology of Karachi.

It is very necessary to carry out comprehensive surveys regarding PAPs to reduce the chances of increased project cost and unnecessary delays in project execution. It is also very important to build the capacity of KMC and DMC for smooth execution of the project.

The deterioration of roads in all project areas are due to inadequate sewerage system and flowing of drains during monsoon. The provision for betterment of sewerage networks should be part of project. In some roads of Saddar, Charged Parking is allowed along the streets and the management of these charged parking is bifurcated among several agencies including CPLC, Cantonment and KMC. Hawking is a good business and people homes are running through it. It should not be discouraged during resettlement / relocation. Regarding the resettlement of Hawkers encroaching the streets of Saddar, off-street hawking zones may be developed e.g. like in Mochi Gali (Saddar).

Issues highlighted by representative of Hindu Community residing in Saddar Area are, a) road levels should not be increased from the buildings such that the stormwater makes ingress into the buildings, b) The drainage system in Saddar is 30-40 years old and the lines should be revived and it will be make sure that the revived system should be sustained for 10-15 years and an MOU may be signed with the line agencies, c) old heritage building façade should be addressed and included in the project components, d) during rehabilitation works, old Hindu temples may be revived and encroachments in front of these temples may be removed.

Consultations with line agencies like KE, KWSB & PTCL emphasized the points like a) all the services lines under the domain of KWSB are located along the roads. Therefore during rehabilitation of utility lines, no impact on the buildings and residents is envisaged. Regarding interruptions in the services, new lines will be laid before the removal of old lines and connections will be made as quickly as possible, b) other services are laid above the water/sewerage lines and all line agencies should be taken on-board during the rehabilitation works, c) TV cable operators use K-Electric electric poles to mount their cables and the electric cabling system becomes damaged due to those TV cables. Ducting for the cables should also accommodate the TV and CCTV cables.

7.4. Consultation Framework

The stakeholder consultation is a continuous process, and should be carried out throughout the life of project. The consultations carried out during the present study and reported in this Chapter are essentially among the initial steps in this process. During the subsequent project phases as well, participation of the project stakeholders need to be ensured.

Table 7.1 charts out the proposed consultation framework during different project phases, while Figure 7.1 provides the conceptual framework employed during the stakeholders consultation carried out as part of the present study. While the different stages identified in the figure are conceptually separate, in actual effect, many of them, (say individual and group consultations) often merge.

Table 7.1: Consultation Framework

Project Stage	Stakeholders	Consultation Tools	Responsibility
Project Design	Institutional Stakeholders: PIU/ESSU, Local Government, KMC, DMCs, academia, line agencies, NGOs and subject experts	Scoping Meeting with Institutional Stakeholders to deliberate on the planned project interventions and potential environmental and social risks	ESMF Consultant
	Selected Communities and shops nieghboring the sub-project sites (including women)	Focus Group Discussions in all sub-project sites with Community Representatives on potential environmental and social risks	ESMF Consultant
Project Inception	Institutional Stakeholders incuding implementation partners: PIU/ESSU, Line agencies, LG, KMC, NGOs	Inception Workshop for: • Discussion on Implementation Plan • Finalization of roles and responsibilities for implementation partners • Finalization of Documentation, M&E, Reporting requirements	ERU in association with PSC
	Target Communities (including representation from women and vulnerable groups where relevant)	Focus Group Discussions in all sub-project sites: • Information disclosure using background information document and Implementation Plan • Community Feedback regarding Implementation Plan, including role of PIU and LG departments, GRM, Institutional Coordination, and M&E	ERU in association with PSC
Project implementation	Construction Contractor(s)	Project Launching Workshop providing all relevant project details as per WB's information disclosure requirements	ERU in association with PSC
	Beneficiaries and field-level implementation teams	Weekly local-level monitoring and reporting of field-level activities using pre-designed monitoring templates	ERU in association with PSC
	Beneficiaries and field-level implementation teams	Bi-monthly DMC-level monitoring and reporting for compliance of ESMF and environmental and social issues identified through GRM procedures	ERU in association with PSC

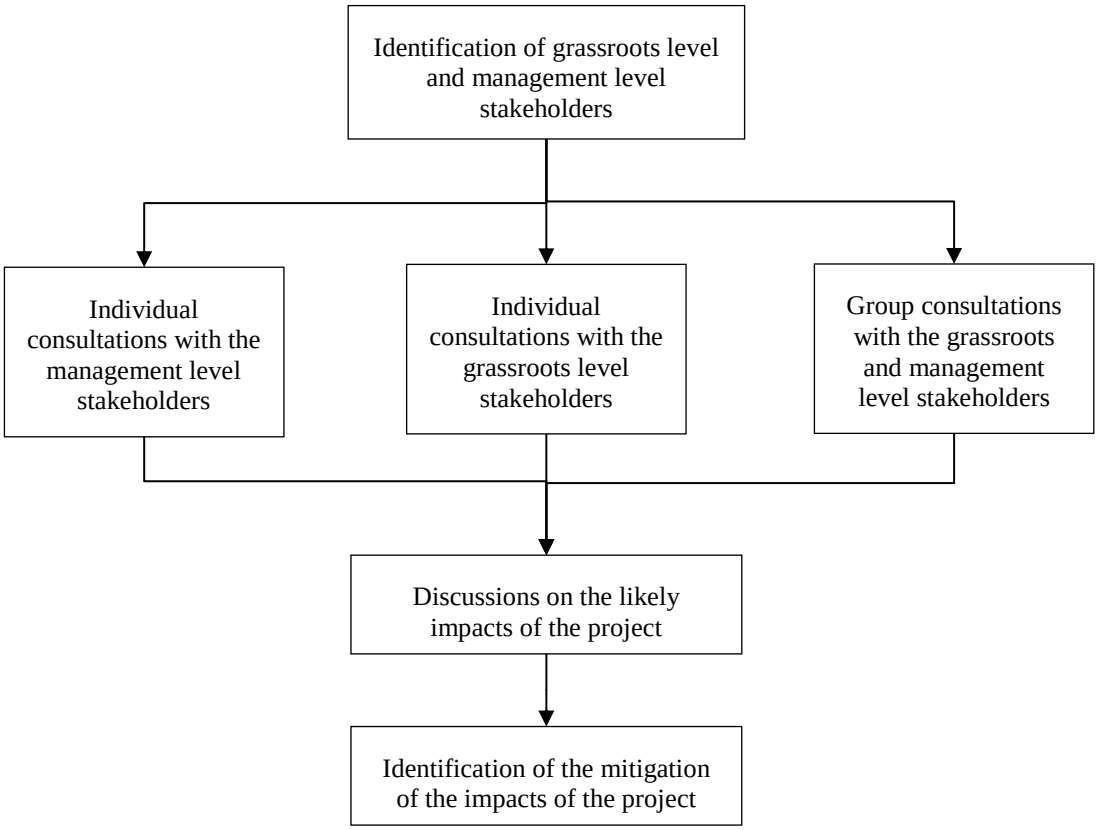


Figure 7.1: Conceptual Framework for ESMF Stakeholder Consultations

7.5. Communication Framework

It is important to develop a communication strategy for continuous communication between the project implementation authorities and all other stakeholders throughout the life of the project. The objectives are to (i) help strengthen public understanding and support for the projects and create an enabling environment for their implementation; (ii) enable public communication and continuous flow of information on project activities, impacts, and benefits; (iii) manage relationships with key external stakeholder constituencies; and (iv) facilitate dispute resolution and public monitoring of project implementation. The communication strategy must suit existing social, economic, and cultural conditions.

Before implementation of the project, a communications strategy will be developed for addressing the requirement for public consultation and participation. The Communication Specialist under PIU will use a variety of communication tools that will be included in the communication strategy and could include infographics, leaflets and frequent questions and answers to be distributed among different stakeholders, a phone-line to the PIU etc.

Before the socio-economic baseline surveys are conducted, the Communication Specialist will need to have developed a workable strategy for information disclosure, the Communication Specialist will take lead assuming this responsibility. During the census and DMS under RAP, PAPs will be directly informed about the subproject entitlements and procedures.

The strategy includes communication through relevant media: The Communication Specialist will assess community and other stakeholder's access to, and use of, broadcast and print media and explore how the

most appropriate outlets might be used to raise awareness of the project. Key activities may include, but not limited to:

- Preparation and translation into local languages of relevant and clear information on procedures related to project designs, traffic diversions, access to public, intimidation of utility works and interruptions, mobility of pedestrians during construction, dissemination of cut-off date etc.;
- Distribution of easily understood information to all APs;
- Communication through locally relevant channels. Communication Specialist will identify trusted ways in which different groups within communities and business, particularly poor and vulnerable groups, receive and communicate information (e.g. consultation meetings, mosques, markets etc.) and will make use of these channels to convey and receive information, consult and hold dialogues with the different groups through the life of the project;
- Liaison with relevant local government departments and other agencies. PIU staff will meet regularly with government staff in key local departments such as the KMC / DMCs, KWSB, KE, Culture Department, Hindu Panchayat Department of Health; and
- Communication Specialist participation in various regional forums. Communication Specialist will, where possible, participate in local base NGO meetings to inform local NGOs about the work and explore possible areas of synergy with the community level work.

Chapter 8 TECHNICAL ASSISTANCE, TRAINING AND CAPACITY BUILDING

8.1. Institutional Assessment

This institutional assessment covers institutional structure of PIU and its ability to address environmental and social management issues as well as other players who will be involve directly or indirectly during project execution.

8.1.1. Project Implementation Unit (PIU)

The Project Implementation Unit (PIU) is formed under this project. The PIU will also carry out environmental and social safeguards responsibilities of the project. Following table provides the list of proposed staffing hired under Project Implementation Unit (PIU) with environmental and social safeguards personnel.

Table 8.1: Proposed staffing of PIU

SR.#	Name of Position	No
1.	Project Director	1
2.	Internal Auditor	1
3.	Admin & HR Officer	1
4.	Deputy Project Director	1
5.	Urban Planning & design Specialist	1
6.	Transport/ Traffic Specialist	1
7.	Contract & Procurement Specialist	1
8.	Asst. Contract & Procurement	1
9.	Financial Management Specialist	1
10.	**Senior Engineer**	**1**
11.	**Junior Engineer**	**1**
12.	**Environment Specialist**	**1**
13.	**Institutional Capacity Building Specialist**	**1**
14.	**Communication Specialist**	**1**
	RESSETTLMENT UNIT	
15.	**Resettlement Specialist**	**1**
16.	**Gender Specialist**	**1**
17.	**Labor Specialist**	**1**
18.	**Social Development Specialist**	**1**
	SUPPORT STAFF	
19.	Program Assistant (04 Nos.)	4
20.	Receptionist(s) (01Nos.)	1
21.	Office Boys (03 Nos.)	3
22.	Riders (01 Nos.)	1
23.	Security Guards (02 Nos.)	2
24.	Drivers (03 Nos.)	3
25.	Sanitary Workers (02 Nos.)	2
26.	Contingent Paid Staff / Internee (02 Nos.)	2

The blue box in the above table shows the environmental and safeguard personnel hired under the PIU. While assessing the quantum of work on the project, nature of interventions and significance of impact envisaged during project execution, the above capacity of PIU for environmental and social safeguards is considered to be adequate and no further staff/personnel is suggested under this ESMF. It is expected that the social and resettlement impact can be significant therefore a separate Resettlement Unit (RU) is proposed and hired under PIU having adequate capacity to handle resettlement and relocation tasks.

8.1.2. Karachi Metropolitan Corporation (KMC)

KMC is run by an elected Mayor and Deputy Mayor. Functions of KMC includes Development planning; development of inter-district roads, bridges, street lights and storm water drains; special development programs; coordination, monitoring and supervision of all inter-district development work; abattoirs and cattle colonies; running various specialized medical institutions and colleges; large entertainment, recreation and cultural areas for public use; municipal ward and watch; firefighting service; civil defense and emergency response; traffic engineering; milk supply schemes; control of land owned by KMC and removal of encroachments from KMC properties[67].

8.1.2.1. Directorate of Parks and horticulture, Karachi Metropolitan Corporation[68]

Directorate of Parks and horticulture is headed by Director General. Functions include:

- Planning development and maintenance of parks and public amenity project of KMC.
- Plantation of trees on road side central islands of roads and public places.
- Protection of trees/plants against insects and pets and prevention from plants diseases.
- Protection and purification of environmental condition of Karachi City.

8.1.2.2. Transport and Communication Department, Karachi Metropolitan Corporation[69]

The Transport and Communication Department of KMC undertaking to provide for the safe, smooth and efficient movement peoples and goods within the mega City of Karachi, Pakistan. The department is primarily responsible for planning, design, implementation and monitoring of traffic and transport initiatives with the objectives to optimize the capacity, efficiency and road safety of the road network.

The department is responsible for traffic studies, planning and designing of transport infrastructure / road material components, operation and maintenance of traffic signals, off/on street parking, pedestrian facilities, public mass transportation initiatives, urban routes management, terminal facilities and road safety initiatives. The Transport and Communication department comprises of following specialized units/sections:

- Policy Planning and Design
- Parking and Terminal Management
- Road Safety Education
- Public Transport Management and Operation
- Traffic Control and Operation
- Pedestrian Bridges and Special Projects
- Information Technology

8.1.2.3. Anti-Encroachment KMC Wing[70]

Under SLGO 2001, this department was working under the name of Enforcement Department, CDGK under the head of District Officer. The functions of this department are as under:

[67] Official web portal of Karachi Metropolitan Corporation (KMC)
[68] Official web portal of Karachi Metropolitan Corporation (KMC)
[69] Official web portal of Karachi Metropolitan Corporation (KMC)
[70] Official web portal of Karachi Metropolitan Corporation (KMC)

- To check and remove encroachments from the CDGK land / amenity and is supposed to clear obstructions from almost all roads of Karachi District and also the encroachment of different nature in the limit of Karachi District.
- To impound cattle (stray animals) from all over the City of Karachi and release after recovery of prescribed fines from the cattle owners.
- To generate revenue in the Budget Heads of this department against temporary land occupation.

8.1.3. District Municipal Corporations (DMCs)

There are six DMCs working in Karachi, with respect to each district of Karachi, namely, South, East, West, Central, Malir and Korangi districts. Functions of DMCs include Public health (Sanitation; Removal, collection and disposal of refuse (solid waste management); public toilets); water supply and drainage (in areas not in control of the Karachi Water and Sewerage Board) and regulating private sources of water supply; public streets and street lighting; traffic planning; development planning (community development projects); primary and adult education; regulation of food and drink; slaughterhouses; establishing public markets and regulation of private markets for food and drink or sale of animals; Trees, Parks, Public gardens, open spaces, nurseries; cultural events, Libraries, entertainment events; social welfare – welfare homes and institutions for marginalized; regulating dangerous trades; register Birth, Deaths and Marriages; prevention of infection diseases; regulation of burial places like graveyards; land development and improvement schemes of land owned by DMCs; public housing schemes; medical aid and relief; and any other function which GoS may assign[71].

8.1.4. Sindh Environmental Protection Agency (SEPA)

SEPA is headed by Director General (DG) with the aim to exercise the powers and perform the functions assigned to it under the provisions of this Act and the rules and regulations made there under. The Agency shall have technical and legal staff and may form advisory committees. The Agency shall administer and implement the provisions of this Act and rules and regulations. It shall also prepare environmental policies, take measures for implementation of environmental policies, prepare Sindh Environment Report and prepare or revise Sindh Environmental Quality Standards. SEPA shall also establish systems and procedures for surveys, surveillance, monitoring, measurement, examination, investigation research, inspection and audit to prevent and control pollution and to estimate the costs of cleaning up pollution and rehabilitating the environment and sustainable development.

8.1.5. Department of Antiquities, Government of Sindh

The Department of Antiquities was created to look after the archaeological, historical and physical heritage of province. The department has three wings these are Heritage, Conservation and Archaeology. The head office is situated in Karachi, with sub offices in Thatta, Shikarpur, Jamshoro, Hyderabad and Sukkur[72].

8.2. Training and Capacity Building Requirements

To ensure the successful implementation of the environmental and social precautions and mitigation measures, a strengthening of relevant and fundamental competencies is essential. These trainings will lay the foundation of a self-sustainable outreach for the KNIP and its facilitators.

[71] Draft Concept Note on Karachi Neighborhood Improvement Project (P161980) by The World Bank (Oct, 2016)
[72] Department of Antiquities, Government of Sindh

The objectives of the environmental and social trainings include providing basic knowledge and information on the key environmental and social issues associated with the proposed interventions to the key project personnel including the Local Government Staff, Contractor(s) staff and general project staff. Trainings of the project staff and project beneficiaries will be carried out for the environmental and social management of the subprojects.

Project interventions like roads rehabilitation, development of parking spaces, rehabilitation of parks and playgrounds and traffic management implemented in downtown historic area of Saddar, Korangi Roads and Malir-Khokrapar area will require comprehensive trainings & demonstrations for successful implementation of planned components under KNIP project & long-term sustainability. The environmental and social aspects identifications and mitigations integrated with the training effort will equip the project facilitators for a keen sight of project component related environmental issues and their solutions.

The trainings will include but not be limited on the subject of environmental friendly traffic management approach, solid waste management, dust abatement, noise control measures, economic displacement and relocation of APs, working near PCRs etc.

Project Supervision and Contract Management Consultant (PSC) will execute the training programs. They will also be responsible for preparing the reports for each of the trainings conducted by various project units. Additionally, Construction Contractor (CC) will be responsible to provide trainings to their field staff and workers under supervision of PSC and they will also document the trainings.

Table 8.2: Framework for Training

Description	Aspects to be Covered	Participants	Responsibility	Frequency
Environmental and social trainings	Environmental and social awareness; Key environmental and social issues associated with the project and subprojects ESMF findings;	PIU Engineering staff Execution agencies/line agencies	PSC	One time at the start of each sub-project
	Subproject-specific ESMPs and their components; ESMP implementation;	PIU Engineering staff Execution agencies/line agencies CC staff	PSC	One time at the start of each sub-project
	Subproject screening; Subproject monitoring and reporting;	PIU Engineering staff Execution agencies/line agencies CC staff	PSC	Quarterly
	GRM; Community consultations	PIU Engineering staff Execution agencies/line agencies CC staff	PSC	As needed throughout the project
	Subproject ESMP implementation; Dust and noise abatement;	CC staff	CC	Quarterly

	Best available techniques for civil works and excavation; Waste management; Community Consultation; Storm water management; Environmentally sustainable public toilet designs; Shifting/Replantation of uprooted trees; OHS aspects. Training to labor on engagement with local communities esp women			
Awareness raising	Diversion Plans; Traffic Management; Parking rules and planned parking location maps; Use of public toilets; Use of community Dust bins; Cutting of trees and flora.	CC staff and Subproject beneficiaries	CC	Monthly

Different groups of participants required different type of training session like detailed trainings, capacity building or awareness raising. The requirements for the trainings for these various groups is presented in the following table.

Table 8.3: Key Aspects/Requirements of Trainings for various Group of Participants under ESMF-KNIP

Training Aspects/Requirements for Various Groups of Participants	*Project Director*	*PIU ESS Staff*	*KMC Officer(s)/DMC Officers*	*Contractor(s) Labor Staff*	*Secretary Union Council(s)/Community Organizations*	*Sub-Project Beneficiaries*
Key environmental and social issues associated with the project and subprojects	**A**	**C**	**A**	**T**	**A**	**A**
Subproject-specific ESMPs and their components	**S**	**C**	**A**	**T**	**A**	**S**
ESMP implementation	**A**	**C**	**T**	**T**	**S**	**-**
Subproject screening	**S**	**T**	**A**	**T**	**A**	**-**
Subproject monitoring and reporting	**A**	**C**	**A**	**T**	**A**	**-**
GRM; Community consultations	**S**	**T**	**T**	**T**	**A**	**A**
Best available techniques for construction of toilets	**S**	**A**	**A**	**A**	**T**	**A**
Traffic management	**S**	**A**	**T**	**T**	**A**	**A**
Dust and Noise Abatement	**A**	**C**	**T**	**T**	**A**	**A**
Use of PPEs	**A**	**C**	**S**	**T**	**A**	**A**
Compliance with labor laws	**A**	**C**	**S**	**T**	**A**	**A**
Ability to identify and incorporate mitigation measures provided in ESMF	**A**	**C**	**A**	**T**	**A**	**-**
Ability to oversee the supervision and monitoring to ensure compliance with ESMF	**A**	**T**	**T**	**S**	**S**	**-**

Ability to review environmental/social reports (Progress reports)	**A**	**C**	**T**	**A**	**S**	**-**
Ability to monitor and supervise work at the local level	**S**	**S**	**T**	**T**	**S**	**-**
Ability to capture and report on environmental/social issues outlined in ESMF	**S**	**S**	**T**	**T**	**A**	**S**
Assessment of Environmental and Social Progress in accordance with ESMF	**A**	**C**	**T**	**T**	**S**	**-**

*Legend: **T** = Detailed training, **C** = Capacity-building, **S** = Sensitization to the issues, **A** = Awareness-raising*

8.3. Grievance Redress Mechanism (GRM)

8.3.1. Overview and Scope

The Grievance Redress Mechanism proposed here spans the entire project implementation and will cater to both the directly and indirectly affected population/beneficiaries. Though the GRM proposed here a mechanism of redress has been designed to address environmental and social problems identified during implementation, it will also cater to manage any disconnects that emerge from the field level and that has significant implications for effective implementation of the sub-project interventions.

The PIU office will serve as the secretariat for the Grievance Redress Committee (GRC-Project) that will be responsible for providing oversight on the entire GRM process at a strategic level and monitoring of complaints management.

8.3.2. Objectives of Grievance Redress Mechanism

The grievance redress mechanism (GRM) will be consistent with the requirements of the World Bank safeguard policies to ensure mitigation of community concerns, risk management, and maximization of environmental and social benefits. The overall objective of the GRM is therefore to provide a robust system of procedures and processes that provides for transparent and rapid resolution of concerns and complaints identified at the local level.

The GRM will be accessible to diverse members of the community, including women, senior citizens and other vulnerable groups. Culturally-appropriate communication mechanisms will be used at all sub-project sites both to spread awareness regarding the GRM process as well as complaints management.

8.3.3. Communication & Awareness raising on GRM

The final processes and procedures for the GRM will be translated in to local language (i.e. Urdu) and disseminated at all sub-project locations. These shall be made available (in both leaflet and poster format) to all sub-project locations with CC Project Manager on site and in the offices of each DC Office.

8.3.4. Proposed Institutional Mechanisms

It is proposed to establish the following prior to commencing project implementation activities including pre-construction activities:

- Any person can access PIU website or office to record grievances and also write a formal letter in the name of Project Director, PIU. The person can also visit the PIU office in person and log complaints.
- The PIU Office will maintain an electronic database that will provide a summary of complaints received and mitigations. The PIU Office will also provide an analysis of the grievances at each sub-project location using a pre-designed M&E template that will give insight into the type of complaints

received and qualitative and quantitative review of grievance redress. The PIU Office will also be responsible for uploading the actions and results for each grievance for each sub-project location on a periodic basis to the PIU website.

- Apart from the electronic database that will be maintained at the PIU level, a manual register and complaint box of all complaints and actions taken will be maintained at construction site by CC. GRM sign boards on which Compliant numbers (PIU numbers) will also be displayed at construction site.
- Grievance Focal Points (GFPs) will also be chosen from local community/ business association on each sub-project site. Two GFPs (1 male and 1 female) will be selected for each sub-project locations and will be community members who are easily approached by the community.
- The PIU and the local government bodies will issue public notices to inform the public within the project area of the Grievance Redress Mechanism. The PCC's phone number, fax, address, email address will be disseminated to the people through displays at the respective DC offices as well.
- The PIU staff will maintain a complaints database and communicate with Executing agencies, and DC offices and also with complainants for the resolution of grievances.
- Given that the female community members have restricted mobility outside of their houses, the female PD office staff will be required to undertake visits to the local community. The frequency of visits will depend on the nature and magnitude of activity in an area and the frequency of grievances.
- The PIU officers will log complaints and date of receipt onto the complaint database and inform the ESS staff of PIU;
- PIU will coordinate with local government to "capture" complaints made directly to them;
- The PIU staff, with the help of PSC, will investigate the complaint to determine its validity, and to assess whether the source of the problem is due to project activities, and identify appropriate corrective measures. If corrective measures are necessary, PIU, through the PSC, will instruct the CC to take necessary action;
- The PIU will inform the Complainant of investigation results and the action taken;
- If complaint is transferred from local government agencies, the PIU will submit interim report to local government agencies on status of the complaint investigation and follow-up action within the time frame assigned by the above agencies;
- The PIU will review with the help of PSC, the CC response on the identified mitigation measures, and the updated situation;
- The PIU will undertake additional monitoring, as necessary, to verify as well as review that any valid reason for complaint does not recur.

Grievance Redress Committee (Grass Root level)

One Grass Root level Grievance Redress Committee will be established in which GPFs of subprojects, RE Engineer(s) of PSC, CC Project Manager, PIU Engineer and prominent local people will be present that will manage GRM aspects for all sub-project locations including decisions to be taken, actions and monitoring of complaints resolution at sub-project level.

Grievance Redress Committee (Departmental Level)

One Grievance Redress Committee (Departmental Level) will be established and chaired by the Project Director PIU and will include proportionate representation from local government, community representatives, civil society organizations and project team. The GRC will function as an independent body that will regulate the grievance redress process. It will comprise of, PD, ESS staff of PIU, Senior Engineers from LG/GOS, Representative of DC offices and senior members from civil society and business associations in sub-project areas.

8.3.5. Procedures

The tracking and documenting of grievance resolutions will include the following elements: (i) tracking forms and procedures for gathering information from project personnel and complainant(s); (ii) dedicated staff to update the database routinely; (iii) systems with the capacity to analyze information so as to recognize grievance patterns, identify any systemic causes of grievances, promote transparency, publicize how complaints are being handled, and periodically evaluate the overall functioning of the mechanism; (iv) processes for informing stakeholders about the status of a case; and (v) procedures to retrieve data for reporting purposes, including the periodic reports to the Contractor(s) and into the monthly ESMP Compliance monitoring report to the World Bank.

- Field level Grievances like entries in GRM register, complaints dropped in the Complaint box, will be dealt and resolved by Resident Engineer(s) of PSC by instructing CC staff and reports to GRC-grass root level. If unaddressed instantly, it will be referred to GRC-grass root level.
- The Grievance Redress Committee at the grass root level will review and identify actions to be taken to address the complaints within one week.
- If not satisfactorily resolved by the GRC-grass root level, the grievances will be referred to consideration by GRC at the Department level within one week.
- Every effort will be made to address or resolve grievances within fixed time-lines, which will be an indicator against the performance of the handling system. Acknowledgement of a written submission will be issued to the complainant within three working days. If not resolved earlier by the CC on site, grievances will be tabled for discussion/resolution during Committee meeting within one week of receipt of the written submission.
- If the complainant is not satisfied, the complaint will have the option to seek redress through court of law or go to the Mayor of Karachi.

Chapter 9 ESMF IMPLEMENTATION BUDGET

The cost estimates to implement ESMF is provided below. This cost will be included in the overall project cost. Additional costs could be included in the sub-project specific ESMPs. The environmental and social safeguard staff hired by PIU is adequate and no further position is suggested in the current ESS setup and the remunerations of theses staff will be included in the project cost. Therefore, the capacity building cost is not be suggested under ESMF budget.

Table 9.1: ESMF Implementation Budget for 1 year Project (Million PKR)

Activity	*Year*			*Total*	*Notes*
	1	*2*	*3*		
Trainings					
Environmental and Social awareness	0.2	0.2	0.2	0.6	Quarterly, 2-day workshop @ Rs.50,000 per workshop inc. expenses
ESMF implementation and OHS aspects (PPE, MSDS)	0.4	0.4	0.4	1.2	Quarterly, 4-day workshop @ Rs.100,000 per workshop inc. expenses
Awareness raising	0.3	0.3	0.3	0.9	Monthly, 2-day workshop @ Rs.25,000 per workshop inc. expenses
Environmental Monitoring					
Ambient Air Quality Monitoring	8.4	8.4	8.4	25.2	Fortnightly, Rs.35,000 for 8hr ambient air monitoring per location, assuming 10 points in all project locations
Ambient Noise Monitoring	2.4	2.4	2.4	7.2	Fortnightly, Rs.10,000 for 8hr ambient noise monitoring per location, assuming 10 points in all project locations
Vehicular Emission Monitoring	0.6	0.6	0.6	1.8	Quarterly, Rs.10,000 per vehicle for vehicular emission monitoring, assuming 15 vehicles in all project locations
Water Quality Testing	0.32	0.32	0.32	0.96	Quarterly, Rs.20,000 per grab sample for water quality analysis, assuming 4 water samples in all project locations
Reporting					
Environmental and Social Management Plans	3.6	-	-	3.6	For three subprojects, 3x15 days @ Rs.80,000/day
Waste Management Plan	1.8	-	-	1.8	For three subprojects, 3x15 days @ Rs.40,000/day
Labor Health, Safety and Welfare Management plan	1.8	-	-	1.8	For three subprojects, 3x15 days @ Rs.40,000/day
Protection of Trees Management Plan	1.35	-	-	1.35	For three subprojects, 3x15 days @ Rs.30,000/day
Environmental and social monitoring checklists	0.09	-	-	0.09	15 days at 1st year @ Rs.6,000/day
Progress Reports	0.42	0.42	0.42	1.26	7 days per month @ Rs.5,000/day
Training Reports	0.1	0.1	0.1	0.3	5 days per quarter @ Rs.5,000/day
Project Completion Report	-	-	1.5	1.5	30 days per year @ Rs.50,000/day
Total	**21.78**	**13.14**	**14.64**	**49.56**	

Therefore, the Budget for ESMF implementation for three years will be **PKR 49.56 Million**.

References

- Project Data furnished by Directorate of Urban Policy and Strategic Planning (UPSP)
- World Bank (2014), "Pakistan Urban Sector Assessment", unpublished background paper for South Asia Urbanization flagship report.
- World Bank (2016), "Karachi City Diagnostic Report", unpublished draft
- Adopted from Draft Concept Note on Karachi Neighborhood Improvement Project (P161980) by The World Bank (Oct, 2016)
- World Bank (2014), "Pakistan Urban Sector Assessment", unpublished background report for South Asia Urbanization flagship report 2016
- World Bank Enterprise Survey
- Mark Roberts and Peter Ellis (2016), "Leveraging Urbanization in South Asia: Managing Spatial Transformation for Prosperity and Livability," World Bank.
- Sindh Cultural Heritage (Preservation) Act, 1994 – Gazette of Sindh (April, 1994)
- The Sindh Local Government Act, 2013. Sindh Act NO. XLII OF 2013. (Sep, 2013)
- Safeguard Policies, A Quick Review – The World Bank, Tiblisi (April, 2008)
- Official web portal of Karachi Metropolitan Corporation (KMC)
- Pakistan Meteorological Department
- Preparatory Survey (II) on Karachi Circular Railway Revival Project, 2013, prepared by JICA
- Guidelines of "Pakistan Building Code (PBC-2007)"
- Geological Survey of Pakistan
- Environmental Impact Assessment of proposed Bus Rapid Transit Project in Karachi, August 2014; Client: Karachi Metropolitan Corporation and prepared by EMC Pakistan Pvt. Ltd.
- City District Karachi, Pakistan Development Prospects 2013
- Karachi Transportation Improvement Project (KTIP) Study, JICA, 2010
- City District Government Karachi Water and Sewerage Board, Planning Commission 2007
- World Applied Sciences Journal 29 (12): 1516-1526, 2014
- Maternal mortality ratio (modeled estimate, per 100,000 live births) by World Bank
- Report On the Status of Millennium Development Goals Sindh – October 2012 UNDP
- Report On The Status Of Millennium Development Goals Sindh – October 2012 UNDP
- Members by District – Provincial Assembly of Sindh, 2013 till Date
- PSLM 2014-15
- Sindh Education Profile 2014-15, RSU
- Official web portal of K-Electric Limited
- Roohi Abdullah. World Bank, The Role of Private Vending in Developing Country Water Service Delivery: The Case of Karachi, Pakistan, June 1999
- Karachi Master Plan-2020 Transport Sector Report Table 4.6.2
- Motor Registration Civic Centre Karachi Data 2009-2012

Annexures

Annex A: Sindh Environmental Quality Standards (SEQS)

Sindh Environmental Quality Standard for Ambient Air			
Pollutant	**Time-weighted average**	**Concentration in Ambient Air**	**Method of measurement**
Sulfur Dioxide (SO_2)	Annual Average*	80 µgm^3	Ultraviolet Fluorescence Method
	24 hours**	120 µgm^3	
Oxides of Nitrogen as (NO)	Annual Average*	40 µgm^3	Gas Phase Chemiluminescence
	24 hours**	40 µgm^3	
Oxides of Nitrogen as (NO_2)	Annual Average*	40 µgm^3	Gas Phase Chemiluminescence
	24 hours**	80 µgm^3	
O_3	1 hour	130 µgm^3	Non dispersive UV absorption method
Suspended Particulate Matter (SPM)	Annual Average*	360 µgm^3	High volume Sampling, (Average flow rate not less than 1.1m^3/minute)
	24 hours**	500 µgm^3	
Respirable Particulate Matter (PM10)	Annual Average*	120 µgm^3	B Ray absorption method
	24 hours**	150 µgm^3	
Respirable Particulate Matter (PM2.5)	24 hours**	75 µgm^3	B Ray absorption method
Lead (Pb)	Annual Average*	1 µgm^3	ASS Method after sampling using EPM 2000 or equivalent Filter paper
	24 hours**	1.5µgm^3	
Carbon Monoxide (CO)	8hours**	5mg/m^3	Non Dispersive Infra Red (NDIR) method
	1hours	10mg/m^3	
*Annual arithmetic mean of minimum 104 measurements in a year taken twice a week 24 hourly at uniform interval.			
**24 hourly / 8 hourly values should be met 98% of the in a year. 2% of the time, it may exceed but not on two consecutive days.			

Sindh Environmental Quality Standard for Noise			
S. No.	**Category of Area / Zone**	**Effective from 1st January, 2015**	
		Limit it in dB(A) Leq*	
		Day Time	Night Time
1	Residential area (A)	55	45
2	Commercial area (B)	65	55
3	Industrial area (C)	75	65
4	Silence Zone (D)	50	45
Note: 1	Day time hours: 6.00 a. m to 10.00 p. m		
2	Night time hours: 10.00 p. m to 6.00p. m		
3	Silence zone; Zone which are declared as such by competent authority. An area comprising not less than 100 meters around hospitals, educational institutions and courts.		
4	Mixed categories of areas may be declared as one of the four above-mentioned categories by the competent authority.		
***dB(A)Leq**	Time weighted average of the level of sound in decibels on scale A which is relatable to human hearing.		

Sindh Environmental Quality Standard for Municipal & Liquid Industrial Effluents					
S. #	Parameter	Into Inland Waters	Into Sewage Treatment	Into Sea	unit
1	Temperature or Temp. increase	<3	<3	<3	^{o}C
2	pH value (H^+)	6-9	6-9	6-9	
3	Biological Oxygen Demand $(BOD)_5$ at 20^{o}C	80	250	80	mg/l
4	Chemical Oxygen Demand (COD)	150	400	400	mg/l
5	Total Suspended Solids (TSS)	200	400	200	mg/l

Sindh Environmental Quality Standard for Municipal & Liquid Industrial Effluents					
S. #	Parameter	Into Inland Waters	Into Sewage Treatment	Into Sea	unit
6	Total Dissolved Solids (TDS)	3500	3500	3500	mg/l
7	Oil and Grease	10	10	10	mg/l
8	Phenolic Compounds (as Phenol)	0.1	0.3	0.3	mg/l
9	Chloride (as Cl^-)	1000	1000	SC	mg/l
10	Fluoride (as F^-)	10	10	10	mg/l
11	Cyanide (as CN^-)total	1.0	1.0	1.0	mg/l
12	An-ionic detergents (as MBAS)	20	20	20	mg/l
13	Sulphate (SO_4^{2-})	600	1000	SC	mg/l
14	Sulphide (S^{2-})	1.0	1.0	1.0	mg/l
15	Ammonia (NH_3)	40	40	40	mg/l
16	Pesticides	0.15	0.15	0.15	mg/l
17	Cadmium	0.1	0.1	0.1	mg/l
18	Chromium (trivalent and hexavalent)	1.0	1.0	1.0	mg/l
19	Copper	1.0	1.0	1.0	mg/l
20	Lead	0.5	0.5	0.5	mg/l
21	Mercury	0.01	0.01	0.01	mg/l
22	Selenium	0.5	0.5	0.5	mg/l
23	Nickel	1.0	1.0	1.0	mg/l
24	Silver	1.0	1.0	1.0	mg/l
25	Total toxic metals	2.0	2.0	2.0	mg/l
26	Zinc	5.0	5.0	5.0	mg/l
27	Arsenic	1.0	1.0	1.0	mg/l
28	Barium	1.5	1.5	1.5	mg/l
29	Iron	8.0	8.0	8.0	mg/l
30	Manganese	1.5	1.5	1.5	mg/l
31	Boron	6.0	6.0	6.0	mg/l
32	Chlorine	1.0	1.0	1.0	mg/l

The Motor Vehicle Noise (SEQS)		
Parameter	Standards (maximum permissible limit)	Measuring method
Noise	85dB(A)	Sound-meter at 7.5meter from the source

Sindh Environmental Quality Standards for Drinking Waters (mg/l)					
S.#	**Properties / Parameters**	**Standard Values for Pakistan**	**S.#**	**Properties / Parameters**	**Standard Values for Pakistan**
Bacterial			Chemical		
1	All water intended for drinking (E.Coli or Thermo tolerant Coliform bacteria)	Must not be detectable in any 100 ml sample	Essential Inorganics (mg/liter)		
			3	Aluminum (Al) mg/l	≤ 0.2
			4	Antimony (Sb)	≤ 0.005
2	Treated water entering the distribution system (Ecoli or thermo tolerant coliform and total coliform bacteria)	Must not be detectable in any 100 ml sample	5	Arsenic (As)	≤ 0.05
			6	Barium (Ba)	0.7
			7	Boron (B)	0.3
3	Treated water in the distribution system (E.coli or thermo tolerant coliform and total coliform bacteria)	Must not be Detectable in any 100 ml sample. In case of large supplies, where sufficient samples are examined, must not be	8	Cadmium (Cd)	0.01
			9	Chloride (Cl-)	< 250
			10	Chromium (Cr)	≤ 0.05
			11	Copper (Cu)	2
			Organic (mg/L)		

Sindh Environmental Quality Standards for Drinking Waters (mg/l)					
S.#	**Properties / Parameters**	**Standard Values for Pakistan**	**S.#**	**Properties / Parameters**	**Standard Values for Pakistan**
Bacterial			Chemical		
		resent in 95% of the samples taken throughout any 12 month period.	12	Phenolic compounds	<0.0002
			Toxic Inorganics (mg/liter)		
			13	Cyanide (CN)-	≤ 0.05
			14	Fluoride (F)	≤ 1.5
			15	Lead (Pb)	≤ 0.05
			16	Manganese (Mn)	≤ 0.5
Physical			17	Mercury (Hg)	≤ 0.001
4	Color	< 15 TCU	18	Nickel (Ni)	≤ 0.02
5	Taste	Non objectionable/ Acceptable	19	Nitrate (NO_3)-	≤ 50
6	Odor	Non objectionable/ Acceptable	20	Nitrite (NO2)-	≤ 3
7	Turbidity	< 5 NTU	21	Selenium (Se)	≤ 0.01
8	Total Hardness as $CaCO_3$	< 500 mg/l	22	Residual Chlorine	0.2-0.5 At consumer end 0.5-1.5 at source
9	TDS	<1000			
10	pH	6.5-8.5			
Radioactive					
11	Alpha Emitters bq/L	0.1	23	Zinc (Zn)	5.0
12	Beta emitters	1			

Annex B: Environmental & Social Screening checklist

The below checklist used is largely subjective, and may be overruled by site specific considerations. (Description in red is for guidance and may be deleted before using the checklist)

Name of Enumerator:_____ Date: _____

DMC:_____ District:_____ Sub-Project:_____

Project Categorization: A B C

SCREENING QUESTIONS	Yes	No	REMARKS
A. Project Siting **Is the project area…**			
Presence of any environmentally sensitive areas? (This aspect will be confirmed for each individual sub-project under KNIP)			
- Protected area			
- Wetland			
- Mangrove			
- Estuarine			
- Buffer zone of protected area			
- Special area for protecting biodiversity			
- Physical Cultural Resources / Heritage sites			
B. Potential environmental impacts **Will the project cause…**			
Impediments to movements of local people? (Likely. This aspect will be confirmed for each individual sub-project. It will be ensured by providing diversion and access to pedestrians.)			
Noise and dust from construction activities? (This aspect will be assessed while designing specific subprojects. It will be ensured that the noise/dust emissions from subprojects' construction remains within acceptable limits.)			
Alteration of surface water hydrology of waterways? (This aspect will be confirmed for each individual sub-project)			
Aggravation of solid waste problems in the area? (This aspect will be assessed while designing specific subprojects. It will be ensured that solid waste generated from sub-projects will be handled carefully and disposed in environmental friendly way while avoiding contamination to local waterways and groundwater.)			
Social conflicts arising from economic displacement of businesses/communities? (Likely. This aspect will be confirmed for each individual sub-project as encroachments are envisaged in subproject sites.)			
Conflicts in abstraction of raw water for water supply with other beneficial water uses for surface and ground waters? (This aspect will be confirmed for each individual sub-project and its water requirements. If applicable, the subproject design will include water conservation practices and less water consuming designs)			

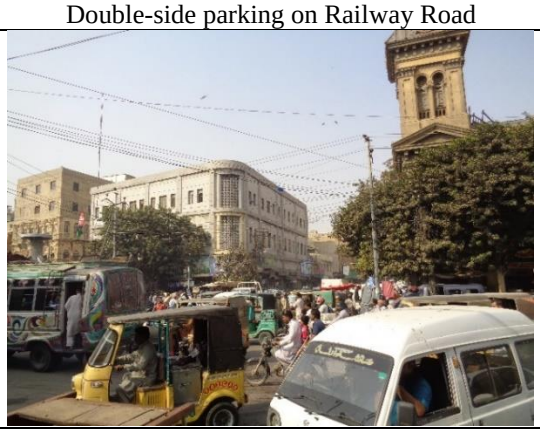
SCREENING QUESTIONS	Yes	No	REMARKS
Creation of temporary breeding habitats for diseases such as those transmitted by mosquitoes and rodents? (It is likely that due to project interventions, the water may accumulate at one place or waste disposal is not adequate. The subproject design will include mitigation measures for proper waste disposal and wastewater discharge.)			
Inadequate protection of sewage collection, leading to pollution of water supply? (It is likely that due to project interventions, the existing water supply may get contaminated. The subproject design will include mitigation measures for proper waste disposal and wastewater discharge.)			
Dislocation or involuntary resettlement of people? (This aspect will be confirmed for each individual sub-project using involuntary resettlement checklist which will be part of RPF)			
Disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?			
Potential social conflicts arising from land tenure and land use issues? (This aspect will be confirmed for each individual sub-project)			
Hazardous driving conditions where construction interferes with pre-existing roads? (It is most likely that project interventions may create hazardous driving condition due to diversions and road closure)			
Increased noise and air pollution resulting from traffic volume? (It is most likely that project interventions may increase air and noise pollution due to diversions and road closure)			
Large population influx during project construction and operation that causes increased burden on social infrastructure and services (such as water supply and sanitation systems)? (Unlikely, however this aspect will be confirmed for each individual sub-project)			
Community safety risks due to both accidental and natural hazards, especially where the structural elements or components of the project are accessible to members of the affected community or where their failure could result in injury to the community throughout project commencement? (Unlikely, however this aspect will be confirmed for each individual sub-project)			
Are there any demographic or socio-economic aspects of the Project area that are already vulnerable (e.g., high incidence of marginalized populations, rural-urban migrants, illegal settlements, ethnic minorities, women or children)?			

Annex C: Reconnaissance Survey Methodology and Results

RS was focused on collection of information on various environmental and social aspects including but not limiting to physical, biological, hydrological, health and social environment. The survey comprised collection of information on:

- Air quality and noise
- Water & ground water resources;
- Community issues such as economic disturbance, health, etc.;
- Archaeological aspect;

Pictorials of Reconnaissance Survey

<table>
<tr><th colspan="2">Saddar Downtown Area</th></tr>
<tr><td>  </td><td>  </td></tr>
<tr><td>Double-side parking on Railway Road</td><td>New Chali and Shahra-e-Liaquat</td></tr>
<tr><td>  </td><td>  </td></tr>
<tr><td>M. A. Jinnah Road</td><td>Aram Bagh Area</td></tr>
<tr><td>  </td><td>  </td></tr>
<tr><td>Pakistan Chowk Area</td><td>Outram Road</td></tr>
</table>

Korangi Roads	
	
Pakistan Road - Korangi	Pakistan Road - Korangi
	
Bambu Khan	Bambu Khan
	
Korangi Sector 33	near Bilal Chowrangi

Coast Guard to Ibraheem Haideri Road

Vehicular parking at Coast Guard Chowrangi

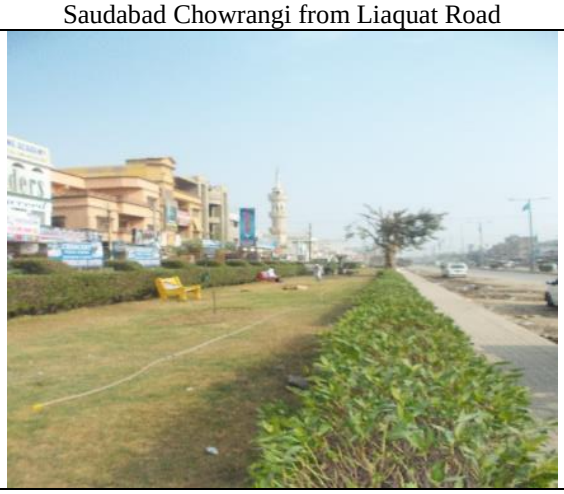
Mobile Vendors in Chowrangi

Marriage halls

Pakistan Coast Guard building boundary near Coast guard Chowrangi

Sewage water on roads in front of Pakistan Coast Guards building

Waste laden median of the road with high tension power lines

Malir Khokrapar Road	
	
Saudabad Chowrangi from Liaquat Road	Mobile Vendors
	
Park besides Liaquat Road	Garbage on median at Liaquat Road at Khokhrapar
	
Garbage ridden, abandoned and sewage inundated of One side of Liaquat Road from Khokhrapar	Open Sewar at Khokhrapar

	
Taddo Nala beneath Memon Goth Road Bridge	Memon Goth Road Bridge over Thaddo Nala

Annex D: List of Protected Archeological Sites and Monuments of Karachi District

Buildings Declared as "Protected Heritage" by the Government of Sindh (Under the Sindh Cultural Heritage (Preservation) Act 1994 on September 7, 1995.))

1. NED City Campus (Strachan Road), Karachi
2. Victoria Museum (now Supreme Court of Pakistan Building), M.R. Kiyani Road, Karachi
3. Kirmani House, (271, Strachan Road), Karachi
4. Jhumra Autos Building, Dr. Zaiudding Ahmed (Kutehery) Road, Karachi.
5. Noor Manzil, Dr. Ziauddin Ahmed (Kutchery) Road, Karachi.
6. Fine Publishers' Building, Dr. Ziauddin Ahmed (Kutchery) Road, Karachi
7. Faiz-e-Hussaini Building, Dr. Ziauddin Ahmed (Kutchery) Road, Karachi.
8. Adamjee Building, Dr. Ziauddin Ahmed (Kutchery) Road, Karachi.
9. Aziz Manzil, Dr. Ziauddin Ahmed (Kutchery) Road, Karachi.
10. Metharam Hostel Building, Dr. Ziauddin Ahmed (Kutchery) Road Karachi.
11. D.J. College (Geology & Math Department) Originally Principal's Bungalow) Dr. Ziauddin Ahmed (Kutchery) Road, Karachi.
12. Victoria Museum, M.R. Kiyani Road Karachi.
13. Hindu Gymkhana, Sarwar Shaheed Road, Karachi.
14. New Sindh Assembly Building, Court Road, Karachi.
15. Victoria Mansion, Abdullah Haroon (Victoria) Road, Karachi.
16. Jahangir Kothari Mansion, Abdullah Haroon (Victoria) Road/Inverarity Road, Karachi.
17. Krishna Mansion, Inverarity Road, Karachi.
18. Lotia & Partners Building, Zaibunnisa (Elphinstone Street/Inverarity Road, Karachi.
19. Excelsior Hotel,Zaibunnisa (Elphinstone) Street, Karachi.
20. Ekanic Building, Zabunnisa (Elphinstone) Street, Karachi.
21. Speechly Building, Zaibunnisa (Elphinstone) Street, Karachi.
22. Service Building, Zaibunnisa (Elphinstone) Street, Karachi.
23. Allah Rakhi Begum Building, Zaibunnisa (Elphinstone) Street, Karachi.
24. Nusserwanjee Building, Zaibunnisa (Elphinstone) Street, Karachi.
25. Hashim Chambers Building, Zaibunnisa (Elphinstone) Street, Karachi.
26. Suleman Umber Building, Zaibunnisa (Elphinstone) Street, Karachi.
27. Victoria Furnishing Mart, Zaibunnisa (Elphinstone) Street/Dundas Street, Karachi.
28. Old Ilaco House, Zaibunnisa (Elphinstone) Street, Karachi.
29. Mohammad Ali Building, Zaibunnisa (Elphinstone) Street, karachi.
30. Fazal Manzil, Parr Street Opp Zaibunnisa (Elphinstone) Street, Karachi.
31. Hasan Ali Building, Zaibunnisa (Elphinstone) Street/Shahrah-e-Iraq (Clarke Street), Karachi.
32. Karim Mansion, Shahrah-e-Iraq (Clarke Street), Karachi.
33. Sir Jahangir Kothari Building, Raja Ghazanfar Ali Road (Somerset Stree) / Shahrah-eIraq (Clarke Street), Karachi.
34. Rangoonwala Building, Zaibunnisa (Elphinstone) Street/Woodburn Street, Karachi.
35. Muljee Building, Zaibunnisa (Elpinstone) Street, Karachi.
36. Rainbow House Building, Zaibunnisa (Elpinstone) Street/Albert Street, Karachi.
37. Kanji Wasti Building, Albert Street off Zaiunnisa (Elpinstone) Street, Karachi.
38. Emes Building, Zaibunnisa (Elphinstone) Street, Karachi.
39. Abu Building, Zaibunnisa Street, Karachi.
40. Khyber Hotel, Zaibunnisa (Elphinstone) Street /Preedy Street Karachi.

41. Edulji Dinshaw Dispensary, Preedy Street, Karachi.
42. Mandviwala Building, Preedy Street, Karachi.
43. Rawalpindiwala Buildig, Preedy Street, Karachi.
44. Biramji Building, Preed Street/Dr. Daudpota Road, (Frere Street), Karachi.
45. Empress Market Buildig, Preeding Street, Karachi.
46. Sheikh Fida Ali Building, Dr. Daudpota Road (Frere Street) Bohra Street, Karachi.
47. Faiz-i-Hussaini Building, Dr. Daudpota Road (Frere Street), Karachi.
48. Parsi Dar-e-Meher, Dr. Daudpota Road (Frere Street), Karachi.
49. Gol Wala Building, Dr. Daudpota Road (Frere Street), Karachi.
50. Ismail D. Adam Soomar Building, Dr. Daudpota Road (Frere Street) / Woodburn Street, Karachi.
51. Golgoldenwala Building, Dr. Daudpota Road (Frere Stree), Karachi
52. aijiwala Building, Sharah-e-Iraq (Clarke Street)/Dr. Daudpota Road (Frere Street), Karachi.
53. Haryanawala Building, Syedna Burhanuddin Road (Mansfield Street) Market Lane, Karachi.
54. Captain House, Sharah-e-Iraq (Clarke Street), Karachi.
55. Dossalani Terrace, Syedna Burhanuddin Road (Mansfield Street)/Malvery Street, Karachi.
56. Farid Mansion, Raja Ghazanfar Ali Road (Somerset Street), Karachi.
57. Haji Yunus Building, Raja Ghazanfar Ali Road (Somerset Street), Karachi.
58. Haque Building, Raja Ghazanfar Ali Road (Somerset Street) Sheikhchand Street, Karachi.
59. Katchi Memon Masjid, Raja Ghazanfar Ali Road (Somerset Street), Karachi.
60. Sir Abdullah Haroon Building, Raja Ghazanfar Ali Road (Somerset Street) Karachi.
61. Palia House, Raja Ghazanfar Ali Road (Somerset Street), Karachi.
62. Abdullah Haroon Trust Building, Raja Ghazanfar AliRoad (Somerset Street), Karachi.
63. Khawaja Manzil, Raja Ghazanfar Ali Road (Somerset Street), Karachi.
64. Lali Bai Building, Raja Ghazanfar Ali Road (Somerset Street), Blenkin Street, Karachi.
65. Olympia Building, Raja Ghazanfar Ali Road, (Somerset Street), Karachi.
66. Medina Building, Raja Ghazanfar Ali Road, (Somerset Street) Karachi.
67. St. Xavier's School, Syedna Burhanudding Road (Mansfield Street), Karachi.
68. Nisar Bungalows (Police Quarters), Shahrah-e-Liaquat (Frere Road), Karachi.
69. KCCI Building, Aiwan-e-Tijarat (Nicoll)/Shahrah-e-Liaquat (Frere Road), Karachi.
70. Safiabai Sughrabai Buliding, Shahrah-e-Liaquat (Frere Road)/Serai Road), Karachi.
71. Safiabai Sughrabai Building, Shahrah-e-Liaquat (Frere Road), Karachi.
72. Yusufali Albibhai Building,Sharah-e-Liaquat (Frere Road), Karachi.
73. S.M. Science College, Shahrah-e-Liaquat (Frere Road)/Aiwan-e-Tijarat (Nicoll) Road, Karachi.
74. Sindh Madrassah Mosque (Sunni), Shahrah-e-Liaquat (Frere Road)/Aiwan-e-Tijarat (Nicoll) Road, Karachi.
75. Sindh Madrassah Building Shahrah-e-Liaquat (Frere Road)/Aiwan-e-Tijarat (Nicoll) Karachi.
76. Sindh Madrassah Mosque (Shia), Shahrah-e-Liaquat (Frere Road)/Aiwan-e-Tijarat (Nicoll) Road, Karachi.
77. Sindh Madrassah Library (Originally Principal's Residence), Shahrah-e-Liaquat (Frere Road)/Aiwan-e-Tijarat (Nicoll) Road, Karachi.
78. Sindh Madrassah Primary School, Shahrah-e-Liaquat (Frere Road)/Aiwan-e-Tijarat (Nicoll) Road, Karachi.
79. Sindh Madrassah Housing (Hospital), Shahrah-e-Liaquat (Frere Road)/Aiwan-e-Tijarat (Nicoll) Road, Karachi.
80. Alvi Building, Altaf Hussain (Napier) Road)/Shahrah-e-Liaquat (Frere Road), Karachi.
81. Sheikha Hussain, M.A. Jinnah (Bunder) Road/Nanakwara Road (Campbell Street), Karachi.

82. Tahirbhoy Muhammadali Building, Nanakwara Road (Campbell Street), Karachi.
83. Al-Saeedia Trading Company Building, Sharah-e-Liaquat (Frere Road), Karachi.
84. Adamjee Building, Qutram Road, Karachi.
85. Dhramshalla Building, Outram Road, Karachi.
86. Cibbon & Mamooji Building,Shahrah-e-Liaquat (Frere Road)/Hassanali Effendi Road, Karachi.
87. Hyderabad Building, Shahrah-e-Liaquat (Frere Road)/Hassanali Effendi Road, Karachi.
88. Razia Zakia Mansion, Shahrah-e-Liaquat (Frrere Road) / Jai Ram Ram Road, Karachi.
89. Lakshmi Chand Building, Jai Ram Road, off Outram Road, Karachi.
90. Kamil Mansion, Jai Ram Road, off Outram Road, Karachi.
91. Menghraj Dwarkadas Building, Outram Road/Narain Road, Karachi.
92. St. Patrick's Church, Saddar, Karachi.
93. St. Andrew's Church, Saddar, Karachi.
94. Sindh Club, Adbullah Haroon Road, Karachi.
95. Sindh Maddressah-tul-Islam, Shahrah-e-Liaquat, Karachi.
96. Old Sinh Assembly (NJV School), M.A. Jinnah Road, Karachi.
97. Katrak Mansion, Abdullah Haroon Road, Karachi.

Annex E: Guidelines for Physical and Cultural Resources

As stated in the World Bank Physical and Cultural Resources (PCR) Safeguard Policy Guidebook, The PCR policy applies to projects having any one or more of the following three features: (i) Subprojects involving significant excavations, demolition, movement of earth, flooding or other major environmental changes; (ii) Subprojects located within or in the vicinity of a recognized PCR conservation area or heritage site; and (iii) Subprojects designed to support the management or conservation of PCR.

The subprojects under the proposed project will involve some excavation works, movement of earth and could potentially be located in the vicinity of Physical or Cultural Resources. A generic impact assessment of Physical Cultural Resources is outlined below.

Guidance on Identification of PCRs

Annex D provides list of designated and protected PCR and its road locations.

Assessment of probable impacts due to activities

Below is a list of project activities or features under the context of the proposed project, which may commonly give rise to negative impacts on PCR, during construction phase and operational phase.

Construction phase:

1. Establishment of work camps:

- Vandalism, theft and illegal export of movable PCR, and of pieces of monumental PCR accessible directly or indirectly to migrant laborer
- Desecration of sacred sites.

2. Excavation, construction and soil compaction:

- Direct physical damage to natural, manmade and buried PCR on site
- Construction traffic
- Vibration, soil, air and water pollution causing damage to natural or manmade PCR on site.
- Noise pollution can interfere with the use and enjoyment of PCR such as tourist destinations, historic buildings, religious establishments and cemeteries.

3. Mobilization of heavy construction equipment:

- Damage to natural or manmade PCR on site
- Soil compaction, damaging pipelines and drains serving built PCR in the vicinity.

4. Flooding and Inundation:

- Submergence or destruction of human-made, natural or buried PCR.
- Barrier to access of all types of PCR.
- Raised water table can lead to damage to all types of PCR.
- Damage to aesthetics of scenic landscapes.

Above measures will be mitigated through following tools:

- Screening checklist which identifies the location and type of PCRs for each sub-project
- An experience structural engineer as independent consultant will be hired by PIU during the course of construction who will assess the stability of the buildings and nature of interventions near them and decide what intervention can be done near sensitive PCRs.
- Approvals must be taken from director of Antiquities deptt. and Advisory committee who will assess the need for specific subproject at location which will affect an specific PCR.

Chance Find Procedures

"Chance find" procedures apply when subprojects are identified as potentially impacting Physical or Cultural Resources either during the screening phase or during the actual construction period.

In the event of finding of properties of cultural value during construction, the following procedures for identification, protection from theft, and treatment of discovered sites or artifacts should be followed and included in Contractor(s) bidding document.

a) Stop the construction activities in the area of the chance find;
b) Delineate the discovered site or area;
c) Secure the site to prevent any damage or loss of removable objects.
d) Notify the ESS staff/ Supervisory Engineer who in turn will notify the Antiquities Department;
e) Antiquities Department would be in charge of protecting and preserving the site before deciding on subsequent appropriate procedures.
f) Decisions on how to handle the finding shall be taken by the PIU and the Antiquities Department. This could include changes in the layout (such as when finding an irremovable remain of cultural or archeological importance), conservation, restoration and salvage.
g) Implementation of the authority decision concerning the management of the finding shall be communicated in writing by the relevant Ministry.
h) Construction work could resume only after permission is given from the Antiquities Department concerning safeguard of the heritage.

These procedures must be referred to as standard provisions in construction contracts. During project supervision, the ESS staff shall monitor the above regulations relating to the treatment of any chance find encountered. Relevant findings will be recorded in Progress Reports.

Completion Reports will assess the overall effectiveness of the project's cultural property mitigation, management, and activities, as appropriate.

Annex F: Methodology of Consultation with stakeholders and Pictorials

Methodology

Consultation with Institutions

Two consultation sessions were organized to include participation and consultation with institutions. The sessions were conducted dated 28th and 29th December, 2016 in Pearl Continental Hotel, Karachi and Korangi association of Trade and Industry (KATI) respectively inviting relevant secondary stakeholders from academia, relevant provincial and local government departments, local NGOs and development agencies. Presentations were delivered on the context of the ESMF Study for KNIP and the scope of the various components under the study were discussed. Separate presentations were also made on the background and planned project deliverables for the Saddar area and Korangi / Malir Areas. A rigorous session of comments and suggestions from participants followed the presentations.

Institutions and Departments Represented at Stakeholders Consultation Meeting held on 28th December, 2016

S. No	Name	Designation	Organization
1.	Waris Gabool	Dep. Director	Sindh Environmental Protection Agency (SEPA)
2.	M. Azam	PA to ADG Sindh	Sindh Environmental Protection Agency (SEPA)
3.	Pirah Mangi	Asst. Director	Culture, Tourism and Antiquities Department
4.	Sajjad Dahar	Office Staff	Culture, Tourism and Antiquities Department
5.	Ashfaque Ahmed	GM IBA Saddar	K-Electric
6.	Mukhtiar Ahmed	DG M NCC Saddar	K-Electric
7.	Tanveer Khan	D.M	K-Electric
8.	Ghulam Mustafa	Director (P&D)	Sindh Maddarsa-tul-Islam University
9.	Fr. Mario Rodrigues	Rector	St. Patrick's Cathedral
10.	Rev. Fr Joshua Rangel	Vice Rector	St. Patrick's Cathedral
11.	Farhan Anwar	Consultant	World bank Group
12.	Khair M. Kalwar	Director General	Directorate of UP&SP
13.	Nabesh Akhtar	Deputy Director	Directorate of UP&SP
14.	Aamir Raza	Planning Engineer	KIDCL (Green Line BRTS Project)
15.	Hamna Mehwish	Manager Communications	SHEHRI-CBE
16.	Sarwar Khalid	Coordinator	SHEHRI-CBE
17.	Ateeq-ur-Rehman	Advisor	Karachi Chamber of Commerce and Industries (KCCI)
18.	Hafeez Habibi	Consultant	Consultant Group
19.	Tariq Rind	GM Technical	Consultant Group
20.	Uzaima Nasir	-	Consultant Group
21.	Jibran Khalid	Project Coordinator	GEMS (RPF Consultant)
22.	Karim Akbar	Environmental Officer	GEMS (RPF Consultant)
23.	Sundus Sohail	Environmental Officer	GEMS (RPF Consultant)
24.	Tayyab Shahique	Environmental Officer	GEMS (RPF Consultant)
25.	Syed Nadeem Arif	Managing Director	EMC Pakistan (ESMF Consultant)
26.	Muhammad Haseeb	Environmental Specialist	EMC Pakistan (ESMF Consultant)
27.	Sohaib Tariq	Environmental Engineer	EMC Pakistan (ESMF Consultant)




Consultation Feedback

Project	Environmental and Social Management Framework (ESMF) & Resettlement Policy Framework (RPF) for *Karachi Neighborhood Improvement Project (KNIP)*
Subject	Stakeholders Consultation Workshop
Date	28th December 2016
Venue	Pearl Continental Hotel, Karachi
Time	11:00 am
	The session was hosted by Chief Executive of EMC Pakistan Pvt. Ltd Mr. Syed Nadeem Arif. Project Coordinator/Environmental Specialist from EMC Pvt Ltd. Mr. Haseeb was invited to open up the session by recitation of Holy Quran. Mr Nadeem Arif from EMC briefed the participants regarding the workshop agenda.
	The session was followed by following subsequent presentations: A. Technical Description of Project — Hafeez Habibi from Consultant Group B. Details of ESMF — Engr. Nadeem Arif & Mr. M Haseeb from EMC Pakistan Pvt. Ltd. C. Details of RPF — Mr. Saleem uz Zaman & Mr. Jibran Khalid from GEMS Pvt. Ltd. After the presentations the forum was open for discussion and Q/A session, in which all the stakeholders participated actively and enlightened the session by their valuable inputs, few significant comments are presented below:

STAKEHOLDER'S COMMENTS, VIEWS AND CONCERNS

Stakeholder's Concerns	*Response*
Mr. Waris Gabool (SEPA) • Since this project involves the framing of Resettlement Action Plans and possible Project Affected Persons, communities should be taken on board in consultation process.	**Mr. Syed Nadeem Arif (EMC)** • Consultation process can be done in two ways. One way is to invite the relevant people to one place and held a meeting. Second is to go to the stakeholders one by one and get their feedback on the project.

• Project interventions can affect water lines and existing utilities such as of KE. These should be taken care of during construction. • Several zones will be designated in Saddar Area, such as Heritage Zone and Educational Zone. I would hereby suggest to include the possibility of Biodiversity Zone as there are several examples from the cities across the world that humans are living in the biodiversity friendly environment.	• Responding to the concept of Biodiversity Zone, Saddar is not a suitable area for such kind of zone but the idea is good. Such idea can be implemented to the presently expanding edges of the city. Mr. Khair Muhammad Kalwar (DG-UPSP) • Zoo area not included in the scope of the project. • Intervention in terms of introducing shading trees for the possible growth of birds is also included in the project. • Trees will not be touched/affected during project interventions. • Ducting for cables will be provided along the roads and the utility wires will be accommodated on them. • Facades of old buildings in the old downtown area will be preserved and the area will be made people friendly.
Mr. Mukhtiar Ahmed (KE) • Cable operators use KE Electric poles to mount their cables and the electric cabling system becomes damaged due to those TV cables. It also gives impression that KE is not managing its cables. • There must be some alternative for internet and TV cables from cable operators. • We have never allowed cable operators to mount on the KE electric poles. • Cables of security cameras also mounted on our poles. If we remove them without consent, security issues may arise. • KE presently introducing new cabling system for electricity wires.	**Mr. Hafeez Habibi (CG)** • Separate provision for security cables would be considered and ducting for cables will be provided. **Mr. Saleem (GEMS)** • Extra ducting provision should be considered for any future development and intervention. **Mr. Hafeez Habibi** • Of course the provision of extra ducting must be considered for fibre optic cables and possible WiFi facilities for future.
Ms. Humna (Shehri CBE) • Please take telecom companies on board for underground utility component of the project, as usually taken on board in various other countries. • Telecom companies usually setup several stalls besides roads and public places and provide free WiFi and publicize themselves. So why not ask the companies for install mobile hotspots in the area. • Heritage sites in the area are visited by people regularly. Something traditional and eco-friendly can be placed in the area such as solar power provisions. Rides to the heritage sites can be provided to people through traditional carriages.	**Mr. Hafeez Habibi** • It is a very good idea. Another proposed project also considers possibility of tram service in the area so that people may commute in the area after leaving their cars at the dedicated places and reaching their destinations through trams. • However the tram project is not included in the scope of the current project and it will be based on public-private (PP) mode. • We also intend to include entire area in the WiFi zone. **Mr. Syed Nadeem Arif** • For internet usage, WiFi can be provided. • But for TVs, overhead cables are the necessity and therefore most of the cables mounted on KE poles are TV cables.
Mr. Amir Raza (KIDCL) • Green Line Bus Rapid Transit Project is being carried out since 1.5 years. • Three things are of prime importance in this project, namely, Cost, Scope and Time. • Kindly calculate all risks including the positive risks and overlap the timing constraints on the scope of work you are proposing.	**Khair Muhammad Kalwar (DG-UPSP)** • Bus stops for the Green line project also falls in the existing project intervention area therefore KIDCL and Transport department is also on board in this project. • World Bank financing is involved in this project. Environmental and social safeguard requirements need to be fulfilled. This is why, 3-4 months have been spent only in planning, project designing and stakeholder consultations so far. This is the pre-appraisal phase and

• The area under discussion is congested in terms of traffic and economic activity. • Regarding Green Line project, we are facing problem in Golimaar project as the area is so congested due to large economic activity, particularly in the Islamic months of Ramadan and Moharram.	then we will proceed towards appraisal phase and detailed designing.
Mr. Mario Rodrigues (St. Patrick's cathedral) • You mentioned DJ College in the Educational Zone, however in the radius of less than 5 km, there are dozens of colleges and schools in the area. Traffic situation at around 10 O'clock and 2 O'clock afternoon is really troublesome.	**Mr. Hafeez Habibi** • Educational institutions are concentrated in the area in a small pocket. They are mixed with other land uses. • Major traffic rerouting/diversions will be proposed during construction. • The roads are wide enough. The problem is encroachment, in particular, vehicular encroachment. • Appropriate parking spaces are also proposed at every 500 yards. • We are also considering options of charged and uncharged car parking spaces. • Traffic management and elimination of unauthorized car parking is of prime importance. • Revolutionary approach of traffic management is required to address the issue of traffic congestion. • We may also consider the possibility of using properties and open spaces for parking against small fee. • BRT is giving us stations. The people will reach walking from these stations to their businesses.
Ms. Humna (Shehri CBE) • Concept of vertical gardening and kitchen gardening can also be considered.	**Mr. Khair Muhammad** • NGOs will also take part in the project. • Government cannot do it all itself. • We will achieve the goals with institutional development and policy reforms. **Mr. Hafeez Habibi** • Useful suggestions are welcomed for bringing greenery to the area. • Awareness campaign is also required. **Mr. Syed Nadeem Arif** • Due to the project, air quality will be improved as the dedicated parking spaces will improve vehicular movement, mitigating congestion and emissions and idling of vehicles. • We do not have mass transit system which is very much needed. • When there is a decent public transport, people will switch to the public transport instead of individual vehicles.
Mr. Waris Gabool • Social issues are more important than environmental is this project. • Compensation to PAPs should be considered. Surveys must be conducted before start of any interventions which sets a cut-off date for PAPs. • On the other hand, project cost is likely to be increased because of fake claims for compensation.	**Mr. Saleem** • Survey has been conducted in RPF stage. Sub-project specific RAPs will be required and will evaluate compensation costs which will be the part of project cost.

Mr. Waris Gabool • Where will you locate cabins of the encroachers?	**Mr. Saleem** • Details will be provided in the RPF and RAPs • We will conduct income assessment in the area to calculate compensation. • No compensation rates have yet been fixed. • Individual assessment for compensation will be carried out.
Mr. Waris Gabool • Many vendors and hawkers in the area are illegal.	**Mr. Khair Muhammad** • You are right, they are responsible for public place obstruction. • But according to WB guidelines, livelihood activities must not be discontinued during site clearance and construction. Alternates for resettlement will be identified.

Mr. Farhan (World Bank consultant)

- WB has social and environmental safeguards and need to be taken care of these before project implementation.

Individual meetings will be carried out with stakeholders as well.

Institutions and Departments Represented at Stakeholders Consultation Meeting held on 28th December, 2016

S. No	Name	Designation	Organization
1.	Zain-ul-Abidin	Deputy Commissioner, Korangi	DMC Korangi
2.	Waris Ali Gabool	Deputy Director	Sindh Environmental Protection Agency (SEPA)
3.	Hafizullah Siddiqui	XEN	KMC
4.	Najeeb	SE	KMC
5.	Ikram Uddin	SO	Sindh Police
6.	Nawaz Chandio	DSP	Traffic Police
7.	Irshad Bukhari	President	Transport Association
8.	Zahid Bukhari		EST South Korea
9.	S.M. Yahya	CNG Station Owner / Member	KATI
10.	Lt Col Malik Saeed	Administrator	LRBT Eye Hospital
11.	Zafar Iqbal	ABM	PTCL
12.	Raza Meraj	ABM	PTCL
13.	Wahab	Commander (PA)	Pakistan Coast Guards
14.	Zubair Shahid		CPLC Korangi and Malir
15.	Nabesh Akhtar	Deputy Director	Directorate of UP&SP
16.	Eng. Tayyab	Design Consultant	EA Consulting Pvt. Ltd.
17.	Jibran Khalid	Project Coordinator	GEMS (RPF Consultant)
18.	Karim Akbar	Environmental Officer	GEMS (RPF Consultant)
19.	Sundus Sohail	Environmental Officer	GEMS (RPF Consultant)
20.	Tayyab Shahique	Environmental Officer	GEMS (RPF Consultant)
21.	Syed Nadeem Arif	Managing Director	EMC Pakistan (ESMF Consultant)
22.	Muhammad Haseeb	Environmental Specialist	EMC Pakistan (ESMF Consultant)
23.	Sohaib Tariq	Environmental Engineer	EMC Pakistan (ESMF Consultant)

Project	Environmental and Social Management Framework (ESMF) & Resettlement Policy Framework (RPF) for *Karachi Neighborhood Improvement Project (KNIP)*
Subject	Stakeholders Consultation Workshop
Date	29th December 2016
Venue	Korangi association of Trade and Industry, Karachi
Time	11:00 am
	The session was hosted by Chief Executive of GEMS Pvt. Ltd Mr. Saleem uz Zaman. Project Coordinator/Environmental Specialist from EMC Pvt Ltd. Mr. Haseeb was invited to open up the session by recitation of Holy Quran. Mr. Saleem uz Zaman Mr. Nadeem Arif from EMC briefed the participants regarding the workshop agenda.
	The session was followed by following subsequent presentations: A. Technical Description of Project — Engr. Tayyab from EA Consulting Pvt. Ltd. B. Details of ESMF — Engr. Nadeem Arif & Mr. M Haseeb from EMC Pakistan Pvt. Ltd. C. Details of RPF — Mr. Saleem uz Zaman & Mr. Jibran Khalid from GEMS Pvt. Ltd. After the presentations the forum was open for discussion and Q/A session, in which all the stakeholders participated actively and enlightened the session by their valuable inputs, few significant comments are presented below:

STAKEHOLDER'S COMMENTS, VIEWS AND CONCERNS

Stakeholder's Concerns	*Response*
Mr. Zain-Ul-Abidin, Deputy Commissioner (DC) Korangi • There is no such state law to compensate the encroachers, under which law these encroachers will be compensated? • One time beatification and removal of garbage from the area is not permanent solution, the project should be sustainable and its sustainability should be ensured during the entire life cycle of the project. • KIA intervention areas cover a large distance of green belts, therefore it is recommended to plant native trees along the intervention route, instead of *Conocarpus.* • It is very important to note that the RPF should not be disclosed to the public at earliest at it may add additional encroachment issues within the specific area. • It is very important to build the capacity of KMC and DMC for smooth execution of the project.	**RPF Consultant: Mr. Saleem uz Zaman** • As the proposed project is World Bank funded project, therefore WB'S OP 4.12 is triggered which clearly address that involuntary resettlement needs to be compensated before project execution, however at this particular stage we are not clear that either the project will include a large number of resettlements or not. **Deputy Director UPSP-P&D Mr. Nabesh Akhtar** • The Executing Agency will ensure that the project is monitored properly and all the environmental and social concerns are addressed during the construction and operational phase, this will be done by Project Implementation Unit of P&D **Design Engineer EA Consulting Pvt. Ltd. Eng. Tayyab** • Project design already includes plantation of native trees along the project route.
Mr. Irshad Bukhari, President Transport Association • There must be a law for street vendors and hawkers, previously certain steps were taken even they were allotted land but the problem persist. However it is important to note	**Eng. Tayyab** • It is very necessary to enhance the condition of the buses; the drivers are not well aware regarding the rules and regulation. It is very important for the bus drivers to only stop at bus stops, this practice will help the passenger and it is important that the buses should be road worthy in order to ensure sustainability.
Mr. Rehan Vice President- KATI • These interventions are limited to the main roads what about the sub roads, which exist inside the towns?	**Eng. Tayyab** • The proposed project also includes neighborhood improvement and selected sub roads will also be improved under this project once the project design has been finalized.

• How does the department plan to repay the WB loan, from the project?	• Deputy Director UPSP-P&D Mr. Nabesh Akhtar • P&D is in continuous contact with WB still agreement are not signed with them about repaying WB.
Mr. Wahab-PA, Commander Coast Guard Police • When the First phase of the project is expected? • What is the size of the main road and how much land is required?	**Eng. Tayyab** • The project is in two phases at first phase the road between Ibrahim Haideri and coast guard Chowrangi will be improved other roads starting from Shan Chowrangi will be improved. • XEN KMC, Mr Hafeezullah • The length of Korangi road intervention is about 7.34 KM and width varies along the road no land acquisition is foreseen at this stage.
Mr. Sm Yaha, CNG Station Owner At KIA, And Member KATI • Provision of public toilets should be considered under this project and parking plazas should be considered under this project.	**Eng. Tayyab** • Provision of public toilets may be considered under this project, and parking plazas are considered under Pakistan Chowk/Saddar town intervention.
Mr. Gabol, Deputy Director SEPA • Road diversion should also be part of Environmental studies. • It is very necessary to carry out comprehensive surveys regarding PAPs to reduce the chances of increased project coast and unnecessary delays in project execution.	**Mr. Saleem uz Zaman:** • Our team has carried out extensive surveys for this RPF and incase if RAP for the proposed project interventions will be required we will ensure that all PAPs are identified at the initial stage.
Mr. Zubair Chaya-Former President KATI • Different industrial unit manages most of the roundabouts and they are managing it very well such as Brookes Chowrangi, Heribon Chowrangi, Shan Chowrangi, etc. • There are two suggestions for a successful project • 1- Community Participation 2- maintenance fund • It is very necessary to keep the community in touch with the project as a major stakeholder and secondly it is important to spare some amount for the maintenance purpose as it keeps the project running for years. • Each project should allocate 20-25% amount from the project for its maintenance. • Atlast we here to cooperate with KMC as required for execution of the project.	

Individual meetings with Institutional Stakeholders

Stakeholders which are unable to attend the consultative sessions were engaged individually and their feedback will be taken and summary of it is presented in the main text of the report. Following pictorial list stakeholders were consulted:

Meeting with Mr. Inayat Burguri, Additional Secretary, Culture Department, Government of Sindh

Meeting with Mr. Ravi Dawani, Secretary General, All Pakistan Hindu Panchayat

	
Meeting with Mr. Mukhtar Hussain, Senoir Director Charged Parking, KMC	Meeting with Mr. Aftab Chandio, Superintendent Engineer, KWSB
	
Meeting with Mr. Nazeer Lakhani, Director Anti-Encroachment, KMC	

Consultation with Communities and Businesses

Due to the limited time-frame of the study, selected sample of community and businesses in each of the project location i.e. Pakistan Chowk, Merewether Tower, Empress Market, Korangi Roads and Malir-Khokrapar road were targeted for consultation. Based on the project design, a few important aspects were used to identify the target villages:

- Encroachments on project roads
- Local businesses
- Pedestrian using the footpaths

A pre-designed questionnaire was developed that covered the project activities, the implementation mechanism, social acceptability, community readiness and other socio-economic aspects. Targeted interviews were used as the primary consultation tool for engaging stakeholders. Various community representatives including local businesses and youth were part of the consultation sessions.

A total of 47 interviews were conducted. The list of interviewees is shown in following table:

S. No	Person	Occupation	Area
1.	Mr. Iqbal	Clothe Sales (Semi-fixed shop)	Railway Road
2.	Mr. Nawaz	Pan shop (Semi-fixed)	Railway Road
3.	Anonymous	Cobbler	Shahra-e-Liaquat
4.	Mr. Muhammad Tariq	Electric sales purchase (Fixed shop)	Altaf Hussein Road
5.	Mr. Tasneem Ahmed	Snacks (Thela)	M. A. Jinnah Road
6.	Anonymous	Paper sales (Thela)	New Chali
7.	Mr. Khurram	Centrifugal and Suction Pump sales (Fixed shop)	New Chali
8.	Mr. Rasool Khan	Corn sales (Thela)	M. A. Jinnah Road
9.	Mr. Mushtaq	Sanitary equipment (Fixed shop)	M. A. Jinnah Road
10.	Anonymous	Cooked-food sales (Thela)	M. A. Jinnah Road
11.	Mr. Jamil	Fruits shop (Semi-fixed)	Napier Road
12.	Mr. Tabrez	Jacket sales (Thela)	Shahra-e-Liaquat
13.	Mr. Faraz Akram	Cards Printing	Pakistan Chowk
14.	Mr. Afzal	Shoes seller (Thela)	Dr. Ziauddin Ahmed Road (Pakistan Chowk)
15.	Waleed Tahir	Biryani shop (Semi-fixed)	Outram Road (Pakistan Chowk)
16.	Abdul Qadir	Pan shop (semi-fixed)	Kutchery Road (Pakistan Chowk)
17.	Mr. Kamal	Cards Printing and Design (Fixed shop)	Kanji Tulsidas Street (Pakistan Chowk)
18.	Mr. Jalal	Cards Printing and Design (Fixed shop)	Kanji Tulsidas Street (Pakistan Chowk)
19.	Mr. Irfan	Pan shop (Thela)	Outram Road (Pakistan Chowk)
20.	Mr. Ajmal	Fruit-chart seller (Thela)	Ziauddin Ahmed Road (Pakistan Chowk)
21.	Mr. Khan	Biryani Shop	Shahra-e-Liaquat
22.	Mr. Jam	Restaurant Owner	Korangi – Nasir Colony – Pakistan Road
23.	Mr. Naseebullah	Rickshaw Driver	Korangi – Nasir Colony – Pakistan Road
24.	Mr. Abdul Karim	Auto-parts Dealer	Korangi – Nasir Colony – Pakistan Road
25.	Mr. Sohail	Pan Shop	Korangi – Bambu Khan
26.	Mr. Vicki	Biryani Shop	Korangi – Bambu Khan
27.	Mr. Ghulam	Rickshaw Driver	Korangi – Bambu Khan
28.	Mr. Anwar	Resident	Korangi – Bambu Khan
29.	Amir Rajpoot	Car Wash and Lubricants Dealer	Korangi – Nasir Colony – Pakistan Road
30.	Mr. Amjad	Pan Shop	Korangi sector 33A – Coast Guard Chowrangi
31.	Mr. Khalid	Auto-parts Dealer	Korangi sector 33A – Coast Guard Chowrangi
32.	Mr. Muaz	Resident/private job	Saudabad
33.	Mr. Muhammad Ameen	Fruits Seller	Saudabad Chowrangi
34.	Mr. Noman	Resident/retired	Saudabad
35.	Mr. Mamoon	Resident/private job	Saudabad
36.	Mr. Haseeb ur Rehman	Chart seller	Khokhrapar no.1
37.	Mr. Abdullah	Tee Hotel	Khokhrapar no.2
38.	Mr. Irshad	Resident/retired	Pak Kausar Town
39.	Mr. Salam	Vegetable seller	Khokhrapar no.2
40.	Mr. Abdur Rehman	Beggar	Khokhrapar no.4

41.	Mr. Aslam	Auto parts dealer	Khokhrapar no.5
42.	Mr. Asim	Fruits seller	Coast Guard Chowrangi
43.	Mr. Faheem	Fruits seller	Coast Guard Chowrangi
44.	Mr. Basit	Resident/shop keeper	Francis Town
45.	Mr. Abdul Wahab	Medicine shop	Chungi
46.	Mr. Wamiq	Pan shop	Ibrahim Hyderi
47.	Mr. Asif	Resident	near Ibrahim Hyderi

Stakeholders Consultation in Saddar Downtown

Consultation with Electrical hardware shopkeeper at Railway road

Consultation with Pan-shop owner at Shahra-e-liaquat

Consultation with clothes seller near Napier road

Consultation with hawker at New Chali area

Consultation with hawker near M.A.Jinnah Road	Consultation with cards-printer at Kanji Tulsidas Street

Stakeholders Consultation in Korangi Roads

Consultation with the local resident near Shan Chowrangi

Consultation with Car Wash and Lubricants Dealer

Consultation with Pan Shop at Korangi 33 near Coast Guard Chowrangi

Consultation with Rickshaw Driver at Bambu Khan

Consultation with Restaurant Owner at Pakistan Road, Korangi

Consultation with Biryani seller at Korangi – Bambu Khan

Stakeholders Consultation in Malir-Khokrapar

Consultation with the Fruits seller at Saudabad Chowrangi

Consultation with Chart seller at Khokhrapar no.1

Consultation with Chai Hotel owner at Khokhrapar no.2

Consultation with vegetables seller at Khokhrapar no.2

Consultation with beggar at Khokhrapar no.4

Consultation with auto parts trader at Khokhrapar no.5

Stakeholders Consultation in Coast Guard Chowrangi to Ibraheem Haideri

Consultation with the Fruits seller at Coast Guard Chowrangi

Consultation with Fruits seller at Coast Guard Chowrangi

Consultation with local resident and shop keeper in Francis town

Consultation with medicine shop owner near Chungi

Consultation with pan shop owner near Ibrahim Hyderi

Consultation with local resident near Ibrahim Hyderi

Annex G: Terms of Reference (TORs) for ESMF implementation and monitoring team

The ERU staff hired under PIU with overall responsibility for implementation of ESMF/RFP will have the following TORs:

Environment Specialist

The Environment Specialist will be responsible for the supervision of implementation of ESMF as well as the ESMPs and Checklists that would be prepared for the subprojects. The Environment will supervise the Execution Agencies teams to ensure that all environmental commitments are incorporated into the hard-component activities and work processes. Specifically, the Environment Specialist' responsibilities will include:

- Implementation of all aspects of ESMF, including environmental screening and filling the screening checklists for each subproject to be undertaken under KNIP
- Preparation of ESMPs and Checklists for subprojects
- Supervising and supporting Contractor(s) in achieving their responsibilities as outlined in the ESMF and subsequent ESMPs and Checklists;
- Carrying out frequent field visits and conduct monitoring for effective ESMF implementation.
- Identifying and preparing environmental induction and training materials;
- Conduct/manage ESMF trainings for the Executing agencies personnel and ESS staff in accordance with the Training Plan given in ESMF
- Responding to environmental incidents as required;
- Preparing quarterly progress reports for submission to World Bank and other stakeholders.

The Environment Specialist will ensure that the project remains compliant to the World Bank operational policies and guidelines.

Qualification: The Specialist should at least have a master degree in Environmental Sciences or Engineering or Natural Resource Management with 10-15 years of relevant experience. Working experience on a World Bank project would be an advantage. Good communications skills, both oral and written, and ability to write well in English is also required. Knowledge of regional languages is an asset.

Social Development Specialist / Resettlement Specialist

The primary objective of the induction of Social Development Specialist / Resettlement Specialist is to help the PIU in implementing the social components of KNIP over the project period. The specialists' work will fall into the following areas: (i) ensuring compliance of the World Bank's projects with the Bank's social safeguard policies; (ii) assisting the Bank's work on social development; and (iii) assisting the Bank's work on social management, specifically focusing on strengthening institutional capacity.

The specific tasks of the Social Specialists will include:

- Supervise involuntary resettlement activities in projects under implementation;
- Initiate and review terms of reference for the conduct of social assessments required to inform project preparation

- Ensure the proper implementation, execution and monitoring of GRM.
- Assess the robustness of the consultation process required for the preparation and implementation of the RAPs/ARAPs.
- Provide basic orientation and training to Contractor(s) potentially involved in projects preparation and implementation.
- Provide intensive on-site support to project Contractor(s) in implementation of RAPs/ARAPs
- Assist in policy dialogue with project stakeholders at all levels of project implementation.
- Participate in the review and clearance of project documents for compliance with the Bank's social safeguards policies.

Qualification: The potential specialist should have a master degree in a relevant field such as Sociology, Anthropology, or other Social Sciences. A minimum of 5 years relevant operational experience and proven track record in working on projects covering a broad range of social development/Resettlement issues. Good understanding of the World Bank's operational policies, processes and procedures including its safeguard policies is also mandatory. Field experience highly desirable. Specialists should have strong English communication skills, both written and oral, as well as knowledge of regional languages as an asset.

Gender Specialist

Overall Responsibilities of the Gender Specialist will to ensure that gender issues are considered in project activities for KNIP Project. The specialist shall ensure that adequate attention is paid to gender in conducting all surveys and collection and analysis of demographic, physical, economic and consultation for the sub-projects. The specialist will ensure that gender-disaggregated analysis is conducted on all of the following aspects in preparing the sector plans.

- Collection of gender disaggregated socio-economic baseline information for each sub-project.
- To what extent are gender differences recognized during the environmental and social assessment surveys of the sub-projects. If so –how; if not, what are some practical options that could be explored through this project design?
- What are the ways in which women participate in decisions related to the sub-project designing, implementation and monitoring.
- Undertaking consultation with the female community members in the sub-project areas.
- To establish measureable gender-related targets and indicators for sub-projects.
- To design, capacity building, education and training in a gender-sensitive manner.
- The specialist will conduct site inspections and furnish periodic progress reports about implementation of the ESMF/RPF and ESMP/RAP. She or he will report on the participation of men and women and recommend opportunities for them to participate in the project planning, designing, implementation and monitoring.
- Explain and evaluate practical barriers to women's participation in the designing and implementation of the sub-projects;
- Establish a method for gender-focused and disaggregated monitoring and evaluation of the sub-projects under SRP.
- Prepare recommendations for planned outcomes, outputs and activities outlined in the ESMF/RPF and ESMPs.

Qualifications: A minimum of a Master's degree or higher degree in Social Sciences, Development Studies, or Gender/Women's Studies. A minimum of ten year experience in the area of gender research and analysis, project design and implementation of field-based, institution building and policy programs, stakeholder consultations, gender monitoring and evaluation and mainstreaming including policy analysis and design of programs that address gender equality issues, of which, at least five years of experience should be in the World Bank funded projects.

Annex H: Terms of Reference (TORs) for

Environmental and Social Management Plan (ESMP)

Saddar Downtown Area and Korangi-Malir Area Year 1 Subprojects

Karachi Neighborhood Improvement Project (P161980)

A- Background

To be added as needed.

B- Project Overview

To be added as needed.

C- Subprojects Overview

To be added as needed, as per design of subproject.

D- Objective of the Assignment

The objective of the engagement is to develop an Environmental and Social Management Plan (ESMP) for the subproject to mitigate and monitor adverse environmental and social impacts identified in the Environmental and Social Management Framework (ESMF) developed for this project. Detailed information regarding the design of these three subprojects will be provided by the Project Implementation Unit of the Government of Sindh.

E- Scope of Work

The Consultant is required to prepare ESMP for the subproject highlighting a set of mitigation, monitoring, and institutional measures to be taken during implementation and operation of these subprojects to eliminate or reduce adverse environmental and social impacts to acceptable levels. The plan will also include the actions needed to implement these measures. To prepare a management plan, the Consultant will (a) identify the set of responses to potentially adverse impacts; (b) determine requirements for ensuring that those responses are made effectively and in a timely manner; and (c) describe the means for meeting those requirements.

An ESMP usually includes the following components:

- **Screening of Environmental and Social Impacts**: Assess the anticipated impacts related to environment and social impacts as a result of Project activities (using checklists and other tools identified in the ESMF). In particular, assess the impacts on land, livelihoods and access for various stakeholders, and recommend if a Resettlement Action Plan (RAP) or Abbreviated Resettlement Action Plan will be required for the sub-project.
- **Description of Environmental and Social Impacts**: Outline both positive and negative impacts of the sub-project by each type of intervention. Assess the severity of these impacts and the range of measures required to deal with them.

- **Description of Mitigation Measures**: Each measure is described with reference to the effect(s) it is intended to deal with. As needed, detailed plans, designs, equipment descriptions, and operating procedures are described.
- **Responsibilities**: The people, groups, or organizations that will carry out the mitigation and monitoring activities are defined, as well as to whom they report and are responsible. There may be a need to train people to carry out these responsibilities, and to provide them with equipment and supplies.
- **Description of Monitoring Program**: The monitoring program should identify what information will be collected, how, where and how often. It should also indicate at what level of effect there will be a need for further mitigation. It should also provide monitoring formats and tools.
- Implementation Schedule: The timing, frequency and duration of mitigation measures and monitoring are specified in an implementation schedule, and linked to the overall subproject schedule.
- **Cost estimates and sources of funds**: These are specified for the initial subproject investment and for the mitigation and monitoring activities as a subproject is implemented. Funds to implement the ESMP may come from the subproject grant, from the community, or both. Government agencies and NGOs may be able to assist with monitoring.

Please note that the methods for monitoring the implementation of mitigation measures or environmental effects should be as simple as possible. Further guidance on preparation of ESMP can also be provided, if required.

World Bank clearance required: The ESMPs will be required to be reviewed and cleared by the World Bank.

F- Deliverables and Proposed/Indicative Structure of ESMP Report

The proposed structure of the ESMP report is as follows:

- **Executive Summary**: This should provide a general summary of the ESMP contents and key findings, in a vocabulary that is easily understood by the general public. It should be clear, concise ranging from 3 to 5 pages;
- **Introduction**: An introduction describing the ESMP purpose, objectives, principles and methodology. This section should introduce the project proponents, the study team, and provide other relevant information. The layout of ESMP should also be described to facilitate its use;
- **Sub-Project Description**: A description of the subproject which will include background, purpose and different components. Also indicate any subproject specific resource requirements such as material, manpower, equipment, etc.
- **Environmental Baseline of Subproject Area**: This section gives site specific overview of baseline covering physical and biological environment. It will include ambient air quality, noise, temperatures, rainfall, etc.
- **Socio-Economic Profile of Subproject Area**: This section describes socio-economic profile of the subproject area. It will cover demography, ethnicity, types of socio-economic activities, occupation and livelihoods, formal and informal groups, methods of communication and transport, cultural heritage sites, etc.

- **Stakeholder consultation and Information Disclosure**: This section will describe the objective, process, and outcome of the stakeholder consultations carried out during the ESMP preparation. This section should also list arrangements for disclosing subprojects information in order to comply with the Bank's Policy of Disclosure of Information.
- **Impacts and Mitigation**: This section will identify all positive as well as negative environmental and social impacts with cost effective and feasible measures to reduce adverse environmental impact to acceptable level. It will describe with technical details mitigation measures including the type of impact to which it relates to. It will list all anticipated social impacts and the types of groups/people/ livelihoods that they will encompass. Special attention should be paid to any labor-related impacts.
- **Environmental Management and Monitoring Plan**: This section will provide specific description and technical details of monitoring measures including the parameters to be measured, methods to be used, sampling locations, frequency of measurements, detection limits (where appropriate), and definition of thresholds that will signal the need for corrective actions. The monitoring and reporting procedures will ensure early detection of conditions that necessitate particular mitigation measures, and furnish information on the progress and results of mitigation.
- **Social Management and Monitoring Plan**: This section will outline what measures will be taken to reduce and mitigate any adverse impacts on local people and communities. These will include issues such as access, impact on livelihoods, impacts of labor influx, gender, cultural activities etc. Other impacts and measures e.g. stakeholder consultation, access to information and GRM will also be outlined as required. Monitoring methods and protocols will be presented. This section will also conduct a screening of Impacts (using checklists and other tools identified in the ESMF) and recommend if a Resettlement Action Plan (RAP) or Abbreviated Resettlement Action Plan will be required for the sub-project.
- **ESMP Implementation Budget**: An ESMP implementation budget estimates are provided here. The budget will include funds for institutions development activities, training programs for implementation teams and local/national institutions, technical assistance to authorities, costs for preparations of EMPs and other safeguard documents; and
- **Annexures**: Technical annexes to support ESMP implementation.

G- Qualifications and Skills Required

The Consultant needs to demonstrate that the proposed ESMP preparation team has the expertise required to fully appreciate the requirements of all the Safeguards Policies to be addressed in the ESMP, and to complete all required sections of the ESMP. The team should include appropriate number of specialists from different disciplines including but not limited to environmental sciences and social sciences. The team should have complete understanding of the national legislative requirements as well as WB safeguard policies.

H- Time Schedule

To be added as needed.

I- Applicable World Bank Operational Policies

The following World Bank Operational Policies (OP) / Bank Procedures (BP) will be applicable to the subprojects:

- OP / BP 4.01 Environmental Assessment
- OP 4.11 Physical Cultural Resources
- OP / BP 4.12 Involuntary Resettlement
- BP 17.50 Disclosure of Operational Information

The consultant is required to develop full understanding of these policies and their application in the project's activities. The consultants will also make use of the World Bank Group's Environmental, Health, and Safety Guidelines.

Annex I: World Bank Group's Environment, Health, and Safety Guidelines