

Karachi

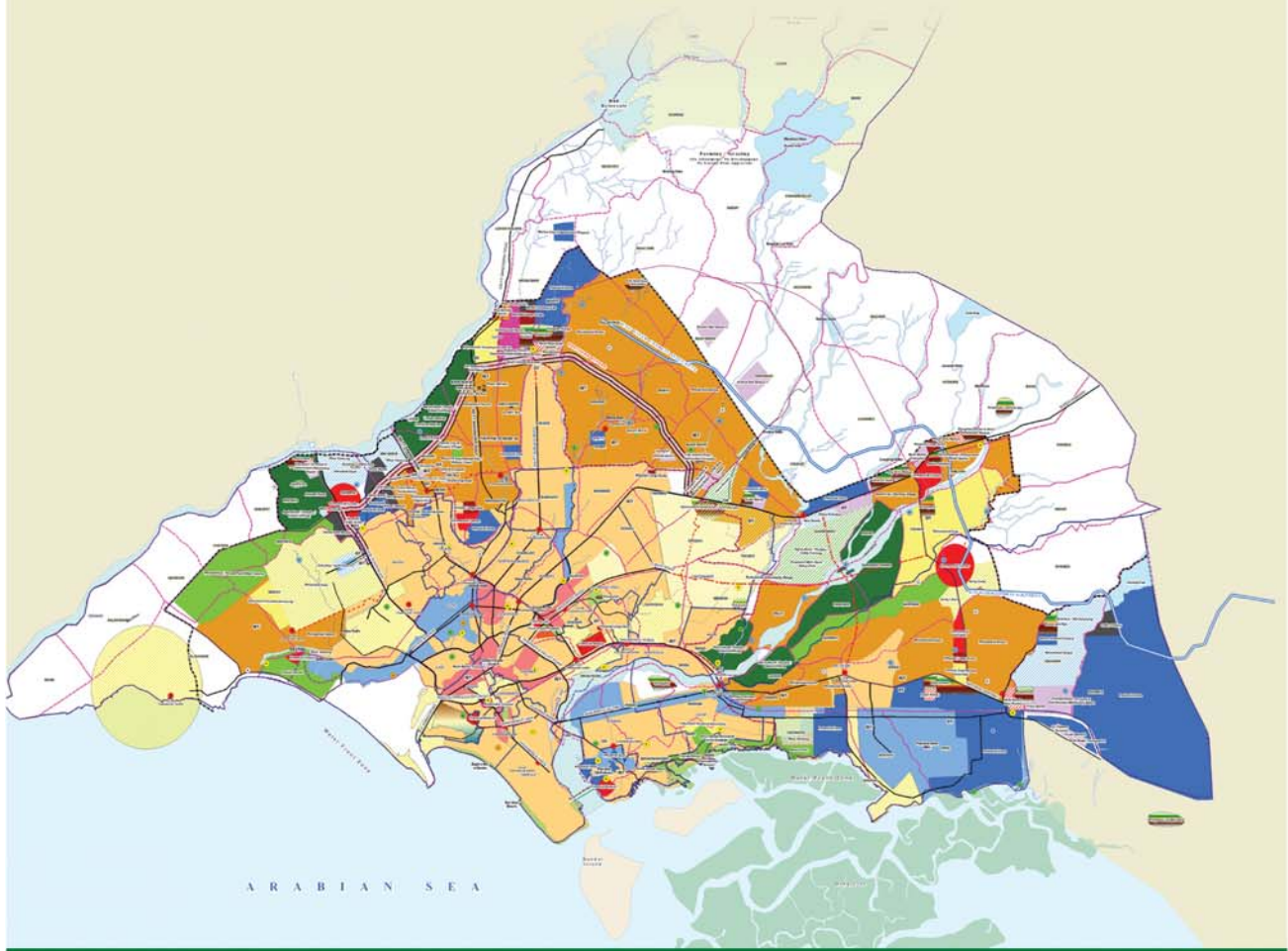
Strategic Development Plan

2020

کراچی

تزویری ترقیاتی منصوبہ

2020



Master Plan Group of Offices
City District Government Karachi

ماسٹر پلان گروپ آف آفیسرز
شہری ضلعی حکومت، کراچی۔



Karachi

Strategic Development Plan 2020

Prepared by
Master Plan Group of Offices
City District Government Karachi
in Association with
M/s Engineering Consultants International (Pvt.) Limited
and
M/s PADCO - AECOM

December 2007



MPGO-CDGK

ECIL

PADCO | AECOM



Karachi Strategic Development Plan 2020



Vision:

Transforming Karachi into a world class city and attractive economic centre with a decent life for Karachiites.

PREFACE AND ACKNOWLEDGEMENT

The Karachi Strategic Development Plan – 2020 (KSDP-2020) has been prepared by the Master Plan Group of Offices (MPGO) - CDGK in line with the vision of City Nazim for making Karachi “A world class city and an attractive economic center with a decent life for Karachiites”. Accordingly the strategic framework setout in the KSDP-2020 examines the CDGK’s vision against the backdrop of current conditions and presents a strategy for its realization.

The approach has been consultative and holistic in identifying issues, challenges, priorities and programs for the city. The main thrust is to develop an integrated planning process that establishes CDGK as the apex planning institution and ensures coordination with major land owning agencies operating under federal and provincial government Acts/Laws.

The successful delivery and implementation of the Plan is a shared responsibility of all the stake holders in the city and the civil society. However, the CDGK has the lead responsibility for taking the Plan forward and implementing its recommendations.

The MPGO, CDGK wishes to thank all the professionals, experts, stakeholders, civil society, electronic and print media, officers, officials, organizations and the local and political leadership, for their valuable support, positive criticism and useful inputs for the Plan.

The completion of the Plan was made possible by me with the professional input, assistance and hard working of Hafiz Muhammad Javed, District Officer (Master Plan), MPGO, Dr. Ahsanullah, advisor to MPGO and Mr. Naved Zaheer, Team Leader of the Consultants group of M/S ECIL and PADCO-AECOM.

Special gratitude is due to Dr. Ishratul Ibad Khan, honorable Governor of Sindh for his guidance. The driving force behind the accomplishment of this Plan was the extraordinary clarity of vision support and supervision of the worthy City Nazim, Syed Mustafa Kamal during the plan preparation period. Also, the contribution of Messrs Fazal-ur-Rehman and Muhammad Jawed Hanif Khan, DCO, Karachi was very useful with their continued monitoring and timely assistance.

Finally, the valuable contribution, and active participation of the respected Mrs. Nasreen Jalil, City Naib Nazim and members of the City District Council Karachi during the Plan approval are highly commendable and acknowledged. The suggestions placed in the City Council and resolved during the session have been made part of the Plan. The KSDP-2020 is the first ever approved development plan which has now a legal status under Section 40 of the Sindh Local Government Ordinance 2001 (SLGO) in contrast to previous five master plans prepared for the planned development of Karachi.

Karachi, December 2007

IFTIKHAR ALI KAIMKHANI
Executive District Officer,
MPGO, CDGK.

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1 INTRODUCTION

1.1 Background

Karachi is the largest and the fastest growing megacity of Pakistan with a population of over 16 million (2006), which is expected to reach 27 million mark by the year 2020.

As a revenue generating base, Karachi contributes substantially to the national exchequer and the provincial revenues (almost to the extent of about 65% of the total revenues). It is a cosmopolitan city, inhabited by people with culturally enriched background and a sense of social commitment. Karachi, with its enormous potential to serve the country, is now emerging as a globalized complex in competition with other regional centers of similar order.

Since 1923, five master plans were formulated, but none of them was backed with legal cover, resulting in urban sprawl, wide spread katchi abadis / slums and gross deficiencies of required infrastructure / utilities, constraining the potential opportunities of Karachi.

The local governments' establishment under Sindh Local Government Ordinance, 2001 (SLGO) has provided unprecedented opportunity to the City District Government Karachi (CDGK) to steer and guide the growth of country's commercial and business capital.

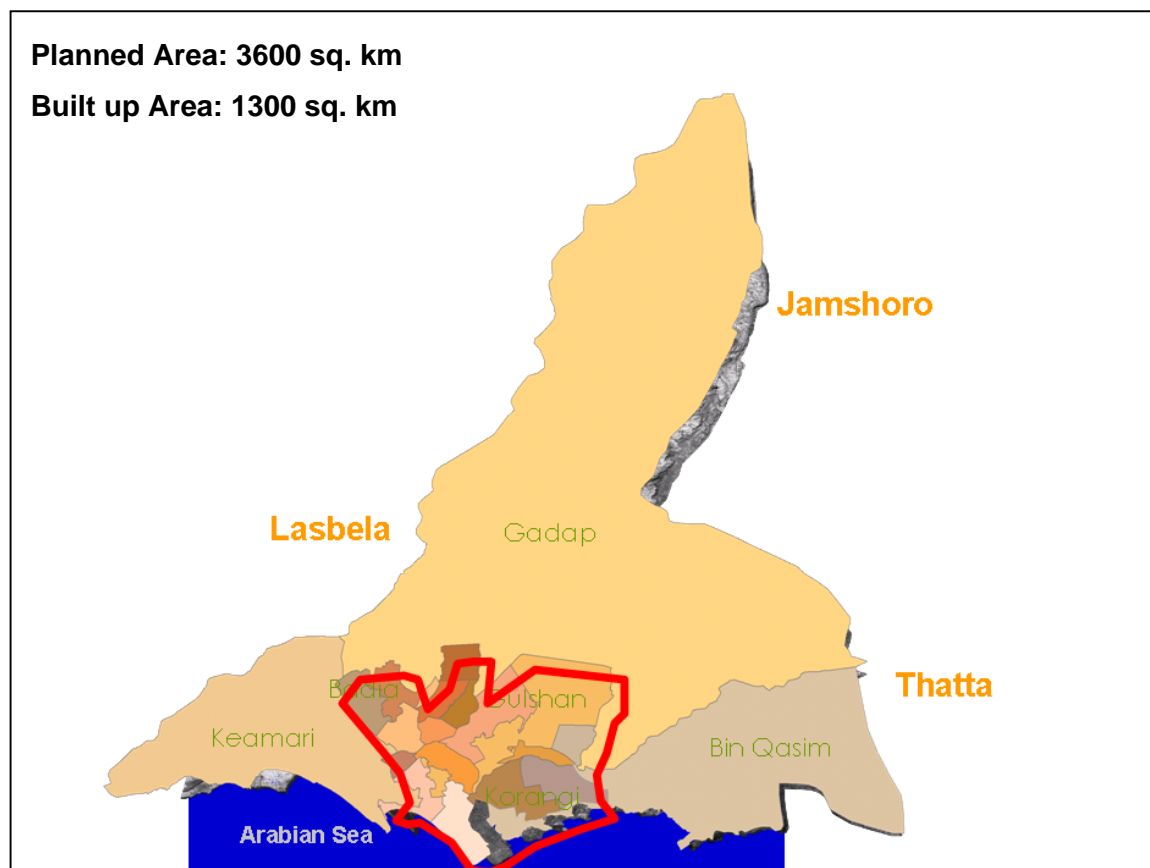
The CDGK has formulated the Karachi Strategic Development Plan 2020 (KSDP 2020), being the most important project, to set out a strategic framework and overall development direction and future pattern of the city over the next 13 years and beyond.

1.2 The Plan Area

The spatial coverage of the KSDP-2020 extends over the whole City District of Karachi, consisting of 18 administrative towns, 6 cantonments, and the Federal and Provincial governments land-holding agencies. The towns are territorially further sub-divided into 178 Union Councils. The area lying north of the Hub Dam, being part of the Kirthar National Park has been excluded from the plan area.

The total land area of the Karachi district is approximately 3600 sq.km, of which about 1300 sq.km are occupied by the built-up area (with 15 internal towns). The Karachi metropolitan region, as determined by the commuter zone, spreads over parts of the surrounding districts, Thatta and Jamshoro of Sindh to the east, and Lasbella of Balochistan to the west. The coastline in the district is about 135 kilometers long extending along the Gharo Creek westward beyond Cape Monze to the estuary of the Hub River. Almost in the centre of the coast sheltered by the island of Manora, lies the Port of Karachi, with entire Pakistan and Afghanistan forming its vast hinterland,. The Port Muhammad Bin Qasim at Pipri on the Gharo Creek serves a complementary role.

Figure 1.1: Karachi City District Jurisdiction



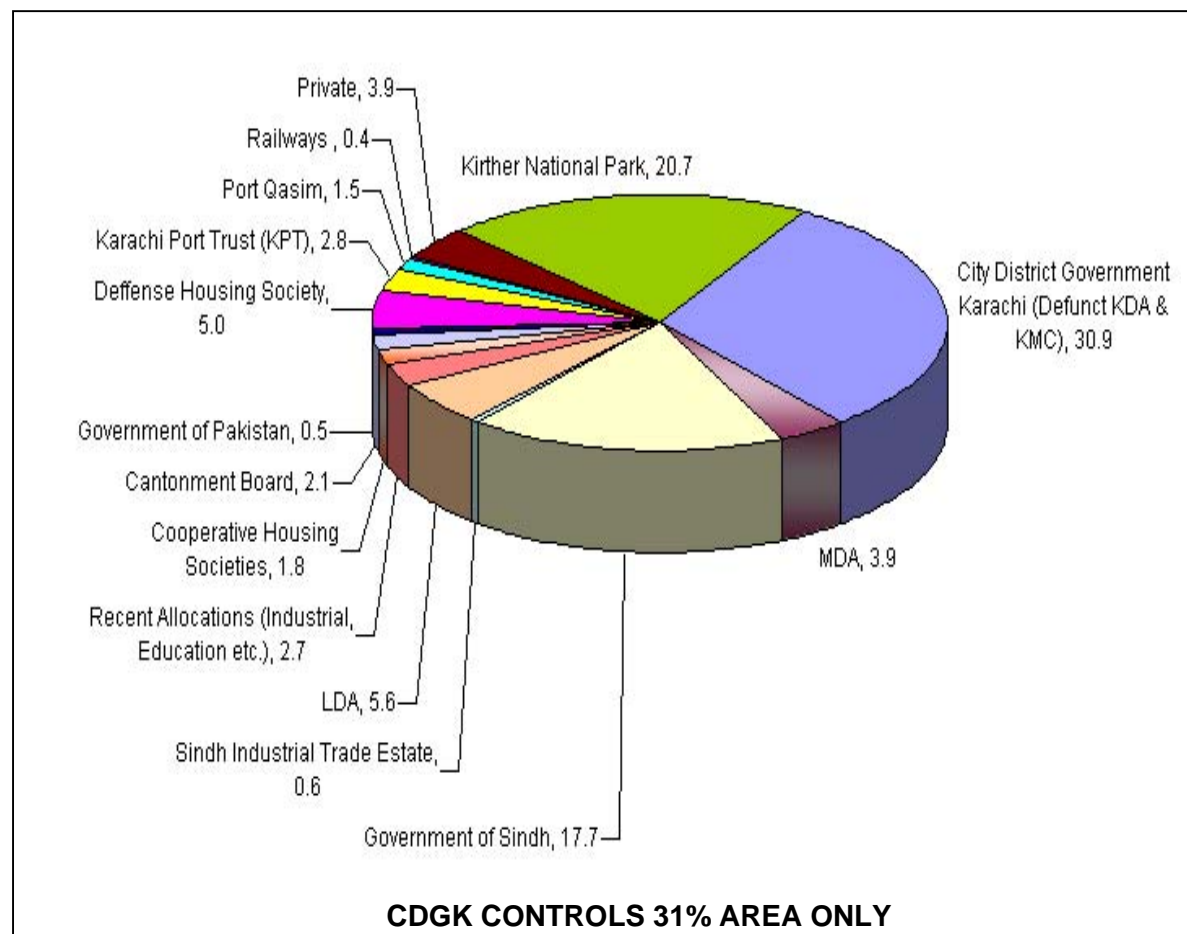
1.3 Land, Planning and Municipal Control

In the city district, land planning and municipal control is fragmented into about twenty federal, provincial and local agencies with overlapping powers / functions and utter lack of coordination. These agencies include: 6 Cantonment Boards. Port Qasim Authority, Karachi Port Trust, Defence Housing Authority, Pakistan Steel, Pakistan Railways, Export Processing Zone, Sindh Industrial Trading Estate, Government of Sindh (Board of Revenue), City District Government Karachi, Lyari Development Authority, Malir Development Authority, cooperative housing societies and private owners.

The multiplicity of ownership, overlapping functions and fragmented municipal control have resulted into following problems:

- i. Lack of holistic and unified vision for the city, hampering the formulation and implementation of development plans for the city, in integrated manner
- ii. Unplanned and haphazard growth leading to acute civic problems
- iii. Environmental degradation and deterioration of living conditions
- iv. Widespread katchi abadis and slums, promoting unsustainability
- v. Grossly deficient infrastructure / utilities
- vi. Lack of unified town planning and building regulations
- vii. Inter-organizational conflicts in provision of basic infrastructure, municipal services and revenue collection
- viii. Problems in disaster / crises management

Figure 1.2: Land Control in Karachi



1.4 The Vision for Karachi

The CDGK has a vision of making Karachi a world-class city and attractive economic centre with a decent life for Karachiites. The vision is ambitious and far-reaching because it challenges the leaders, institutions and citizens of Karachi to change the way the city works and does business. The vision recognizes the need to stimulate economic growth and create an inclusive city that provides opportunity and a better life for all its citizens. Thus, the city would acquire salient characteristics of world cities.

- i. World cities have a vibrant heart and have areas of high amenity; they are the places that people want to live, work, and invest in;
- ii. World cities have clear strategies for coping with growth, and are well governed, managed, and planned for the future of their citizens;
- iii. World cities foster competitive activities, supported by enabling policy and regulatory environments and well functioning infrastructure and services;
- iv. World cities are inclusive, with opportunities for all to earn incomes, work and invest;
- v. World cities are characterized by minimal poverty and slums.

1.5 Plan Objectives

Committed to achieving this vision, the City District Government of Karachi (CDGK) has prepared the Karachi Strategic Development Plan 2020. The KSDP-2020 is not simply about the physical renewal of a city but equally invoking the spirit and commitment of its leaders and citizens to realize a more prosperous, secure and sustainable future.

The KSDP-2020 sets out the following objectives:

- a) Finding out Karachi's advantages and potential which could be a driving force for future development;
- b) Promoting a holistic vision which can integrate various development activities towards sustainable growth;
- c) Identifying key issues in social, economic, environment and urban infrastructure sectors, which constrain the desired development of the city, since the solution of the issues is a pre-requisite to realize the vision;
- d) Setting out strategic framework against the backdrop of current conditions and formulating strategy for its achievement;
- e) Framing out the development plan components or action program;
- f) Putting in place an effective, collaborative institutional arrangement having participation of all stakeholders and citizen's participation, for successful delivery of KSDP-2020.

1.6 The Planning Process

The Process of KSDP-2020 preparation included, as a first step, a review and analysis of the existing conditions, bringing out the multifaceted dimension of the prevailing urban crisis.

Two basic surveys, (a) a sample socio-economic survey, and (b) a land use survey, were carried out for analysis of the existing trends. The trends in the various sectors that impact the urban population, urban economy, land use, housing, infrastructure, institutional, fiscal and financial arrangements were focused, and a series of sectoral reports were prepared for the inputs into the strategic plan.

During the course of planning, consultation and input from the land-owning agencies, stakeholders, utility agencies, and technical committees comprising professionals and subject experts were sought through a series of discussions.

Presentations on the plan were made to the honorable President, Prime Minister, Governor Sindh, Corps Commander, Chief Secretary Sindh, City Nazim and Town Nazims, and the Coordination Committee on Large Cities headed by the Deputy Chairman, Planning Commission including development partners from international donor agencies and organizations such as the World Bank, and the Asian Development Bank, JBIC, JICA, JETRO etc.

Based on the various inputs, a strategy for achieving the plan objectives was formulated and translated into specific strategic proposals. The draft plan prepared by the consultant was reviewed and improved by the MPGO-CDGK with the assistance of Expert Group engaged through Asian Development Bank.

1.7 The Status and Role

The Karachi Strategic Development Plan-2020 is a document approved by the City District Council Karachi vide its resolution No. 312 dated 15-12-2007 (Annexure-VI)

The KSDP-2020 has a legal status under Section 40 of the Sindh Local Government Ordinance 2001 (SLGO), for guiding city's growth in a planned and coordinated manner. It is mandatory for all the agencies, stakeholders (Federal, Provincial and Local Governments) in Karachi to follow the plan. The development plans of the respective agencies will strictly adhere to the KSDP-2020. The KSDP will be a legally binding document for development in Karachi.

1.8 Time Span of the Plan

The operational time span for the plan extends to the year 2020 within the scope of Pakistan's Vision 2030. This period has been assigned in view of the feasibility of achieving the plan objectives, and making available the required resources in the foreseeable future.

The plan in hand will be further extended to 2030 (under the Federal Government's Vision 2030) to cover the city's region that includes parts of the surrounding districts of Thatta, Jamshoro and Lasbella.

2 CURRENT CONDITIONS AND ISSUES

2.1 Population¹

Karachi is now among the ten top ranking largest cities in the world. In 2005, the population of Karachi was estimated at 15.1 million which is expected to reach 27.5 million mark by 2020. The number of households in 2005 was about 2.1 million and by 2020 it would increase to 3.9 million, which means an increase of 1.77 million households, at an average size of 7 persons per household. Even at decreasing average annual growth rate (from 4.15 percent in 2005 to 3.5 percent in 2020), the increase in absolute terms is staggering and will put heavy pressure on the physical, infrastructure, financial and institutional systems of the city.

A large segment of Karachi's population, roughly 40 percent, is afflicted with poverty. The living conditions of the deprived section and its economic well-being are therefore a major concern, as these impact the environment and growth potential of the city.

Karachi's population is diversified in terms of ethnicity and economic conditions. Apart from in-migrants from Pakistan's provinces, a large number of migrants from Afghanistan, Bangladesh and other South Asian countries have settled in the city.

With an average monthly household income of Rs.15000 (US\$250), there is considerable variation in income distribution. Roughly 75 percent of the households fall in the category of poor and low income groups, and 25 percent constitute the middle and high income groups².

2.2 Economy³

The metropolitan economy is fast growing at an impressive rate, probably somewhat higher than the national GDP growth rate of 6-7 percent per annum. The main economic sectors contributing to the city's GDP are: trade and commerce, manufacturing, transport, including ports, air port and shipping, real estate, construction, and services.

The economic base is increasingly shifting from manufacturing to services. Manufacturing growth is slowing due to security problems, inadequate electrical power supply, and high informal payments required to establish and maintain a business. As a result, manufacturing's share of metropolitan output has decreased from 37 percent in 1985 to 18 percent today. In the meantime, the service industries have been growing recently at about 8 percent yearly and now represent a substantial part of gross metropolitan product. Growth has been particularly strong in trade (wholesale and retail) and banking and financial services; the latter has witnessed the arrival of a large number of international banks, the emergence of exchange companies, and a boom in the stock market and consequently in stock brokering, investment management, and financial advice. ICT businesses, such as back office support functions and to a lesser extent software development, are also growing and have the potential to become cornerstones of the future economy of Karachi. Strong growth in real estate development and construction has been driven primarily by increased disposable income and significant in-flows of investment capital from the Gulf states.

¹ Refer Section 1 Annexure-I for details

² Refer Section 2.3 Annexure-I for details

³ Refer Section 2.1 Annexure-I for details

The future of Karachi's economy lies primarily in the growth of the tertiary sectors. Serving its own residents and those of much of Pakistan, Karachi will expand and consolidate its role as the financial, trade, and transport hub of the country. Knowledge-based industries and real estate and construction sectors will also play major supporting roles in the future economic growth of the city.

2.3 Land Use and Urban Growth⁴

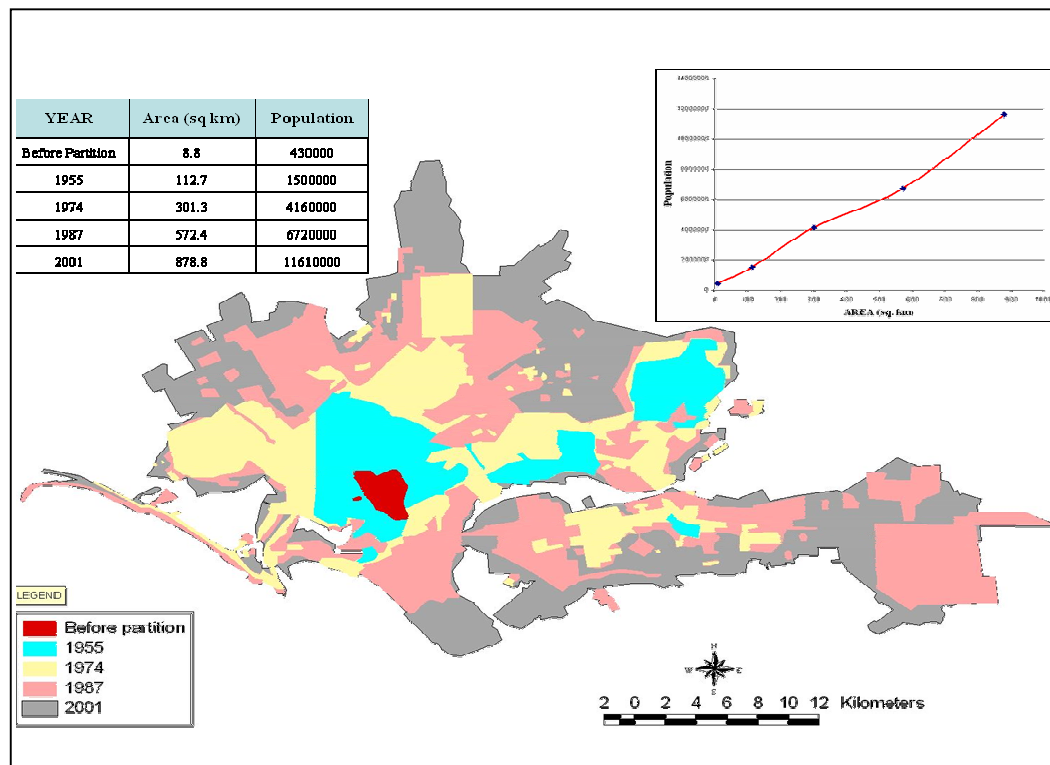
The city of Karachi has grown from the old town and the port at the sea outwards along radial avenues that connect all city segments to the port. There are a few means of circumferential movements. The CBD of Karachi, located in Saddar, Jamshed and Keamari towns, represents a huge concentration of retail trade establishments, wholesale markets, warehouses, business offices, banks, financial and commercial institutions, transport terminals like truck and bus stands, etc. More than 50 percent of the city's jobs or employments are found in this section of the inner city. Since the CBD is the most preferred location for most businesses, there is heavy pressure for commercial space. As a result, congestion, overcrowding, and heavy traffic movements, punctuated by regular traffic jams and air pollution, are prevalent features. De-congestion of the CBD and a few adjoining parts poses a challenge that would require a well thought out strategic initiative involving a major regeneration and upgradation scheme to ensure convenient access, safe, undisturbed pedestrian movements, and healthy or pollution-free environment, and increased commercial space through well designed/regulated densification.

The inner city is manifestly the historic Karachi, containing, as it does, its proud possession of an array of historic structures, the heritage buildings, protected and preserved under the Sindh Cultural Heritage Act 1994. Along the Bundar Road, stand the oldest Mandir, the Mereweather Tower, the KMC Building, Khaliq Dina Hall, the old Sindh Assembly Building, whereas the Lea Market, Spencer Eye Hospital, and residential quarters of Napier street and Pakistan Chowk mark the historic quarters of the city. Conservation of the historic buildings and building a compatible environment around them must be an essential component of urban renewal schemes for regeneration of the inner city.

As the Karachi economy is growing, the space requirements/needs of the growing economic activities will have to be taken care of through appropriate allocation of land or developed space in suitable locations where these can grow in an harmonious relationship with the rest of the city. In particular, the demand for industrial space for manufacturing is increasing despite several adverse factors, for example, power shortage, or high cost of doing business. To meet the needs of this important sector new industrial parks or zone will have to be planned.

⁴ Refer Section 3 Annexure-I for details

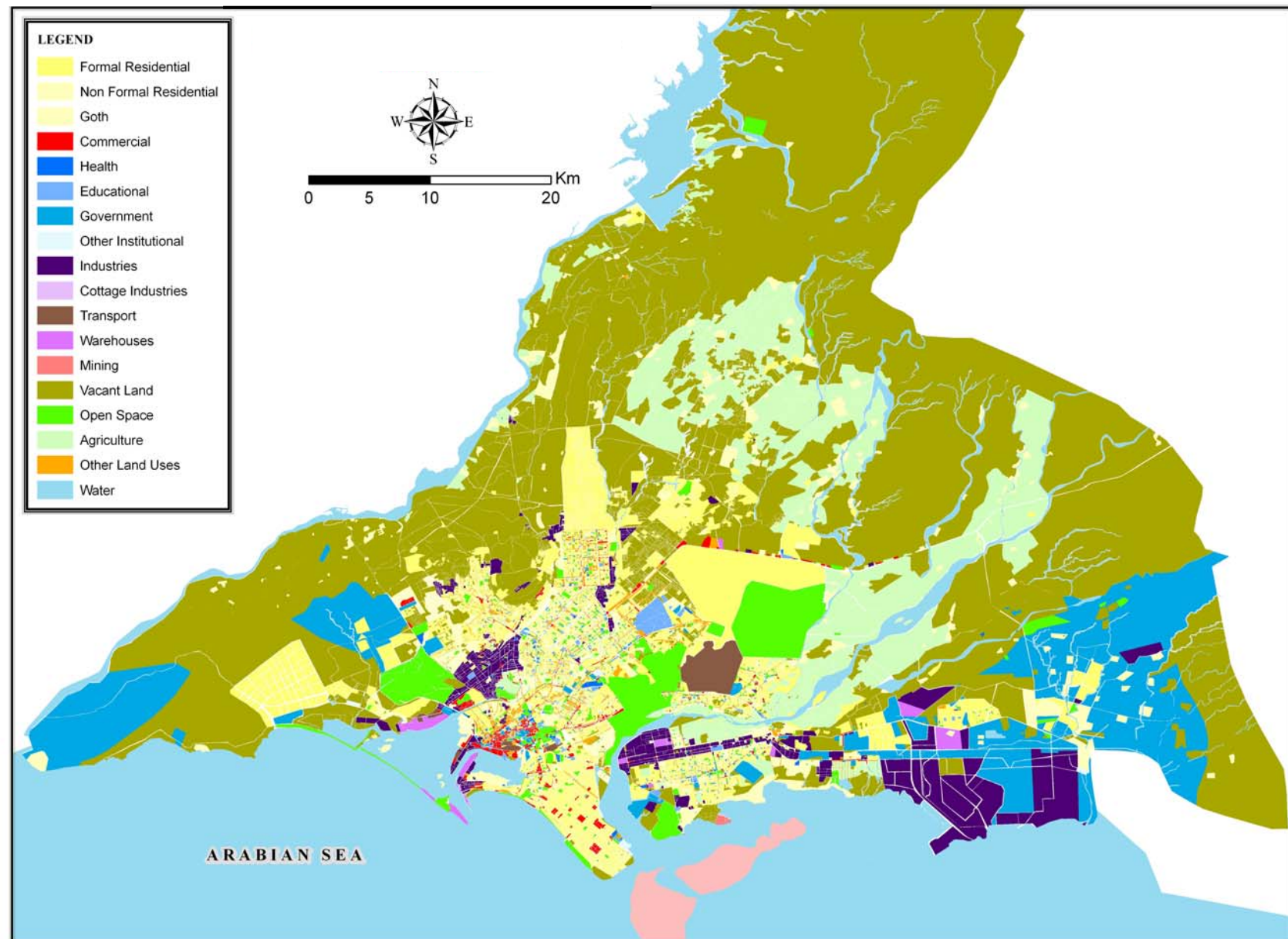
Figure 2.1: Karachi Urban Sprawl



As the city continues to expand, the future economic growth is expected to have an impact on the morphology and physical pattern of the megacity. The future appears to hold a promise for transformation of the existing linear/radial pattern to a form of either a polycentric or a network city. New economic centres with specialized functions may emerge around the present metropolitan area with or without the help of planning. In order that the new business centres emerge and grow in a planned manner with good connectivity to different city sections, it is appropriate to plan the establishment of a few new centres at the periphery of the city so that these are allowed to play their potential role in the city's economic development and well-being.

With mounting pressures exerted by the population growth over the last two decades, two basic trends in land use are observed. Recently, commercial growth has taken place along major arterials. While most residential neighbourhoods have acquired one or two storey structures, significant densification has taken place through construction of upper floors and subdivisions of large plots. In many old and new areas, apartment buildings, 5-6 storeys high, have replaced the low-density bungalow type housing. A severe constraint for this development has been the outdated and decadent infrastructure, particularly deficient water supply and sewerage networks. In such areas i.e. Lyari, Saddar, Jamshed, Gulshan-e-Iqbal, Gulberg and North Nazimabad, extensive replacement of the old lines and redesigning of the distribution system will be undertaken for essential improvements. Apart from vigorous commercialization along the arterial roads, high-rise apartment buildings would help remove housing shortages and improve living conditions.

Figure 2.2: KARACHI EXISTING LAND USE - 2005



2.4 Housing⁵

Housing needs of the population of the size of Karachi are very large as well as pressing. The phenomenal growth rate, as shown by the addition of a high number of households annually, has generated a very high demand for affordable houses for the middle and low-income groups. The delivery of the developed land for housing and construction of dwelling units has not kept pace with continuously rising demand, with the result that not only the housing backlog increased to intractable proportions but the built up environment was also subjected to severe congestion by vertical construction with heavy pressure on the physical infrastructure and the urban management system. The failure of the formal sector to adequately meet the housing demand and the imbalance it created between the supply and demand was basically responsible for distortions and manipulation of land prices in the market which thus tended to completely block the delivery of housing land to the low-income and lower middle income groups. The dynamics of the urban land market effectively shut off the poor, roughly about 40 percent of the city's population, who were forced to live in squatter settlements or the katchi abadis in or around the metropolitan area. The lack of provision of affordable and liveable shelter for the poor in Karachi is a major issue of gigantic proportions, and calls for unremitting efforts towards creating enabling environment for redressal of the problem.

Addressing the housing backlog and the challenges it poses, is on a priority agenda of the federal and provincial governments. Pakistan's National Housing Policy 2001, and the Mid-Term Development Framework (MTDF) 2005-10 refers to the increasing housing backlog and emphasizes the need to address the issue of inadequate supply of developed land. It lists poor land administration and limited supply of housing finance among the main issues identified.

The current housing backlog in Karachi is estimated to be about 90,00 units per year; accordingly about 100,000 new units will be required to be added per year to meet the requirements of 3.8 million households/units in the year 2020. In the year 2005, there were 2.2 million households which are expected to increase to 3.9 million in the year 2020. It means an addition of 1.7 million households between 2005 and 2020. Of this, about 50 percent of the increase in housing provision will be required for the poor and low income households to be formed in the existing katchi abadis. In addition to provision of new plots to residents of the informal settlements, improvement of katchi abadis by way of infrastructure development is an integral part of the CDGK's housing strategy. Ensuring tenure security through regularization and grant of land leases to inhabitants of katchi abadis fulfils a basic condition for the individuals to invest in their housing and improve living conditions.

A puzzling aspect of the housing sector is current state of the housing schemes launched during the last 30 years to meet the housing shortage in Karachi. Despite the development work and allotment of plots was completed long ago, the schemes still remain largely unoccupied and uninhabited.

⁵ Refer Section 3.1.1 Annexure-I for details

Figure 2.3 : LOCATION OF KATCHI ABADIS

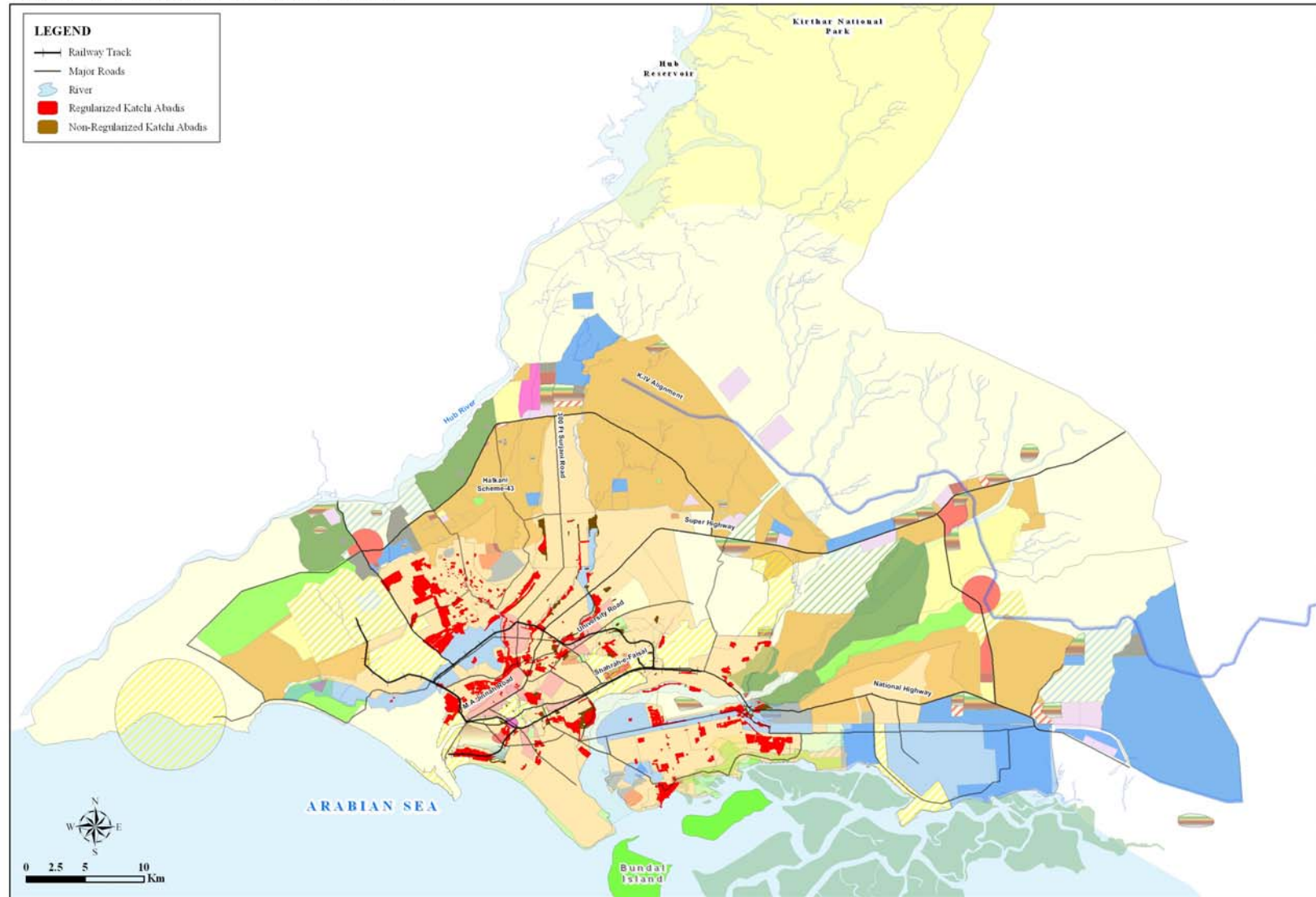


Figure 2.4 : LOCATION OF HOUSING SCHEMES

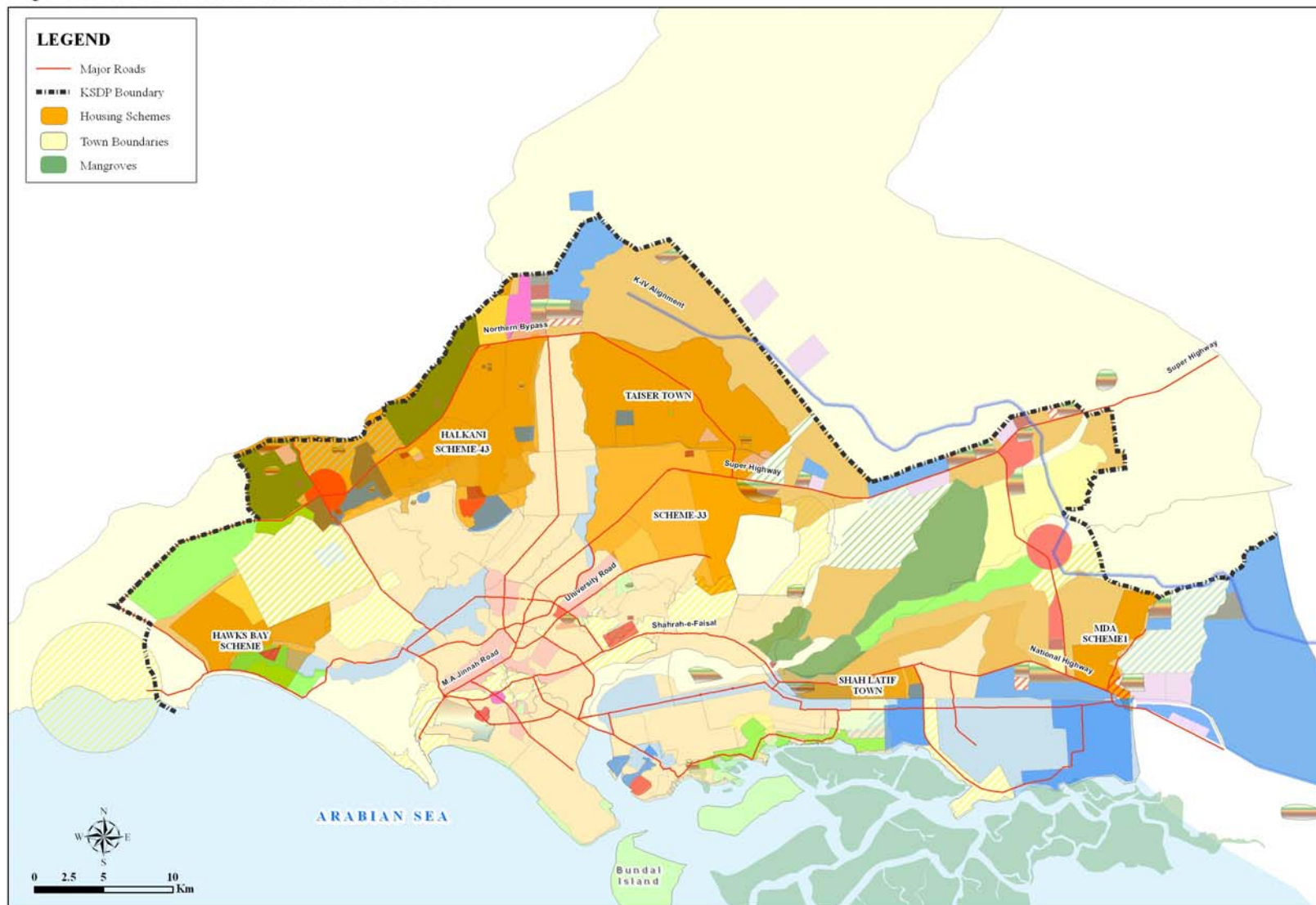


Table 2.1: Occupancy Status of New Housing Schemes

SR. NO.	NAME OF SCHEME	YEAR OF NOTIFICATION	CURRENT OCCUPANCY STATUS
1	Scheme No.25-A	1980	05%
2	Scheme No.33	1971	20%
3	Scheme No.42	1983	05%
4	Scheme-43	1986	0%
5	Scheme-45	1986	05%
6	New Malir Project-I	1996	00%

The low occupancy status/rate apparently does not encourage the strong initiatives for developing new housing schemes in order to overcome the housing shortfall. This whole matter requires study of the reasons for un-occupancy of the schemes, and evolving strategy and taking corrective measures.

2.5 Transport⁶

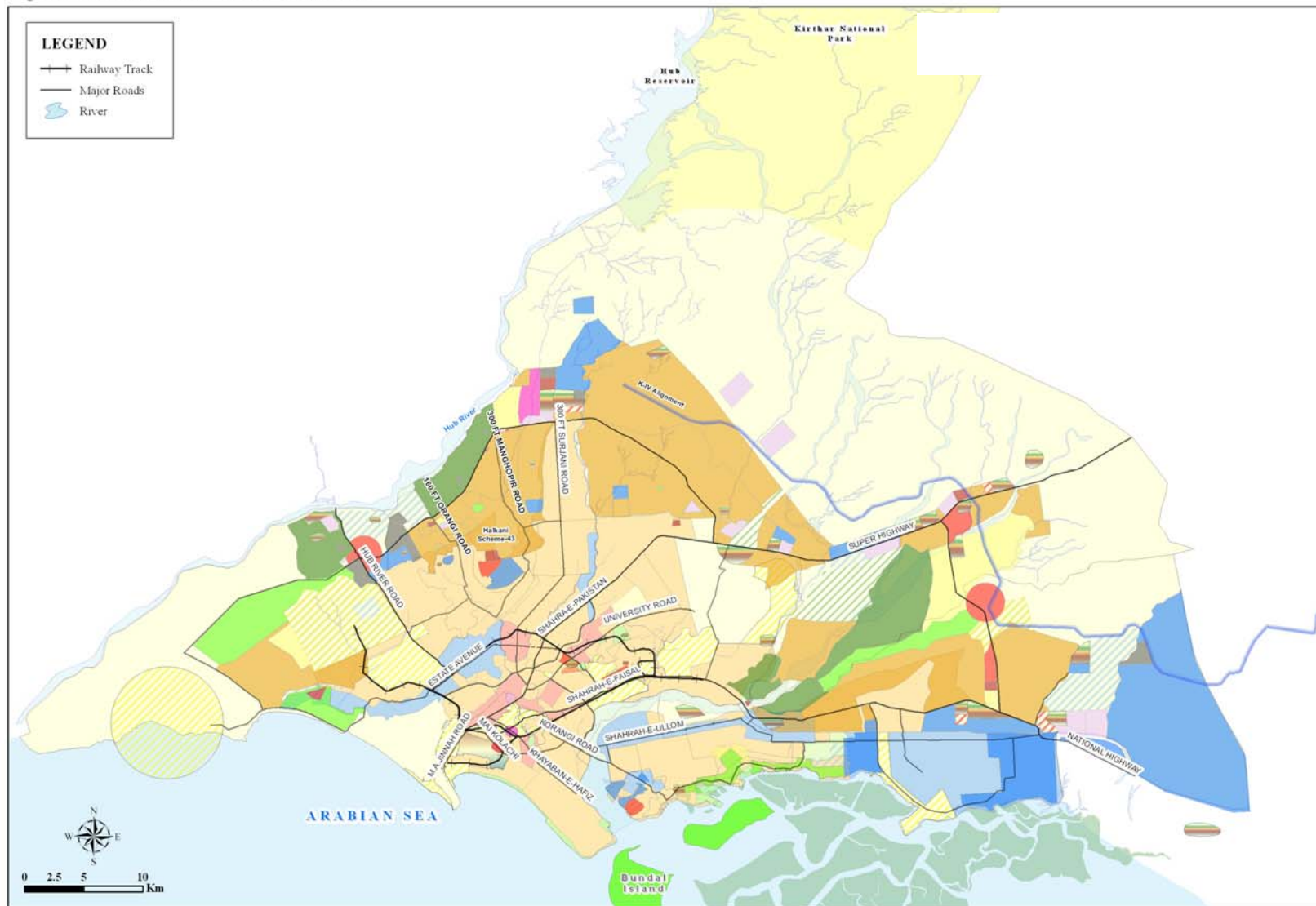
In response to, and in close accompaniment of, the pattern of city growth, Karachi's transport system has developed to its present dimensions, which include road infrastructure, public transport, road traffic conditions and management as the main system components.

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 focussed 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, remodelling of intersections and road rehabilitation. To cater for the heavy traffic to and from the Karachi port, two logistic bypasses 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.

⁶ Refer Section 4 Annexure-I for details

Figure 2.5 : EXISTING ROAD NETWORK



The bus transport is privately owned and is operated on designated routes. The bus service is poor, inefficient and uncomfortable for the passengers; at peak hours it is grossly inadequate with intolerable overcrowding and discomfort. There is exasperating disparity between the number of seats available and the passengers, as indicated by the current passenger seat ratio of 1:34. The service is used by most of the low-income and poor people. About 42 percent of the total private bus fleet is over 15 years old with poor mechanical condition and contributes significantly to air pollution. The diesel-run buses and two-stroke engine rickshaws contribute about 86 percent of total air pollution caused by transport vehicles.

Since the inner city with the CBD constitutes the predominant centre of intense economic activity and employment, it influences enormously the daily traffic flow on the city's road network. On working days in the morning hours traffic from almost all parts of the city gravitates to this centre, while in the evening the traffic reverses back to the outlying areas. This characteristic traffic pattern causes enormous congestion and pressure on the urban transport system.

The congestion on the city roads has been growing from bad to worse and is attributable to a number of factors. An abrupt rise in private car ownership has completely transformed the traffic scene as a high number of cars ply and tend to overcrowd the roads. Wrong parking and lack of parking space further compounds the problem. Added to this are extensive roadside encroachments by shops and hawkers. Above all, the poor traffic control is partly responsible as the erratic behaviour of drivers, particularly of commercial vehicles, goes unchecked.

With the rise of number of vehicles on the roads and resultant congestion the road safety situation has become alarming as the accident severity index has risen to 45 percent. Involvement of pedestrians in road accidents is indicative of lack proper facilities for pedestrian movements both along and across the roads.

The bus service is demand-oriented and as such remains confined to inhabited urban space. One of the reason why the newly developed residential schemes remain unoccupied for long is the non-availability of bus service to some threshold locations in the schemes which otherwise would have picked up and occupied to some extent.

Transport management and regulation is a major issue. The inadequacies in overall planning, management and finance are chief contributing factors of the systemic failure to provide a sustainable transport system.

2.6 Water Supply⁷

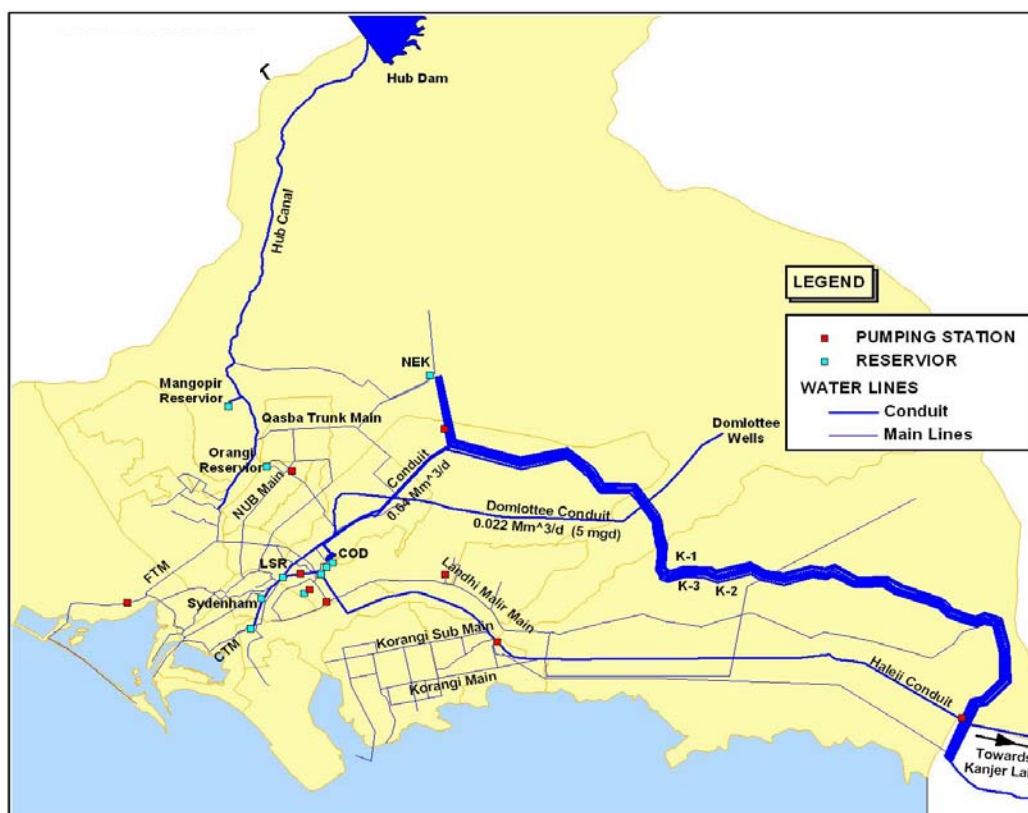
Karachi faces a chronic problem of water shortage in supplies to meet the constantly growing demand. There are some major challenges in the area of management of services and the supply deficiencies in both quantity and quality of water.

The current water demand amounts to approximately 752 MGD (2005); against this demand the capacity of the supply system is 646 MGD, giving rise to a shortfall of 106 MGD in bulk supply. But the amount of water supplied to the consumers by the service remains short by about 35 percent due to losses in transmission from leakages, friction and large scale unauthorized diversion or thefts. To meet the current shortages adequately and the demand upto 2020 (when the metropolitan population will increase to 27.5 million), the bulk water

⁷ Refer Section 5.1 Annexure-I for details

supply from the Indus and other sources will need to be augmented to double the quantum of the present supply.

Figure 2.6: Existing Water Supply Network



About 60 percent of the households are connected to the supply network. Under the present conditions, water supply is irregular and inequitable. Water is supplied only for a few hours, generally four hours daily and that too at a very low pressure. Inequitable distribution marks the supply system as some areas receive more water, and some too little to meet their needs. There are some areas which are not connected to the system and get water on payment through tankers.

There is also a serious concern about water quality. The existing filtration facilities are not enough to subject all supplies to clarifier process; about 60 percent of water is filtered and the rest is only disinfected through chlorination. Some contamination may also occur in transmission to the end consumers.

Improvements in the system depend on public financing, for the existing tariffs only generate insufficient revenues to cover operational and maintenance costs. Enhancement of tariffs is clearly linked to the economic structure of consumer population besides improvement in service delivery. Efficiency of the delivery system is intricately tied up with the financial viability and related management issues.

2.7 Sewerage and Wastewater Disposal⁸

The existing sewerage system serves a large part of the city. There are some areas including katchi abadis and other informal settlements which are not sewered and lack proper disposal system. The sewered areas of central and southern Karachi are connected to existing treatment plants, while other sewered

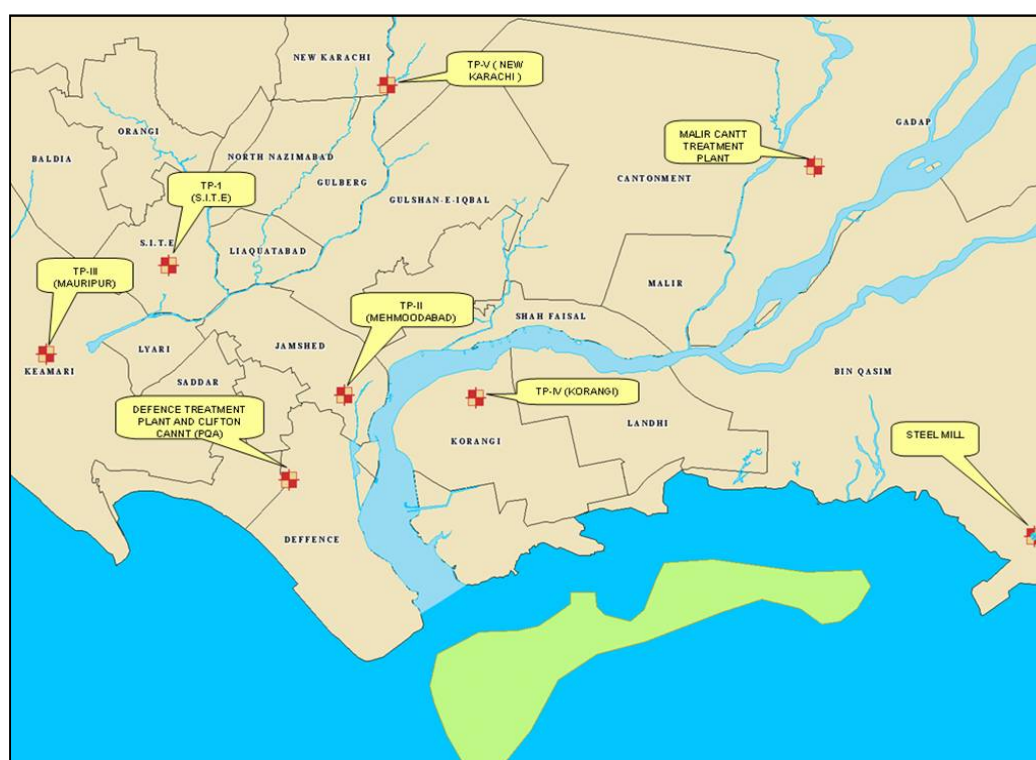
⁸ Refer Section 5.2 Annexure-I for details

areas discharge wastewater without treatment directly into nallahs, rivers or the sea.

The net sewage flow is estimated at 388 MGD. System performance is marred by glaring deficiencies. The collection network has a low coverage and lacks major interceptors and sufficient treatment capacity. Most sewage flows into the nullahs and rivers which run as open sewers through the urban area, causing highly obnoxious, insanitary conditions with serious health risks and unpleasant environment for the residents of adjoining neighbourhoods.

There are other problems in the system that are caused by poor maintenance such as low number of manholes and frequent effluent overflow onto the streets. Further, most network, laid 25-35 years ago, needs replacement and upgrading to carry the present sewage load which has increased much above its capacity. In addition to network improvements, major capital investments are required for building the wastewater treatment capacity and improve sanitary condition by eliminating untreated sewage.

Figure 2.7: Location of Existing Wastewater Treatment Plants



2.8 Solid Waste Management ⁹

The performance of solid waste management system has always been a major cause of concern, as this municipal service was traditionally wanting in such basic aspects as primary collection of garbage and safe transfer to the landfill sites.

Approximately 9,000 tons of solid waste is generated each day (2005). Households, trade and industrial establishments, construction activity and a variety of institutions contribute in waste generation. The amount of solid wastes is expected to substantially increase with the rapid growth of population and

⁹ Refer Section 5.3 Annexure-I for details

economic activity. By the year 2020, the solid waste generation may approach 16,000 to 18,000 tons each day. The quality of civic life is closely related and affected by the sanitary conditions in the residential neighbourhoods and other areas, where efficient collection of garbage is the key to clean and healthy environment.

It is important to effectively organize primary collection of garbage i.e. from the households (within the Union Councils) and locations of origin/generations such as markets, industrial areas, hospitals and recreational places. The city conspicuously lacks garbage transfer stations which need to be developed for better handling of the garbage and transfer to sanitary landfills.

Poor planning, inappropriate technology and poor management are obviously the main areas of concern needing serious efforts on the part of the local government and other agencies towards efficient management and modern technological development of this sector.

Figure 2.8: Existing Landfill Sites



2.9 Storm Water Drainage

Karachi recorded an annual average monsoon rainfall varying 125-250 mm whereas winter rainfall is about 25 mm. There are two main non-perennial rivers, the Malir and Lyari rivers, crossing the thickly populated city areas before falling into Arabian Sea.

The natural drainage system of Karachi consists of the Lyari and Malir rivers, and their tributaries or nullahs. Because of urban development and excessive occupation at the banks of the Lyari River and its tributary nullahs of Gujro and Orangi, the natural drainage has been destroyed and almost completely obliterated. As a result, the runoff of storm water is prevented from going into the natural channels, thus overflowing the streets and parts of the residential areas. The areas worst affected are North Nazimabad, Liaquatabad, and SITE.

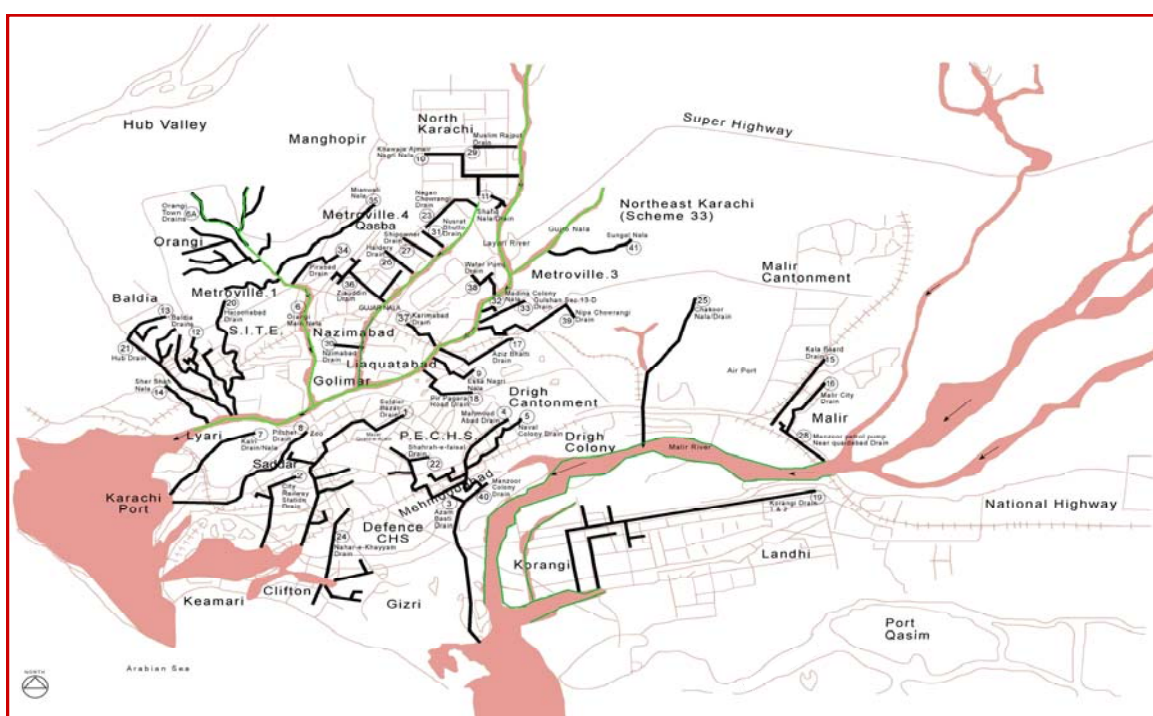
In the inner city, the low-lying areas of Saddar, Chundrigar Road, Bunder Road and Lyari become heavily inundated during the rainy spells mainly due to inadequate storm water drainage system.

Extensive flooding occurs in parts of the Gulshan-e-Iqbal along the University Road, Societies Union area along Shahrah-e-Faisal and Tipu Sultan Road. Katchi abadis of Mehmoodabad and Manzoor Colony located on the Malir River bank are also worst affected by excessive flooding and stagnant water.

Heavy rains were recorded in August, 2006 resulting in high intensity uncontrolled gushing flows overtopping medians and other infrastructure features of road transportation network. Shahra-e-Faisal was among such hard hit areas wherefrom catchments of Shahra-e-Qaideen and adjoining areas of Hill Park and Shaheed-e-Millat resulted in the massive blockade of vehicular traffic which lasted well over 5 hours in complete choking conditions. The ripple effect was felt from Gulshan-e-Iqbal to areas of Korangi, Landhi and inner city areas such as Saddar. This situation occurs/results from the following reasons:

- i. Due to irregular and illegal land utilization practices in the past, most of the natural drainage, nalas and low lying areas which were left as open areas were converted into developed lands notwithstanding the requirements of providing alternate and man-made disposal channels and thus disturbing the natural flow conditions and consequently resulting in uncontrolled storm drainage pattern especially during a high intensity storm/rainfall.
- ii. It is a general observation that due to lack of organized solid waste disposal system in the city, a substantial percentage of solid waste is regularly disposed in the open storm drainage channels especially from adjoining localities which obviously results in complete choking or partially interrupted flow conditions in the event of storm. This practice is universally seen along the major drainage channels/nalas such as Gujro and Orangi where the occupants of the katchi abadis due to the unavailability of any local waste collection and disposal systems invariably indulge in such practices. Almost all the residents of North Nazimabad areas will acknowledge similar practices in the localized drains mainly being used as dumpsters rather than an interconnecting interceptor drainage system. The resulting reduced and narrow channel width does not provide the adequate hydraulic radius and the flow capacities and in most cases results in localized ponding scenarios with overflows topping the streets and connecting roads.

Figure 2.9: Storm Water Drainage System



- iii. It is also observed that the existing interceptor drains along roads sides are also not fully functional mainly due to change in local topography and the slopes conditions. The storm sewers need major survey in terms of existing storm sewer network layout, interconnectivity, slopes, inverts and conveyance assessments.
- iv. It is observed that all major intra-city drains e.g., in PECHS areas were overflowed with storm water flowing at full capacities overtopping road medians and resulting in uncontrolled flow conditions affecting residential and commercial activities in the area.

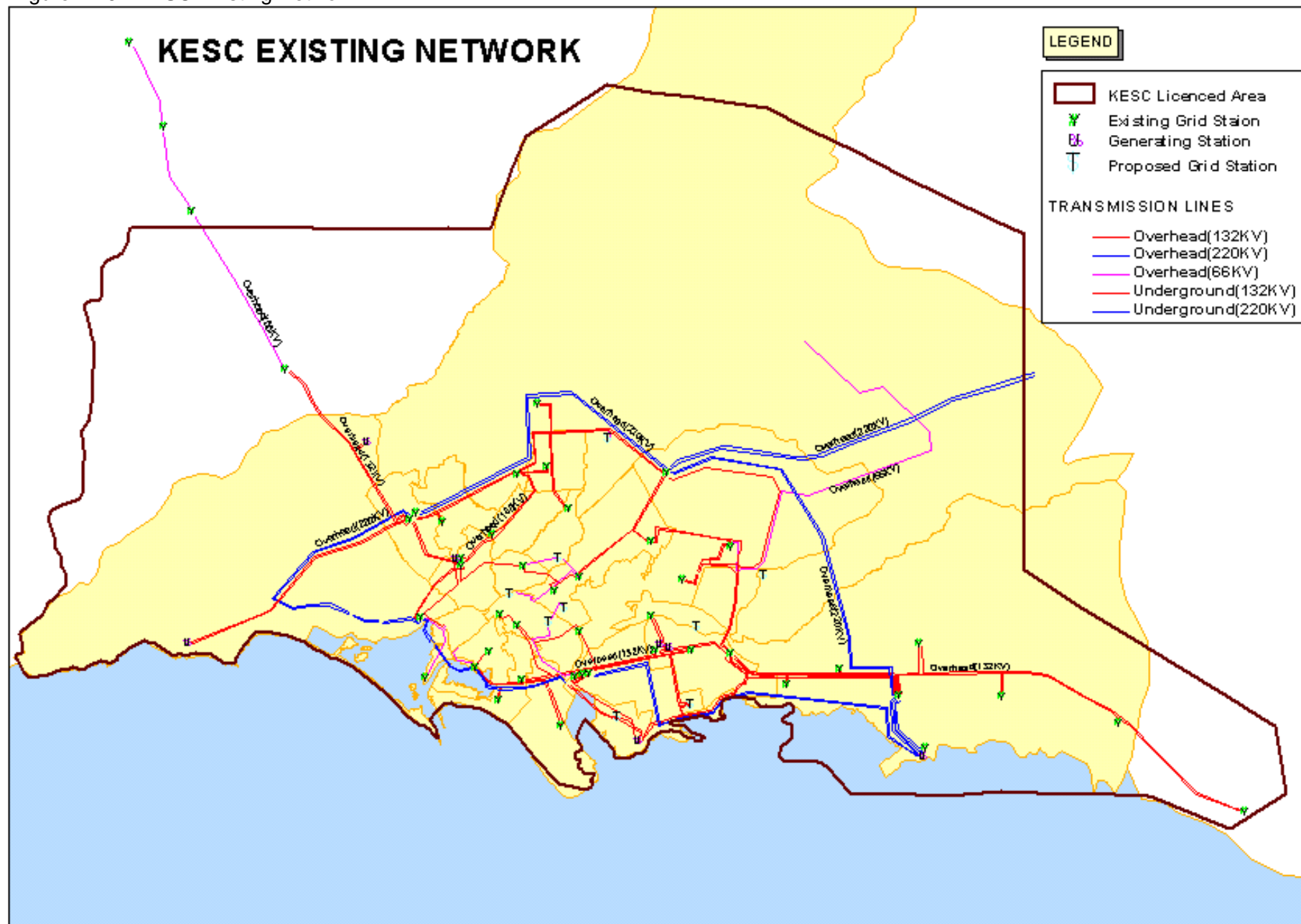
2.10 Electric Power¹⁰

Karachi Electric Supply Corporation (KESC) is a power utility company responsible to provide the power supply to its residential, commercial, agricultural, government owned sector and industrial consumers in its licensed area. The jurisdiction of its licensed area compares Karachi, part of Sindh upto Gharo & part of Balochistan upto Bela.

KESC has its own resources of power generation with installed capacity of 1738 MW, 220 & 132 KV grid station with 220/132 KV transmission overhead & under ground network, 11 KV/0.42 sub-station with distribution overhead main & under ground power cable network.

¹⁰ Refer Section 5.4 Annexure-I for details

Figure 2.10: KESC Existing Network



KESC has the support of power generation through three IPP's Tapal Energy, Gul Ahmed Energy Unood Energy as well as from Kanupp, Pak Steel, KESC has a link of Power Supply from Hub Power Plant at 220 KV at NTDC-KESC interconnection and KDA-Scheme-33, 220 KV Grid Station through double circuit overhead transmission line from Jamshoro Grid Station for import & export power supply.

Inspite of all above mentioned power generation sources & import supplement from WAPDA of 600 MW (Hub Link & Jamshoro OHL Transmission Line) KESC had to face a shortfall of 200 MW due to the demand and supply gap as presently the load demand is upto the extent 2400 MW and supply is 2200 MW. Due to this reason KESC had to resort to load shedding during day & evening peak hours. This situation more aggravates when any 210 MW or 132 MW units trips or break down in transmission line to network to the extent of 400 MW or more. This situation forced KESC to resort to the load shedding which remains round the clock in the city as during day & evening peak hours frequency remarks 49.8 HZ and voltage 220 KV drops to 190 KV & 132 KV to 110 KV.

It can be concluded that load shedding will remain/continue till the time when immediate step to be taken by KESC for:

- Any further power generation. It is pertinent to note that there is no addition in power generation in KESC since after unit no. 6 at BQPS in the year 1997-1998.
- Transmission system which needs expansion and rehabilitation in existing has not been implemented due to which Power Transformers at grid station experiencing overloading round the clock resulted in breakdown in large area of the city.
- Distribution system needs expansion & rehabilitation as it is very old and obsolete due to existing overhead mains, RMU, unbalancing of system with high rate of failure of pole mounted transformers (PMT) & localized faults in 11 KV overhead and underground cables due to the overloading.

Immediate action is therefore called for augmenting the power generation capacity and upgrading the distribution system.

2.11 Education¹¹

Presently Karachi possesses a vastly expanded educational system with a large number of institutions (schools, colleges and universities) which endow the city with the status of a prominent education centre in Pakistan. The system serves not only the needs of the Karachiites but also the people belonging to other parts of Pakistan, particularly in the area of higher education.

Despite the above mentioned situation, the present educational facilities, particularly at school level remain inadequate for the rapidly growing population. Approximately 75% of all children needing basic education are enrolled in the primary schools, while about 60-65 percent receive education at the secondary level. In several areas the number of schools is very low; the socio-economic status of a vast section of the population such as the people living in the katchi abadis and other low-income areas, denies them the opportunity of school education. As for the quality of education, the public sector institutions lag behind the private sector. However, the public education is much more affordable than the private schools.

¹¹ Refer Section 6.2 Annexure-I for details

At the college level, the situation seems to be much better than at school level. College education in the public sector is continuously expanding, but needs much improvement in quality towards achieving result-oriented performance of these institutions.

Karachi has played a significant role in advancing higher education in the country. Currently, the university education has witnessed distinct growth in specialized professional fields in direct response to increasing needs of the services sector of the metropolitan economy. But the present dispensation does not fully meet the requirements and so the private sector has stepped in to fill the gap.

Under the current education policy, the government is facilitating the private sector to establish institutions of higher education including medicine, engineering, business management, computer engineering, informatics and telecommunications. To this end, an educational city is being planned in deh Chuhar of Karachi as a major education complex for the private sector.

2.12 Health¹²

In Karachi, health care is catered for by the public and private sectors. The basic infrastructure consisting of primary health care units, preventive programs and general hospitals for the public was established by the government and semi-government organizations. Though some notable internal improvements were made from time to time, the infrastructure did not expand spatially in line with the aerial expansion of the city. Since the public sector facilities remained highly centralized in a few locations, they became largely inaccessible to population of most city sectors. This provided the stage to the private sector to establish clinics and hospitals in the residential neighborhoods.

Although the access to the public sector hospitals is unrestricted and is also non-discriminatory, the treatment and hospitalization facilities are lacking so that there is considerable pressure on the present resources. In contrast, the private hospitals which provide better facilities and better service but restrict access on account of affordability.

The network of tertiary care has to be expanded to respond to the needs of the localities where such facilities are not currently available, like the areas of North Karachi, Orangi, Landhi, Korangi and Bin Qsim.

2.13 Sports & Recreation

Presently fairly good recreation opportunities are available to the citizens. For both passive and active recreations and field sports, developed spaces for parks and playgrounds and, to a large extent, sports facilities for the city's youth generally suffice the present needs, even though their distribution across the urban space may not seem to be equitable or balanced. But clearly there are some residential areas, including informal settlements which have little access to organized sports recreation or to any semblance of parks or open space for limited sports activities. In order to balance the distribution of sports and other recreation facilities, more space would need to be allocated in or close to visibly deficient areas.

There are presently three city stadia , one each for cricket, hockey and football which appear to be insufficient for the metropolitan sports loving public. With the

¹² Refer Section 6.1 Annexure-I for details

passage of time some investments will be required at all levels in creating additional opportunities, and in further developing suitable sports sites in all towns.

2.14 Coastal Recreation

The sea coast is a source of enjoyment and recreation to the people. The beaches at Clifton, Hawkesbay and Sandspit together with the attractive Paradise Point are visited by the general public on week-ends and holidays in large numbers. People generally enjoy walking or wading along the beach fronts. While people make frequent visits to Clifton, visits to Hawkesbay, Sandspit and Paradise Point are restricted as these require owned or hired transport. Clifton beach has been developed into a major recreation and amusement complex, with its historic promenade, recently renovated hanging gardens (2006), marine drive, amusement park and fish aquarium. Along a part of the beach, facilities such as sitting benches, snack-bars and installation of flood-lights have been provided so that the visitors can stay and enjoy for longer hours. A picnic spot was developed by the KDA (now defunct) at Paradise Point in 1986. It attracts a good number of visitors but the visits are constrained by the distance and lack of access through public transport.

Sandspit and Hawkesbay remain undeveloped. There are only private huts spanning the entire crest of the sandbar. The general public visiting the beaches on week-ends and holidays does not enjoy any essential facility like shade, public toilets and snack-bars. Swimming is rather dangerous; accidents of drowning, particularly at Sandspit having sharp seaside gradient, have occurred with increasing frequency.

Small scale private yachting and sailing is enjoyed as leisure time sports, mainly by the affluent section of the population. This activity is organized in the Chinna creek backwaters, in the harbor channel and the Korangi Creek. Karachi Yatch Club has its mooring facilities at Manora.

Chinna creek, Boating Basin, and Hawkesbay offer good sites for recreational development. Hawkesbay and Paradise Point may be found suitable for large-scale development of parks like Disneyland, sea sports and other recreation.

2.15 Environment¹³

Karachi's urban environment has deteriorated considerably over the past 2-3 decades. With expansion of the built-up area and continuous densification the built environment has been marred by intense congestion, lack of cleanliness, unsanitary conditions, and poor maintenance of public infrastructure, over-construction and enormous encroachment of foot-paths, streets, roads and public amenity open spaces. Environmental problems are more intense and uncontrollable in poor areas, such as katchi abadis and in low-income or high density areas. Solid waste collection is also neglected in poor areas where most garbage is littered around in the streets and lanes.

Water quality and water pollution are important environmental concerns. There occurs widespread contamination with pathogenic organism in water from the system supply lines largely due to faulty pipe connections and infiltration of sewage water during idle hours. Most water available in Karachi does not meet the water quality standards of WHO.

¹³ Refer Section 7 Annexure-I for details

Air pollution is a serious environmental problem in the Karachi city. Automobile exhaust, industrial emissions, open burning of garbage, domestic and commercial fuel sources cause high increase in air. Contaminants i.e. TSP, No_x, Lead, So₂, and Co.

Rapid increase in the vehicular traffic has produced high pollution levels along city roads and road intersections where these far exceed the limits set by the WHO and National Environment Quality Standards of Pakistan.

Open burning of garbage at the landfill sites causes considerable pollution. Solid waste from industries (also dumped outside the factory premises) is burnt in incinerators not always designed for hazardous waste disposal, like chemicals, pesticides and hospital waste.

Open sewerage channels running through the Karachi's neighborhoods remain also a major risk, since these expose the residents of nearby areas to many diseases. The Lyari and Malir rivers, which have been converted into large open sewers, cause severe marine pollution along the coast and impact the harbor's marine environment. Further, solid waste dumping and hazardous industrial sewage aggravates the contamination of the Lyari River.

Obviously, there is a glaring lack of implementation of environmental measures. Institutional framework for environmental control is weak and indecisive with overlapping responsibilities. There is no close coordination between different agencies for environmental protection. This field needs to be strengthened to play its assigned role.

2.16 Coastal Marine Environment

The coastline is severely polluted from municipal and industrial waste as well as the port transportation activities. Ships discharge pollutants directly into the marine environment of the harbor. Marine life has become contaminated with lead. Human consumption of such sea-food may cause anemia, kidney failure and brain damage.

The polluted marine environment has also damaged the ecological balance maintained by the mangrove ecosystem that provides a natural habitat for interdependent communities of invertebrates fish, shrimps, crabs, birds and reptiles. Protection of the mangrove ecosystem and minimizing pollutants discharge into the sea requires immediate corrective measures to preclude the fast degradation of the marine environment.

2.17 Coastal Development

The Karachi's coastline, with its fine beaches, backwaters, mud flats and mangroves ecosystem, is a natural asset. Its scenic attraction and potential for recreation activities provide the basis for select urban development that combines the natural advantages, social and economic growth while promoting sustainability. There is considerable scope for development of several activities including commercial-amusement complexes and waterfront architecture. Since the coastal area is a sensitive zone, in respect of its distinctive ecology and socio-cultural make-up, planning for coastal development should respect and protect the natural ecological pattern, and should also promote the social and economic interests of the fishing communities who inhabit the coast and depend on it as resource for their livelihood. The beaches frequented by the general public will have free access as a matter of common rights established and protected under the beach development byelaws. The marine environments must be improved by

preventing the discharge of untreated sewage and keeping the sea water swimmable and fishable.

Coastal development is a special area requiring a plan carefully integrated with the overall metropolitan planning and has to be based on well defined land use and urban design principles. The infrastructure requirements of the coastal zone should be clearly specified along with their impact and linkages with the city. Therefore the coastal development should be an integral component of the city's overall development strategy.

2.18 Heritage Sites

Karachi's cultural heritage is tangibly manifest in its historic architecture, the heritage buildings that link the city to its historic past. There are about 600 heritage buildings, concentrated mainly in the inner city, and are protected sites under the Sindh Cultural Heritage Act 1994. Many of these buildings have deteriorated over the years and are in urgent need of repairs. In addition to regular renovation and preservation of the heritage buildings, development in areas adjacent to these sites has to be consistent with conservation in accordance with the criteria and zoning bylaws. Public awareness regarding these buildings as historic assets is an essential element in promotional activities targeting conservation and environmental improvements. In case of buildings under private ownership, offer of various incentives should encourage owners to protect their historic properties.

2.19 Urban Agriculture

The rural area of Karachi, which forms about 65 percent area of the district, contains a few rich agricultural belts/zones where cultivation of vegetables, fruits and fodder has flourished as a truck farming activity to supply some of the needs of the city. In the Malir valley, Kathore and Shah Mureed-Gadap zone large cultivated tracts depend on irrigation from tube-wells and shallow dug-wells. There is considerable potential for development of cultivation and groundwater resources. Culturable land with good soils is generally constrained by shortage of groundwater supplies. Clearly, harnessing groundwater sources to their maximum potential is the key to any plans for growth of agriculture in the area. A comprehensive groundwater development program including regulation to avoid over-use, construction of dams and weirs for recharge of aquifer, and building storage reservoirs for rain runoff needs to be formulated as a pre-requisite to an overall agricultural land use plan.

Though cultivation has witnessed some expansion in Kathore and Shah Murad-Gadap zone, there has occurred much reduction in the cultivated lands of the Malir River valley, particularly in its lower section due to large-scale conversion to housing and other urban uses. This development was facilitated by much increased land demand for houses with rising land prices, proximity and easy access from the city, and to some extent also induced by extreme shortage of groundwater supply for irrigation as a result of drastic depletion of aquifer and increasing salinity.

2.20 Natural Hazards and Disasters

Karachi remains at risk from natural disasters i.e. earthquakes, tsunami waves, and the cyclonic storms. Karachi and the region around it has been affected by earthquakes, mostly of low and moderate intensity. Only a few had high intensity, which also generated tsunami waves in 1819, 1943, 1945 and 1956, causing much destruction of life and property along the coastal areas of Pakistan. Karachi

is vulnerable to devastating tropical cyclones that originate in the Arabian Sea and may strike Karachi with ferocity and heavy rainfall. During the period 1946-2004, about 50 cyclonic storms developed in the northern Arabian Sea, out of which four hit the coastal belt near Karachi with disastrous consequences of heavy downpours, flash-floods, loss of life and property.

To minimize the effects of such natural disasters on human population and property, a disaster preparedness and relief management plan is an obvious necessity. Such a plan will be concerned with monitoring the natural phenomena causing disasters, an effective warning system, identification of most vulnerable zones, and a relief delivery system.

3 STRATEGIC FRAMEWORK FOR DEVELOPMENT

The strategic framework set out in this section examines the vision against the backdrop of current conditions and presents a strategy for its achievement. The strategy essentially answers the question “How do we get from here to there” and will help frame out the components of the KSDP 2020.

The vision recognizes the twin requirements of stimulating economic growth, and creating an inclusive city that provides opportunity and a better life for all its citizens. The guiding principles of the vision are:

3.1 Guiding Principles

- Sustainable growth that is economically feasible, environmentally viable, socially and culturally acceptable
- Creating an inclusive city, social justice and poverty reduction
- Safeguarding quality of life, people are at the centre of the vision

3.1.1 Sustainable Growth:

For Karachi, as any other city, sustainable development ought to be an overriding concern. The present approach to development has to be turned into one which is economically self-sustaining and environmentally sound. For any development to be economically feasible, its benefits should, in a stipulated timeframe, fully pay off its costs. More importantly, it should not be burdened with debts, domestic or foreign, which the development or the project returns are incapable of redeeming. Efficient cost financing and recovery are the key elements in guiding the choice of sustainable development projects. Urban development projects are by and large not oriented towards sustainability. Environmental impact assessments/statements remain more of a ritual rather than imperatives required to be faithfully implemented. Environmentally sound development will have to be undertaken to stop further degradation, and improve the environmental conditions of the city via sustainable schemes on traffic and transportation, water supply, sewage and drainage, solid waste management, sanitary infrastructure, and social welfare. Sustainable growth can be secured through better hygienic conditions, elimination of pollution, affordable housing and poverty reduction. Lastly, in order to be sustainable, the development must be compatible with the cultural ethos of the people who are the ultimate beneficiary of development.

3.1.2 Creating an Inclusive City:

The vision entails the emergence of Karachi as an inclusive, multi-class space that caters for the essential needs of people without discrimination of caste, color or creed. To be able to achieve social cohesion, Karachi needs to be transformed into a melting pot by bringing the people closer socially and culturally. Provisions of sustainable mobility, better housing, education and health facilities, and access to employment opportunities for all sections of the city's population, including the poor would prove to be instrumental in achieving this objective, if development is based on equitable distribution, and social justice. The poor residing in the informal settlements would need to be integrated into the urban social matrix by way of specially targeted programs for the uplift of the deprived population. Poverty reduction will be better facilitated through generation of better employment opportunities and conditions in the urban labor market.

3.1.3 Safeguarding the Quality of Life:

Perhaps Karachi's greatest challenge is to provide a "decent life for Karachiites". Except a limited segment of the middle class and the rich, Karachiites generally do not enjoy comfortable living conditions as they face severe problems with respect to decent housing and related facilities such as adequate water supply, convenient affordable transport, hygienic conditions, education and health. The prevalent economic condition of a vast majority of the people does not allow them to improve the quality of life, as financial stringency is an almost permanent feature of their predicament. The middle class and the rich, while they can often buy better education and health services, are not immune to the infrastructure-related problems, many of which are systemic in nature and impact the whole city. The urban environment, from the viewpoint of pedestrians, commuters on public transit, shoppers, and also women or children at the park, is unattractive, unhealthy and a source of stress. Though an urban development plan is an instrument in organizing and improving urban space, the cardinal purpose is to enhance the welfare of the people who are at the centre of the vision.

3.2 Strategic Context

Karachi, like all the other major cities, has to operate within a context that is characterized by change, driven by economic, social and political forces, that are increasingly responding to global and not just local pressures and considerations. It can neither afford to ignore them nor expect to totally control them. Its ability to meet the challenge of providing the needs of the city and the citizens in a way that meets its aspirations and expectations depends on its ability to understand and respond to the forces that are driving the change.

3.2.1 Drivers of Change

Some of these forces, the drivers of change are:

Globalisation:

Economic integration - as capital becomes more international, there is an increasing shift away from national entities to modes of production that are international, and therefore the decisions regarding location and production are less likely to respond to local pressures and incentives. It means that local control is reduced, but on the other hand local conditions can attract and influence a much wider audience of players;

- Liberalization - the ability of national and local governments to erect barriers and artificially control and protect markets and producers is reducing in the face of liberalization;
- New competitive dynamics - the need for having to respond to a global audience means that cities have to measure their status and attractiveness in comparison to a much larger pool - while this has larger potential rewards, it also means a greater need for awareness of global standards and expectations and developing the need for a rapid response capacity.

National Policy:

- Growth Performance and Challenges - as Pakistan's largest driver of the economy, its largest city and main gateway to the world, Karachi has a national responsibility to meet the challenges facing the country in terms of economic growth. The economic and therefore also the socio-political development of Pakistan and Karachi are closely linked, and the hopes and expectations for prosperity require the city to position itself accordingly;

- Decentralization to Harness Local Capabilities - the recent changes to local government legislation have, perhaps for the first time allowed the city to be able to take a greater and more direct control over its development and direction. This should enable Karachi to make much more effective and efficient use of its resources to direct and respond to change.
- Karachi's Growth
 - Constrained Growth - to some extent the success of past development, without adequate investment, guidance and planning has led to a city that is choked and often bursting at the seams. Older central areas have become overcrowded and run-down, many of the economic activities are now seen to be less than ideally located in relation to their changed operations and linkages;
 - Poverty as a Barrier to the Vision - the influx of large numbers of workers from around the country, and indeed the region, that are essential for the success and development of Karachi, can become a constraint to further progress if they are not enabled to benefit from the prosperity of the city ; poverty is an obvious barrier that needs to be lifted if Karachi is to be able to realize the vision it has set itself;
 - Policy and Regulatory Failures - the people of Karachi, whether rich or poor, have shown that they have the desire, the capacity and the ability to develop and drive the economy of a thriving metropolis. These efforts need to be supported by an enabling policy and a facilitating regulatory framework;
 - Efficiency First - the strategies and policies that will help underpin the continued growth and development of Karachi need to be based on improving and making more efficient and effective the current areas of development and the systems and infrastructure that support them rather than opening up new areas further away that will further stretch scarce and inefficiently operating infrastructure.

These challenges and imperatives for change have to be met with a response that is based on the realities and demands of the citizens of Karachi and reflect their aspirations and expectations now, and for the future. It is in the very nature of a changing environment that it will require a flexible response that takes into account events and their impact - and that can only be done if the solutions and the strategies are proposed, managed and implemented by Karachiites, through consensus.

3.3 Karachi on the Path to a Global Presence

This Strategic Development Plan for the overall physical strategy of Karachi will respond to these economic, environmental and social imperatives within the constraints set by the physical environment of the city by:

- Strengthening the identity of the heart of the city and its high amenity environs
- Decongesting the area within the inner ring, by more efficient landuse
- Promoting development towards the Town Centres, increasing the access to employment by disbursing economic activity to the New Economic Centres (NEC)
- Providing infrastructure to overcome key constraints to the growth of industry and employment and to provide the poor and middle class with access to the employment thus generated

3.4 An Agenda for Priority Setting

The drivers of change discussed above provide clear priority areas for development.

3.4.1 Karachi Needs a Pulsing, Vibrant Heart and Have Areas of High Amenity

- The historic centre must be revitalized and linked through to the harbour. The historic building stock of the CBD must urgently be rehabilitated with incentives provided by Transferable Development Rights and the footpaths made accessible. The modern part of the CBD with its high-rise office buildings needs to have much higher levels of amenity (through the rehabilitation and addition of theatres, museums, art galleries and parks) and better transit connectivity. The port area nearest the CBD, currently an industrial monotony, must be made accessible and attractive.
- The seaside areas of the city need to be promoted as 'lungs' of the city, accessible to all, and their linkage to the city's heart strengthened. The redevelopment of Clifton Beach and new developments in the bay must maintain public access to the coast and its amenities, and bus-way linkage to the CBD fostered. Their proximity to both the richest and poorest areas of the city makes it imperative that their development is sensitively handled, using participatory methods, and their planning understands and responds to their city-wide role and function, rather than being seen as islands of real estate development.
- Specific areas of interest need to be developed as tourist attractions. Karachi has a number of areas that have developed around specific economic activities, often based around communities from one or a few ethnic or geographic origin 'as well as becoming efficient and effective contributors to the city economy, they also offer the potential for development as areas of tourism. Areas such as the 'marble city' in Golimar, Bohri Bazaar and Saddar, the 'Benarsi Silk City' in Orangi and the 'Furniture City' in Liaqatabad, the fishing Goths (villages) and others must be developed with accessible footpaths and tourism-friendly shops and products. Where appropriate and so demanded, their further development and operations may be more effectively carried on or replicated in new areas in other parts of the city;
- The well thought out transport policies to be formulated ensuring balance between demand and supply in various areas of transportation system with particular emphasis on Traffic Impact Assessment of new developments and the strategy to ensure mitigation measures.
- To introduce parking control and management system, urban bus routes rationalization, bus stations for Inter / Intra city operations, standardization and upgradation of road network development strategy.

3.4.2 Karachi Needs To Provide A High Quality of Life For Their Citizens

Based on an efficient land use pattern supported by needed transport, water and sanitation infrastructure, and by the provision of pleasant sidewalks and parks:

- To enhance the amenity and accessibility for the majority, within the area of the 'inner ring', growth in private car use will be discouraged through the provision of dedicated bus lanes with an effective mass-transit bus-way system, restriction of parking, and the diversion of commuter traffic around the centre by the completion of the southern section of the ring (southern bypass) and the reconstruction of the circular railway.

- Amenities and shops need to be accessible to citizens rather than clustered into far- flung specialist districts and to this end clusters of commercial activity are suggested at the intersections of major radials with the inner ring.

3.4.3 Karachi Needs To Have Clear Strategies for Coping With Growth

- Beyond the inner ring, future development will be encouraged to cluster around high capacity corridors, the three most important of which will lead to three New Economic Centers (NEC) on or near the intersection of these radial corridors and the Northern Bypass. These Centers will focus on education, government services and logistics, and will be triggered by the relocation of some of these activities (such as wholesale markets, warehousing and bus and transport terminals) currently being carried out in constrained and unsuitable locations in the inner city.
- To facilitate such development the outer ring road will be progressively developed together with appropriate feeder road, water, sanitation and transport infrastructure and development controls to encourage appropriate development and to ensure the City District captures some of the development gain from the infrastructure provided.

3.4.4 Karachi Needs To Foster Competitive Industries

- The SITE industrial estate is undergoing a transition, and the western-most parts of the Korangi industrial estate is developing an industrial base focused on high-value added light industry and space intensive commercial activity. This development must be fostered through appropriate incentives for 'sick' or inappropriate industry to move out of SITE, and to discourage inappropriate industry, such as chemical plants or heavy industry from moving into Korangi. As exports of such industry are usually through airports or through high speed container ships, the Karachi port, easily accessible from these areas, should be encouraged to focus on such traffic. The linkage of these areas, particularly Korangi through the southern bypass, to the port should be strengthened. Other activities, with the exception of cruise liner facilities, should be encouraged to relocate from the Karachi Port to Port Qasim. The proposed western logistics 'NEC' should also focus on supporting industries based in the SITE and Korangi areas.
- The eastern industrial areas to the north of Port Qasim are focusing on textiles, chemicals and heavy industry and thus the port infrastructure should cater to these activities. As this port has potentially better access both to the National Highway and the Super Highway, this port should also focus on goods which are likely to be transported north along the National Trade Corridor through to Islamabad and on to Central Asia and China. This would imply construction of the link road from the National Highway to the Super Highway as a priority. Further, it should imply that one of the key areas of focus of the developing 'Education City', immediately north of the port and industrial estate, be on applied sciences, research and business in support of industry.

3.4.5 Karachi Needs To Be Organised On Good Governance

- To ensure the participation of all its citizens in the development effort, the planning and management of the city has to be based on principles of good governance that ensure openness and transparency. The Development Plan and its detailing has to be based on dialogue between the government, the public and the private sectors and the community on a regular basis.

- No government has the resources or the capability to undertake all the development work required for the transformation and uplift of the city ‘ and, for efficiency and effectiveness, needs to engage in partnership with the private and community sectors in appropriate ways and levels.
- For effective and efficient development, it is imperative that there be a level playing field to encourage and facilitate the entry and involvement of a variety of participants; that development and other rights and regulations be easily known and fairly applied; and that arbitrary and autocratic decisions are resisted and replaced by more considered and democratic decision-making. This requires the establishment of an open-access information and feedback system, backed by an effective research programme that can monitor performance and measure success.
- The development initiatives in transport sector can only produce desired results unless supplemented with effective enforcement and monitoring system with unity of command.
- In order to ensure development activities on uniform standards, practices and procedures, adoption of uniform laws and regulations being practiced by the City District Government Karachi may be mandatory to be followed by all civic agencies throughout the Karachi City District limits irrespective of their physical boundaries.

3.5 Summary of current conditions and strategic challenges

The strategic challenges in an effective development of Karachi will require to be assiduously addressed on various levels of government, CDGK, the provincial and federal governments, development agencies, the international funding agencies, and the private sector enterprises as partners in progress. A summary of current conditions acting as constraints, and the strategic challenges is given below:

Table-3.1: Survey of current conditions

Land use and Housing		
Current Conditions	Strategic Challenges	Development Partners
1. Concentration of activities in inner city	Correcting land use, employment, transportation and housing relations. Regeneration plans, integrated transport and increased amenities	CDGK, Cantonment Boards, BOR, Private owners, Land-Owning Agencies, Pakistan Railways, KCCI, State Bank of Pakistan, Financial & Trade Associations, Transport Department, Hawkers Association, Transport Associations , NGOs, Professionals and Academia .
2. Coastal zone pollution and damaged ecological system; lack of facilities for visitors to beaches, and sea-side recreation	Protection and conservation of coastal zone and its ecosystem; elimination of marine pollution from municipal and industrial sources; development of beaches and coastal areas for affordable recreation and entertainment; integration of	CDGK, LDA, KPT, PQA, DHA, PAF, PN, BOR, ABAD, KBCA, Transport Deptt, EPA, Residents, Villagers, Funding Agency, NGOs Professionals & Academia.

	entertainment; integration of beach and shore-line development with 'waterfront development' in designated areas/zones.	
3. Undiversified land use mix at neighbourhood scale	Creating a diversified mix of land uses in designated areas in neighbourhoods, and in new areas proposed for development; promoting pedestrian - related developments; creating efficient economic centres in towns.	CDGK, KBCA, Land owning Agency, Residents, ABAD, NGOs, Funding Agencies, Professionals and Academia,
4. Excessive horizontal growth, low density spread and unbalanced space use	Encouraging vertical development consistent with increasing needs for additional space; development to maximise space use for trade, business offices and decent housing.	CDGK, BOR, Land owning agencies, KBCA, SKAA, Cantonment Board, ABAD, Funding Agencies, LDA, MDA.
5. Concentration of economic activity in the CBD, and hierarchical system of commercial centres.	Development of new economic centres and functional areas to divert growth to periphery of metropolitan area; creation of specialized activity centre to promote the envisioned role of the city.	CDGK, KCCI, SBP, Trade Buisnness and Financial Associations, Transport Associations, Funding Agencies.
6. Fragmentation of city development under multiple land-owning agencies with disparate planning standards and regulations	Integration through unified planning, uniformity in zoning regulations, land use control, environmental protection and enhancement; an over arching role for the CDGK to regulate growth across the entire district.	CDGK, cantonment Board, KPT, PQA, DHA, BOR, GoS, LDA, MDA, Federal Government, Ministry of Defence, MD Ports and Shipping.
7. Social and cultural isolation of old areas or the urban Goths	Conserving the traditional village settlements within the city, and preventing their disfigurement under development pressures.	CDGK, LG Deptt, GoS, BOR, Goth Abad, Communities and Villagers, Ministry of Culture, NGOs.

8. Huge housing backlog, with housing supply lagging behind growth	Step change in housing provision; facilitating occupancy rate in newly developed schemes not yet occupied; providing affordable housing including rentals through densification and high-rise construction.	CDGK, BOR, GoS, LDA, MDA, Katchi Abadies Authority(SKAA), HBFC, Commercial Banks, Communities, Civic Society, Professionals and Academia.
9. Large areas of informal settlements and under-serviced housing	Regularization and up-gradation of all notified katchi abadis, no dislocation of residents; producing development models of public-private partnership.	CDGK, SKAA,KMC(Defunct),Communities Transport Department, KWSB, KESC, SSGC, HBFC, Health & Education Departments.
10. Inefficient land allotment policy	Fundamental reforms in the planning and land market system; balance between demand and supply for housing for all income groups.	Political Leadership, BOR, GoS, CDGK, ABAD, Funding Agencies, HBFC, SKAA, Transport Deptt, Cantonment Boards, LDA,MDA, Communities and Villagers,

Transport		
Current Conditions	Strategic Challenges	Development Partners
1. Inefficient , unsafe and unsustainable transport system	Sustainable mobility; efficient and safe transport system; a policy, regulatory and delivery framework that places economically efficient solutions, public transport and safety at the forefront.	CDGK Transport Department, Federal & Provincial Governments, Funding Agencies, Communities and Civil Societies, Professionals and Academia, Transporters Association.
2. Predominantly radial network with a few circumferential roads having inconsistent links	Road and highway improvements; upgrading of the road system; facilitating access to all parts of the city, and freight movements to and from the ports as well as intra-city economic centres.	CDGK, BOR, GoS, Land Owning Agencies, Private Owners, Works Department, Utility Agencies.

3. Poor, inefficient bus service, overcrowded and uncomfortable especially at peak hours	Affordable, efficient public transport; service providing safe and comfortable travel at all times	CDGK, Transport Deptt, GoS, Transport Owner Associations, EPA, Funding Agencies, Communities & Civil Society, Professionals and Academia.
4. Limited or no service integration	Multi-modal integration	Hawkers Association, BOR, Governments, Land owning agencies, Traffic Police, Cantonment Boards, Media.
5. Congestion on roads, particularly in the inner city and the CBD	Decongestion and smooth traffic flow; improved traffic management; removal of encroachments; minimizing parking problems by providing parking space/lots.	Federal Govt, Provincial Government, CDGK, Banks and Funding Agencies, Professionals and Academia, Media etc.
6. Limited facility for pedestrians	More pedestrian amenities across the entire system; pedestrianization of selected CBD locations.	CDGK, LDA, MDA, Transport Deptt, BOR, GoS, Transport Associations, Banks and Funding agencies, Utility Agencies.
7. No mass transit	Mass transit to expand capacity along high volume corridors.	Federal & Provincial Governments, Land Owners, CDGK, LDA, MDA, Funding Agencies, Private Sectors, Transport Associations, Civil Society.
8. Lack of access/bus transport service to new housing schemes at the city periphery	Extending bus service to the schemes and providing suitable facilities.	

Water Supply		
Current Conditions	Strategic Challenges	Development Partners
1. Gross supply deficiencies, and inefficient management of delivery service	Adequate water supply to meet the current and future needs; improvement in technical, financial and administrative efficiency.	CDGK, KWSB, Provincial Govts, Banks, Funding Agencies , Professionals and Academia, Users and Civil Society.
2. Economically unviable operational and management system	Measures to enhance revenues through rationalization of tariffs to make KW&SB an economically self-sustaining organization.	Federal Govt, Provincial Govt, CDGK, KW&SB, Professionals, Civil Society. CDGK, KW&SB, Law Enforcement Agencies.
3. Substantial short-fall in bulk supply	Augmentation of bulk supply to overcome current shortage and meet the future demand.	Federal & Provincial Governments, CDGK, KW&SB.
4. High water losses in transmission network	Improvement and renovation of transmission system to prevent leakages, losses by friction.	CDGK, KW&SB, Enforcement Agencies, Users
5. Irregular and unreliable supply	Increase in duration of supply, and also making its distribution equitable.	CDGK, KW&SB.
6. Insufficient filtration capacity affecting the water quality	Construction of more filter plants to cover the entire supply	CDGK, KW&SB, Provincial Government.
7. Short coverage of households for domestic supply	Substantial increase in number of households under delivery system.	Development Authorities, Allottees, Civil Society, Media.

Sewerage		
Current Conditions	Strategic Challenges	Development Partners
1. Sewage treatment far below generation, causing insanitary conditions	Full wastewater connection and treatment; to prevent discharge of untreated wastewater with nullahs, rivers and the sea.	CDGK, KW&SB, Govt of Sindh , Land Owning Agencies, Presidents Civil Society, Professionals, Law enforcing Agency, Media, Industrialists, Businessmen Community, BOR, GoS, Banks and Funding Agencies
2. Low or inadequate coverage of collection network	More areas to be sewered and connected to treatment plants	
3. Poorly maintained and overloaded sewerage	Improvement in maintenance and network capacity to carry current and future load.	

Solid Waste Disposal		
Current Conditions	Strategic Challenges	Development Partners
1. Poor and inefficient solid waste management	An effective and efficient solid waste management and substantial increase in capacity, technical and managerial.	CDGK, Cantonment Boards, Land Owning Agencies, Civil Society and Residents, Banks and Funding Agencies.
2. Insufficient primary collection	Full coverage of all solid waste generated from various sources, domestic, industrial and commercial etc.	Transports Operators, Town Administration, Police, Media, CCBs, NGOs.
3. Inefficient garbage transfer to landfill sites	Provision of garbage transfer stations in all towns, and improved transfer system.	Provincial Government, CDGK, TMAs , Informal Sectors, Users, Media.
4. Inadequate and poorly developed landfills	Efficient management of landfill sites involving appropriate disposal methods.	

Electricity		
Current Conditions	Strategic Challenges	Development Partners
1. Utterly inadequate power supply causing untold hardship to general public and constraining economic growth	Quantum increase in generation capacity, and improvements in distribution system.	CDGK, KESC, IPPS, Federal & Provincial Governments, Banks, Funding Agencies, KCCI, Civil Society, Media. Industries, Businessmen Community, Policing , Media
2. Considerable shortfall in supply to industrial establishment impacting output and cost-effectiveness	Fast growing industrial power needs to be catered for on priority basis.	KESC, Private Sector, KCCI, Users
3. Pressures on supply and management system	Adoption of measures to streamline organizational working and cost effective delivery to general consumers.	

Education		
Current Conditions	Strategic Challenges	Development Partners
1. Educational facilities lagging behind the needs of a fast growing population	Provisions of educational facilities at all levels; in particular sizeable expansion of primary schools to comprehensively meet the growing needs of school -going population.	CDGK, Education Deptt, GoS, Federal Government, BOR, Civil Society, LDA, MDA, Private Sector, Civil Society, Professionals , Academia, Media , Banks and Funding Agencies.
2. Substandard infrastructure and unbalanced spread of educational institutions.	Establishing more schools and colleges in areas/towns not adequately served by the educational institutions, under public and private management.	CDGK, Private Sector, Civil Society, Academia

3. Marked disparities of standard and quality	Enforcing regulatory rules and measures to remove deficiencies of faculty and management; provision of faculty development and training.	Provincial Government, CDGK, Professionals, Academia.
4. Inadequacy of university level education with limited professional, technical and science diversity and marked absence of research	Expanding the university level education with high-grade professional institutes/departments and focussed research linked to requirements of economic development.	Federal Government, HEC, Provincial Government, Private Sector, Banks and Funding Agencies, Professionals and Academia

Health		
Current Conditions	Strategic Challenges	Development Partners
1. Inadequate health care facilities with much gap between needs and delivery	Increase in the network of primary health care units in the public and private sectors, with measures to combat/prevent communicable diseases	CDGK, Federal & Provincial Govts. Health Deptt, Education Deptt, Land Owning Agencies, Professionals and Academia, Civil Society and Media Communities and NGOs, Banks and Founding Agencies. Pharmaceutical Companies, Katchi Abadis, Political Leadership, Media.
2. Lack of tertiary care hospitals with standard facilities	Establishing more tertiary care hospitals/treatment centres across the city to adequately serve the needy.	Federal & Provincial Governments, Private Sector, CDGK
3. Lack of institutional network for training of para-medical staff and advanced specialized training of medical professionals	An expanded network for training of para-medical staff; expanding horizon of specialized training.	Provincial Government, CDGK, Private Sector.

4. Lack of health service for the poor and the low-income population, particularly the public sector hospitals	Improvements in health care and hospital facilities in the public sectors to provide satisfactory treatment to patients belonging to low income group and the poor.	Provincial Government, CDGK, Funding Agencies, Civil Society, NGOs, Professional, Academia.
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Sports and Recreation		
Current Conditions	Strategic Challenges	Development Partners
1. Shortage of developed space for sports and other active recreation	Space for active recreation playgrounds and sports fields to be increased in all towns.	CDGK, Sports Deptt, GoS, Land Owning Agencies, BOR, Katchi Abadies, Communities, NGOs, Media, Federal Government, Private Sector.
2. Insufficient, restricted stadium and gymnasium facility	Provision of more gymnasiums and stadiums of various categories at the metropolitan level.	

Environment		
Current Conditions	Strategic Challenges	Development Partners
1. Increasing environmental degradation; Lack of cleanliness	Effective solid waste management.	Provincial Government, CDGK, KCCI, Transporters. Civil Society, Enforcement Agencies, Media, Professionals, Media.
2. Insanitary conditions	Provisions of full wastewater treatment.	
3. Water contamination	Controlling water contamination in supply system.	
4. Air pollution	Eliminating toxic emissions from vehicles and factories.	

5. Marine pollution	Preventing discharge of untreated sewage into rivers and seas; protection of coastal ecological system.	Federal Government, Provincial Government, KPT, PQA, DHA, LDA, CDGK, Professionals, Industrialists, Media, Civil Society, Funding Agencies.
6. Deterioration in built environment	Improving built environment through effective enforcement of building regulations; renewal of degraded areas.	
7. Desertification and depletion of ground-water resources	Protection of green belts, & natural vegetation; promotion of tree plantation, judicious, groundwater use & management.	

Urban Agriculture		
Current Conditions	Strategic Challenges	Development Partners
1. Accelerated reduction in cultivation/cultivated area in the Malir valley	Protection of the Malir green belt through groundwater conservation & management.	Provincial Government, CDGK, LDA, MDA, Agriculture Department, ABAD, Civil Society, Enforcement Agencies, Professionals, Media.
2. Inefficient agricultural land use with low input- output ratio	Profitability of agricultural lands to be promoted through an efficient land use based on combination of truck farming, dairy and poultry farming, and salinity-resistant crop cultivation.	

4 KARACHI STRATEGIC DEVELOPMENT PLAN COMPONENTS

4.1 Land Use

The vision and the strategy, as described in the foregoing chapters, anticipate a range of spatial changes, as the Karachi's population grows (15.2 million in 2005 to 27.55 million by 2020), and the metropolitan economy gains momentum, along with sizeable growth in commercial and industrial activity. The spatial needs for commerce, industry, housing and infrastructure development will be provided through a set of policies and programs.

4.1.1 Spatial Growth Strategy

Spatial changes will occur across the metropolitan area through a development process based on the following spatial growth strategies.

- i. **Densification:** Through floor addition, high-rise development in designated areas, walkup apartments and subdivision of large plots, densification will result in considerable increase in space use for housing, and business, offices and other uses. Though the process will occur in all towns in varying degree, it will be increasingly prevalent in six towns, namely Saddar, Jamshed, North Nazimabad, Gulberg, SITE and Shah Faisal.
- ii. **Densification and Infill:** A combination of densification and infill process (occupation of vacant land for various land uses) will intensify to accommodate future growth. Changes will take place more through densification than infill. The process will occur particularly in six areas i.e., Gulshan-e-Iqbal, Landhi, Korangi, New Karachi Towns, DHA and Cantonments.
- iii. **Infill and Expansion:** Infill along with expansion will proceed to achieve growth in varying degrees. Growth will be higher in Baldia, Malir and Orangi Towns; expansion will occur in Gadap Town through development of new schemes in the public and private sectors.
- iv. **Status Quo:** Population density is already higher in Lyari and Liaqatabad Towns. The recommended strategy is therefore to maintain status quo and also no increase in the existing density should be allowed.

Figure 4.1: PROPOSED LANDUSE PLAN

Figure 4.1 : PROPOSED LANDUSE PLAN

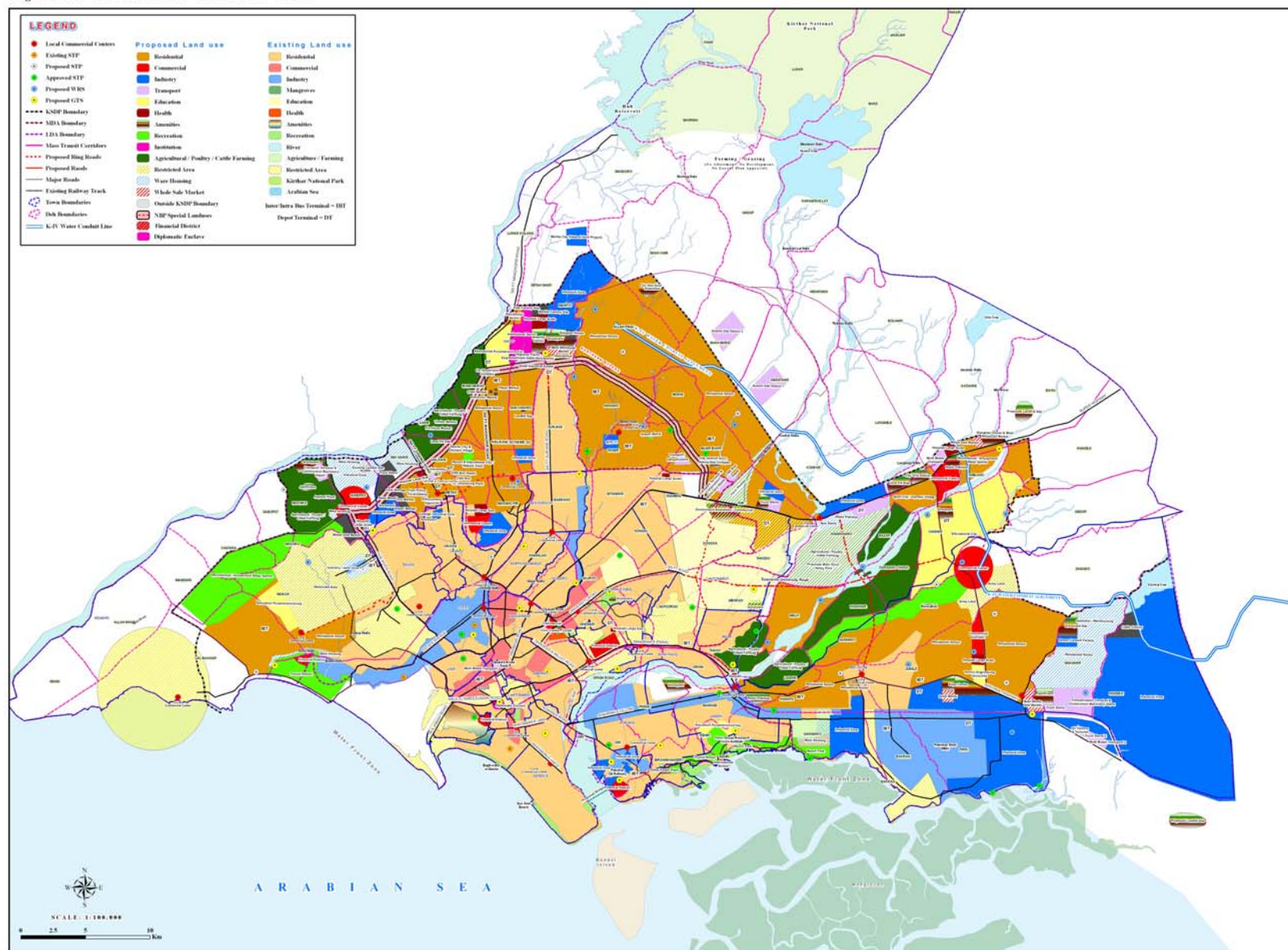


Table 4.1: Year 2020 Population Targets and Growth Strategies

S. No.	Town Name	2005			Projected Increase In Population for 2020				Total Projections for 2020		
		Pop	Area in Acre	Density	Densification	Densification-Inf	Inf+Exp	St. Quo	Pop	Density	% Increase
1	Saddar	935,566	5,967	157	187,113	-	-	-	1,122,679	188	20
2	Jamshed	1,114,235	5,790	192	445,694	-	-	-	1,559,929	269	40
3	North Nazimabad	753,423	4,127	183	226,027	-	-	-	979,450	237	30
4	Gulburg	688,580	3,417	202	206,574	-	-	-	895,154	262	30
5	SITE	709,944	6,286	113	184,585	-	-	-	894,529	142	26
6	Shah Faisal	509,915	2,901	176	101,983	-	-	-	611,898	211	20
7	Gulshan-e-Iqbal	949,351	13,260	72	-	1,424,027	-	-	2,373,378	179	150
8	Landhi	1,012,391	9,670	105	-	809,913	-	-	1,822,304	188	80
9	Korangi	829,813	10,247	81	-	995,776	-	-	1,825,589	178	120
10	New Karachi	1,038,865	5,058	205	-	207,773	-	-	1,246,638	246	20
11	Cantonment	464,882	31,336	15	-	464,882	-	-	929,761	30	100
12	DHA	379,596	9,454	40	-	303,677	-	-	683,273	72	80
13	Baldia	616,722	7,217	85	-	-	493,378	-	1,110,100	154	80
14	Malir	604,763	4,395	138	-	-	302,382	-	907,145	206	50
15	Orangi	1,098,859	5,803	189	-	-	330,066	-	1,428,925	246	30
16	Bin Qasim	480,854	137,961	3	-	-	1,672,699	-	2,153,553	16	348
17	Keamari	583,640	106,217	5	-	-	1,340,272	-	1,923,912	18	230
18	Gadap *	439,674	355,798	1	-	-	2,638,044	-	3,077,718	9	600
19	Lyari	923,176	1,977	467	-	-	-	46,159	969,335	490	5
20	Liaquatabad	985,581	2,685	367	-	-	-	49,279	1,034,860	385	5
G.TOTAL		15,119,830	729,566	-	1,351,976	4,206,048	6,776,841	95,438	27,550,130	-	-

Note:

Pop: Population Density: Persons / Acre
Dens: Densification * Excluding Kirthar National Park Area
Dens+Inf: Densification+Infill
Inf+Exp: Infill+Expansion
St.Quo: Status Quo

a. Accommodating New Households:

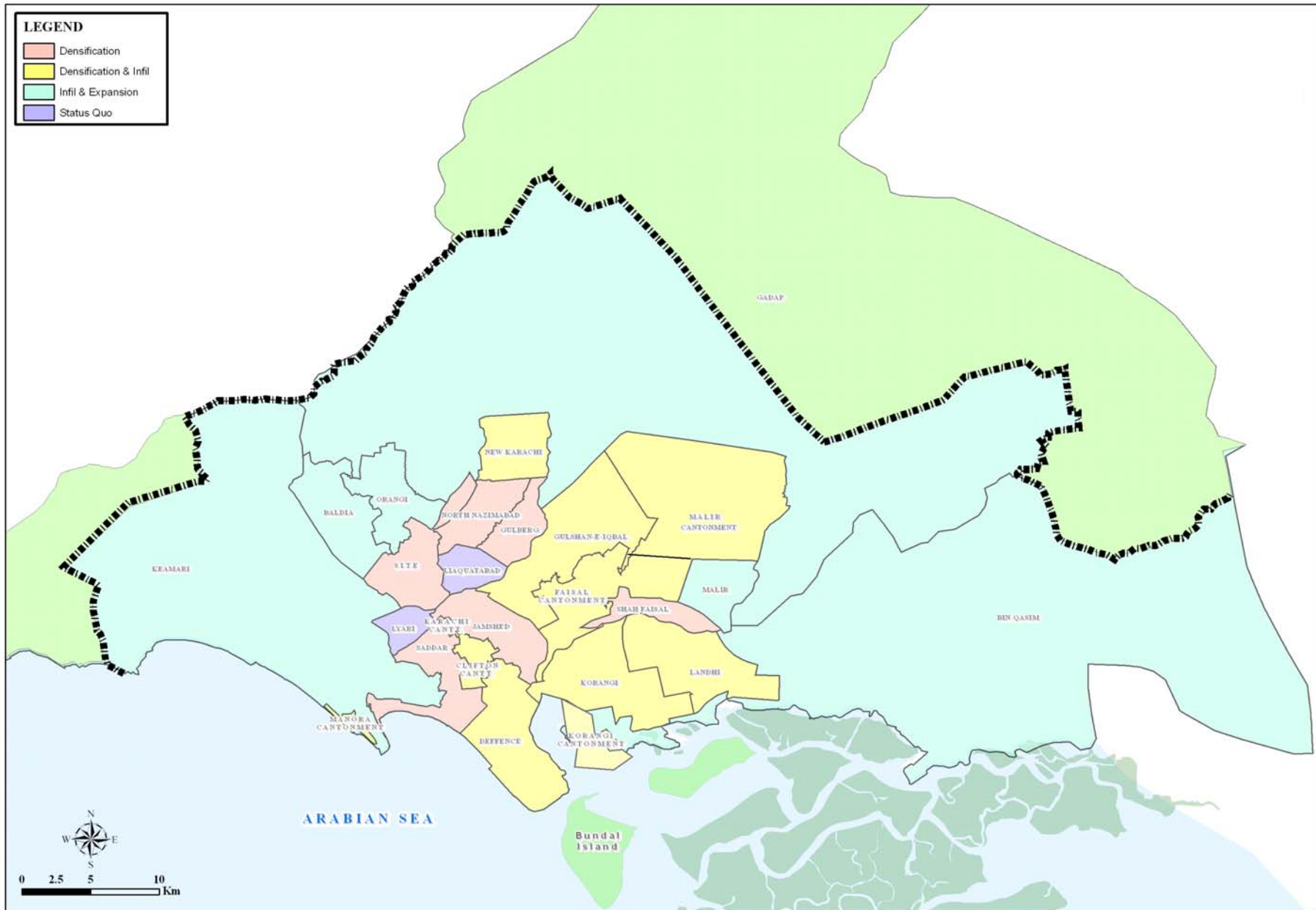
About 1.776 million households would be increased by the year 2020, which would be accommodated as per the spatial growth strategy given in above table covering 18 towns. In three towns namely Gadap, Bin Qasin and Keamari 0.81 million households (45%) whereas the remaining 0.96 million households (55%) would be accommodated in other 15 towns through densification and infill strategy. The already notified but vacant scheme such as Shah Latif Town, MDA Project No. 1, Taiser Town, Scheme-33 & 43, Halkani Town, Hawksbay can accommodate the 0.81 million households in Gadap., Bin Qasim and Keamari Town as shown in Figure 4.2.

4.1.2 Regenerate the Inner City

Karachi's current urban centre, focused primarily around Karachi Port, in Saddar, part of Keamari Town and Jamshed Town, is extremely dense and congested. Most activities associated with the flow of commerce through the port are concentrated here. This area also accommodates most local and provincial government functions. However, these areas, that form the heart of Karachi, have become run-down and showing signs of neglect and are in urgent need of regeneration.

- i) A Programme of Local Area Regeneration Plans: The inner city of Karachi is made up of a number of distinct areas with their own functions and identities. These should be used to demarcate areas for which regeneration plans should be developed through consultation and dialogue with local stakeholders. The plans should facilitate the economy by improving local transport and infrastructure as well as creating new room for expansion through consolidation and more efficient land use.

Figure 4.2: Spatial Growth Strategy



- ii) A Program for Transferable Development Rights: In the inner city a complex situation has arisen with respect to tenure rights involving owners, tenants or renters and the covert operation of the pugri system. The tenure system in the area has made the tenants de facto owners under the 'pugri' system. The owners have ceased to invest in maintenance of their buildings, and wait for the buildings to degenerate, when they can sell off the building or in partnership with builders reconstruct and sell off. The city government must evolve some strategy for redevelopment of such properties/area so that the issue of complex tenure is resolved.
- iii) A Programme for Progressive Pedestrianization: In many of the areas for regeneration, the restriction or curtailment of vehicular movement, particularly through-movement, and the facilitation of pedestrian movement, will provide an additional asset and assistance to the process. It will help increase the attraction of the area and open up the possibility of additional economic activity. A way to do this is to start off by identifying two or three streets or small sub-areas or areas that could be closed to vehicular traffic. The lessons from these learning-experiments could then be replicated on a larger and wider, and more permanent basis. The CBD including Meriweather Tower and Saddar will be the priority areas.
- iv) A Programme of Integrated Transport: The current transport system is based on private cars and motorcycles, buses and rickshaws operated by individual or small-scale operators. Transport in the inner city areas could be considerably improved if public transport were more efficient. One way to do this would be through the introduction of comfortable bus service and pre-paid, rechargeable swipe-cards that would allow passengers to undertake multi-route and multi-mode journeys. The transfer away from private motor cars could be achieved by the introduction of a higher-priced, more comfortable midi-bus system linked to GPS-enabled 6-passenger rickshaws for onward transportation from bus-stop to doorstep for an inclusive charge. This higher-priced service could be operated by public private partnership, with easy entry for private operators.
- v) Decongesting the inner city: The inner city is much congested due to heavy concentration of commercial establishments and associated functions, such as warehouses, godowns, wholesale market, transport terminals i.e truck stands, bus terminals and the like. As the congestion has reached intolerable limits causing considerable inconvenience to the residents as well as the people who visit for shopping or work, decentralization of activities is a necessary measure to decongest the area. By shifting some of the main markets, that is iron market, timber market and grain market and also truck stand and warehouses to locations outside the inner city, the prevailing congestion will not only be reduced to appreciable extent, but will also allow some measure for redesign and redevelopment in the area.

The City District Government Karachi has already identified the land requirements and new locations for shifting of wholesale markets and other amenities. The Board of Revenue, Government of Sindh shall take necessary steps for allotment of required land to CDGK as mentioned in Table 4.4.

4.1.3 Promote mixed use developments

Promote mixed use developments in designated areas and in new development areas: Encourage mix of uses, especially offices, neighborhood-scale retail and residences in new development areas in Korangi, Malir, North Karachi Bin Qasim, Gadap, Orangi and Keamari Towns, so that people can live and shop near where they work. As the trend of increasing car ownership continues, especially amongst the middle and high income populations, promoting pedestrian-oriented developments would help reduce some of vehicular movements that would otherwise be generated if one had to drive everywhere.

Each of Karachi's 18 Towns has a designated town centre, but except for the older, established town centers, the growth of the others has been uneven. There should be an effort to encourage the concentration of local economic and commercial activities to create more efficient town centers, leaving more room for the location of urban amenities.

4.1.4 Permit and guide vertical development and densification

To accommodate anticipated growth in Karachi's population, encourage vertical development in specific areas such as declared commercial roads / areas. In addition, promote densification of existing towns through vertical and infill development. This would help to alleviate some of the need for additional space that would otherwise push the horizontal spread of the city. The following policies are aimed at promoting vertical development in existing neighborhoods/and new areas.

- i) Promote high-rise development within designated locations and in specific new urban centers; Karachi is predominantly a horizontal city with very few areas where buildings exceed five or six stories. Promote taller buildings in specific areas, and in selected new urban centers, and restrict them from being built in a sporadic manner all across the city. These high-rise developments should be designed in a coordinated manner with a mix of uses, including a variety of housing types, good connectivity to public transit, and well planned vehicular, pedestrian and open space systems to ensure that they become desirable places to live and work.
- ii) Promote mid-rise development: This pattern of development is already visible along existing corridors. The Town/Local Area Plans should determine exact land use mix, where some corridors could become primarily retail in nature, others dominated by offices, while others would remain primarily residential. The allowed heights should be dependent on the width of the road right-of-way and also identified in Town/Local Area Plans. The future traffic patterns, parking needs, as well as utility needs of future uses should be taken into consideration for designation of allowed mix of uses.

4.1.5 Enable densification and vertical development of existing residential areas

Existing neighborhoods throughout Karachi are mostly restricted to G+1 in height. As per densification scenario, increase building height limits to G+2 to encourage required densities. This would require the city to plan and execute infrastructure system upgrades to accommodate additional people in existing neighborhoods.

4.1.6 Develop New Urban Centers

Karachi's current urban centre, focused primarily around Karachi Port, in Saddar, part of Keamari Town and Jamshed Town, is extremely dense and congested. Most activities associated with the flow of commerce through the port are concentrated here. This area also accommodates most local and provincial government functions.

Developing additional urban centers in existing built-up areas will help decentralize the existing economic activity and public services from the centre, as well as spur growth in areas that could be planned for new development. The mix of uses within these centers could vary where some could be predominantly commercial with office and trade-related uses, while others could include a mix of light industries, offices and shops. The type of mix use should be dependent on the existing natural and built conditions, environmental considerations, infrastructure capacity and characteristics of the surrounding areas. There are three primary locations where new growth centers should be planned (see Land Use 2020 map). The development of these new urban centers should be closely coordinated with new or improved radial and concentric roads and improved public transport services to ensure that they don't become isolated islands of development.

- i) New high-density trade and warehousing centre at interchange of RCD Highway and Northern Bypass: This centre will provide space for growth of trade and commerce sectors and help decongest the port area. A new inter/intra bus terminal will be located along the RCD Highway and Northern Bypass. A new warehousing area, adjacent to a new wholesale market serving the western half of the city, a retail centre and low income housing will complete the complex. Much of the land in this area is public owned, with irregular plot shapes that are not suitable for the proposed uses. Given the lucrative nature of the proposed commercial investment, private sector wholesalers, retailers and truckers can be expected to cover most of the costs of the investment. CDGK can enter into negotiations with landowners and business associations (first separately, and then together) and form a public-private partnership for the development of the trade and warehousing centre. Contributions of the three parties can be:
 - GoS/Private landowners: land, in return for which they get an equity stake in the project or corporation formed to develop and manage it
 - CDGK: trunk infrastructure, including roads (already built), water supply, sewerage and power
 - Wholesalers/truckers: on-site infrastructure and buildings
- ii) A new ICT centre in Bin Qasim: With the development and advancement in ICT businesses that compete in a global market often seek to locate offices close to education centres for R&D purposes. The ICT centre will be located near Education City to take advantage of synergies between research and commercial development activities. The centre will focus on

business process outsourcing, knowledge-based services, and software development. New housing areas for employees of the centre will be developed to the northeast and south. A site on southeast of Education City has been inspected and found suitable for the development.

- iii) A new government centre at the intersection of the Northern Bypass and Super Highway: Currently, most of Karachi's and Sindh's government functions are housed in the city centre. Relocating some of these functions to a new centre at the intersection of the Northern Bypass and Super Highway would help distribute the functions and reduce associated congestion in the city centre. Further, a new centre would provide an opportunity to the city and provincial governments to upgrade some of their facilities which are from the pre-Independence era. Since the area immediately adjacent to the intersection has already been allotted (although not built upon), the government centre can be located just to the east of the intersection next to the proposed greenbelt. GoS/CDGK will enter into negotiations with existing landowners to ascertain the possibility of acquiring the land.
- iv) A new City District Government centre, club, housing and business centre in scheme-33 or scheme-45 shall be established.
- v) A number of civic centers/Awami Markaz shall be established in towns in particular at super market in Liaquatabad, Gadap, Landhi, SITE and Baldia Towns.
- vi) Hawker zones : Hawker zones, including provisions of Kiosk and small utility stores shall be organized at suitable places in towns, wherever feasible.

4.1.7 A Policy for Urban Renewal:

The key consideration should be the sustainable use of land resources to improve the existing land use in a holistic manner as mentioned below:

- i. Redevelopment: To redevelop dilapidated buildings/areas with unsatisfactory and substandard living conditions by facilitating the owners, infrastructure providers and private sector.
- ii. Preservation: To preserve buildings of heritage value and carry out comprehensive re-planning and restructuring for the priority projects which will, at the same time, enhance the provision of local open spaces and community/welfare facilities,
- iii. Rehabilitation: To arrest urban decay of building / area by proper maintenance. The rehabilitation, the active participation of private owners in the maintenance and renovation may play a vital role.

Following are the areas to be taken as projects on priority basis in accordance with the above mentioned policy:

- a. Upgradation of Federal and Sindh Government Secretariat Blocks:
One of the areas requiring renewal and upgradation is the barrack blocks of the federal/Provincial government offices which are in advanced state of decay. The built environment characterized by lowly structure in deteriorated state is in utter disharmony with the surroundings. The area needs to be redesigned and developed in such a way that in addition to providing decent accommodation to offices in high-rise buildings, sufficient space is made available for appropriate public amenities including parking and parkland.

b. **Renewal and upgradation of government servant quarters:**

The government employees residential quarters at Jehangir Road Quarters, Martin Quarters, Police Lines, Police Station, Pakistan Quarters, Central Prison and F.C.Area are in deteriorated state with substandard, decayed houses due to lack of proper maintenance or improvement of infrastructure and the living environment. They are invariably marked by overcrowding, congestion, encroachments, and insanitary conditions. These areas need to be up-graded, rebuild and provided with adequate facilities and amenities. While the residents are accommodated in walkup apartments or high-rise buildings, exiting commercial activities can be housed in building-fronts at ground floors. Enough space will be available for amenities at much higher level for the residents and others living in the neighboring areas. Land for special projects to be undertaken by the private sector or for public uses such as hospitals, educational institutions transport infrastructure for BRT / Mass Transit or municipal offices, can also be earmarked in the plans. Upgradation can be undertaken on case by case basis in accordance with locational preferences or priorities.

Urban design projects for the above mentioned areas shall be undertaken for efficient land utilizations such as accommodating present use, public amenities, transport infrastructure and commercial centers to make the project self supporting.

4.1.8 Integration of Civil Areas of Cantonment and other Land-Ownning Agencies:

Since, major land use changes through planned development are expected across the metropolitan area, it is logical as well as imperative to integrate land use planning and control and infrastructure development through unconditional implementation of the land use proposals and unified Town Planning and Building Regulations. It will be essential to adopt a unified, coordinated approach to inter-agency development issues, development of future plans and environmental control in complete unison with the CDGK, who should have a coordinating and unifying role. The plans for the areas under different land-owning agencies must be guided and regulated through a city wide comprehensive land use plan prepared under KSDP-2020.

The Karachi Cantonment, Clifton and Faisal Cantonments form parts of either the inner city or the central city. Their large areas are civil in nature consisting of mainly residential areas/uses. These schemes have low density and are grossly under-utilized with vast chunks of vacant spaces. So far these areas have grown in isolation from the development of the city, causing bottlenecks and acting as constraints to balanced and harmonious growth. Not only the potential of these areas should be fully realized, there should also be some reorganization of land uses for city or town level amenities and transport infrastructure. Higher density residential, commercial uses and high amenity component should be achieved to optimize the land use in the area. Likewise, the area under the KPT, PQA, Pakistan Steel and Pakistan Railways occupying important locations should undertake appropriate land use reorganization so that these also develop to their optimum capacity. A part of railway land around the city station is proposed to be utilized for the transport infrastructure for the upcoming BRT/Light Rail Transit.

The cantonment land along MA Jinnah Road, federal government land around lines area, Saddar and area around cantt. station currently under low-density residential uses is proposed to be utilized with medium-density uses, with parts allocated to commercial / office uses and also reserving appropriate land for

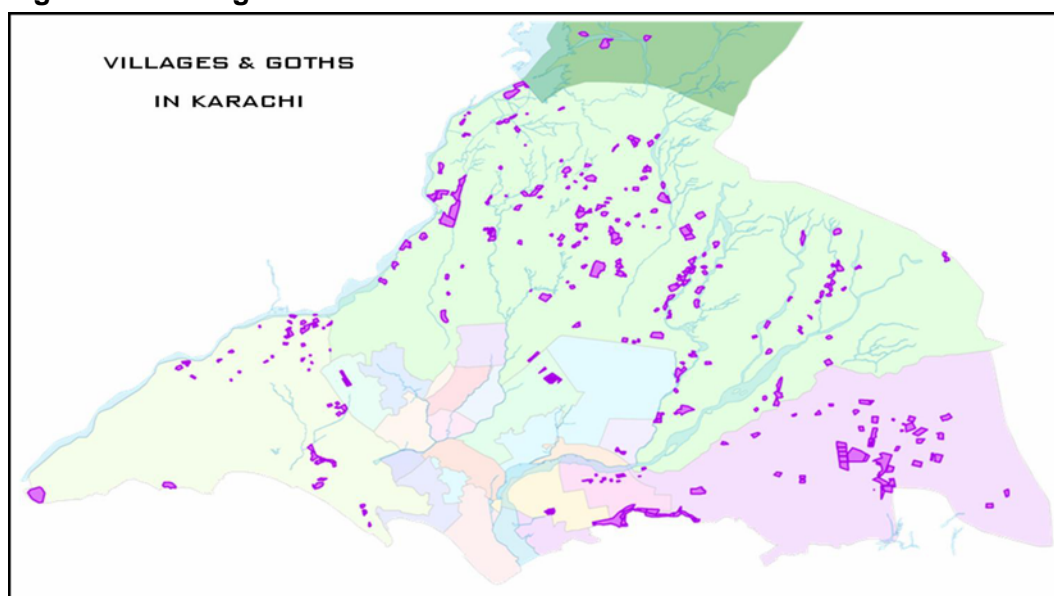
multi-modal transport terminal and neighborhood amenities. Looking into possibility of modus operandi of giving incentives for vertical expansion in exchange of surrounding part of land for public amenities for making the inner city pedestrian friendly.

In Faisal Cantonment the residential areas around the T-Junction of Shahrah-e-Faisal and Rashid Minhas Road is a low-density area having vast tracts of vacant lands, and the COD. Efficient and rational use is required to be compatible with its accessible central location. Accordingly, the area needs to be utilized as city's another financial/business district. In view of the proximity of the Karachi International Airport and the PAF Base, the building heights will be prescribed and strictly adhered to.

4.1.9 Incorporation of Existing Goths (Villages) into the Urban Fabric:

A large number of Goths form a significant part of the Karachi City district. These goths or villages lie within the built-up area of the city and in the rural area of the district. These villages need to be provided with essential facilities and amenities and also made efficient settlements through upgradation of their living environments. In order that these goths enjoy standards urban facilities at par with the rest of the developed areas of the metropolis, an improvement/development program for goths designated/listed in the Sindh Government revenue records shall be undertaken and it shall focus on the following:

Figure 4.3: Villages & Goths in Karachi



- i) **Housing Improvement;** The goth residents will be encouraged to improve their housing and acquire all essential in-house facilities and comforts. To do so, they will be provided financial facility for house construction and improvement.
- ii) **Land Ownership and Protection of Village Lands;** Land ownership right of the village residents will be ensured and the village lands will be protected from encroachments/illegal intrusions.
- iii) **Provision of Infrastructure;** The Goths will be connected to trunk infrastructure network. Water supply connections to individual households, solid waste disposal, garbage stations, sewerage electricity and gas connections will be provided to effect needed housing improvements. Access and internal streets and roads will be built / improved.

- iv) Social Facilities Provisions; Adequate provisions for education and health facilities, including playgrounds in or close to the goths will be made in the public sector. To improve the employment prospects and creative talents, technical training /artisan and handicrafts centres will be established.
- v) Model Village Program: A model village program will be initiated in designated Goths, based on the principle of self help and cooperation among the community members.
- vi) Survey of Goths/Village Settlements; A comprehensive socio-economic survey of all the goths will be conducted to ascertain the needs of the population and the requirements of the planned growth over the plan period.

4.1.10 Transport Infrastructure:

Inter / Intra-city bus terminal facilities, based on the catchments have been earmarked in various potential zones. Multimodal transport facility is proposed in the CBD, on Northern Bypass, on the Super Highway near the Link Road junction, and on the National Highway north east of the Textile City. Likewise, provision of multi-level car parking garages in various areas and close to the transit stations to ensure park & ride facilities, cargo village etc., have been envisaged in the land use planning process. It is mandatory for all civic/ land owning agencies to make adequate provision for transport infrastructure facilities in conformity with the CDGK's land use plan.

4.1.11 Development of City's entry points:

Urban design projects shall be undertaken to develop the city's three entry-exist points located at Super Highway, National Highway and RCD Highway. This will include development of transport infrastructure, removal of encroachments, construction machinery yard, area beautification and landscaping etc.

4.1.12 Industrial Zones:

Karachi possesses an appreciable potential as a profitable and efficient industrial location with attractive site for a variety of manufacturing industries. There is considerable scope for expansion of high-tech, high value-added manufacturing for which suitable efficient locations are needed alongwith necessary infrastructure and efficient logistic connectivity. Full utilization of developed industrial spaces in Bin Qasim Industrial Zone, Export Processing Zone, Surjani, SITE-II, Textile City and Korangi Industrial Area must be accelerated by providing incentives and industry-specific facilities. In addition to existing industrial areas, three more locations / zones have been proposed with a view to providing employment opportunities to the population of surrounding areas. These are located in Dhabeji along the National Highway, in Deh Gandpass near intersection of RCD Highway and Northern Bypass, in Deh Mahyo north of Surjani Town. To realize the early development of these industrial zones the requisite infrastructure is also proposed.

Further more, cottage industrial zones announced in 1990s in Landhi, Baldia and Orangi Town have not yet been developed, though the plots were allotted to small entrepreneurs in mid 90s. The development of the scheme was impeded as a result of unresolved issues of land encroachments and consequent delay in providing required infrastructures. The constraining issues need to be resolved on urgent/ priority basis so that this scheme takes off, boosting the small and cottage industrial sector. Government of Sindh sponsored Textile City project on the National Highway, and the Sindh Small Industrial State along Northern Bypass, which are partially developed, would require immediate provision of infrastructure, utility services and transport facilities.

4.1.13 Decentralization of Financial District:

As a result of phenomenal growth and expansion of the economy, the financial district of Karachi is growing and has considerable potential for expansion. It is proposed that a number of sub-centers to cater for the needs of the financial center should be developed, for which sites on Mai Kolanchi Road at Sindh Government land, in the Korangi Industrial Area at Government of Sindh land, Faisal Cantt area at T-Junction of Shahr-e-Faisal and Rashid Minhas Road, Shaheed-e-Millat Road, and at Hawksbay Road (K-28) are proposed.

4.1.14 Establishment of Diplomatic Enclave:

Diplomatic Enclave may be established in the city at appropriate location such as old Race Course Ground. The concept, feasibility and the possible sites shall be explored and identified in consultation with cantonment agencies.

4.1.15 Additional Site for Karachi International Airport:

To meet the needs of vastly expanded International and domestic air traffic growing concurrently with the enhanced role of Karachi as regional hub; it is proposed to allocate an additional site for an International Airport for future use. Suitable site having an area about 3500 acres has been proposed in Deh Nara Thar or Deh Shah Murid for allotment to the Civil Aviation Authority for this purpose. Since Federal Government has already undertaken the project of M9 converting Super Highway (N5) to Motorway classification, the proposed site will serve larger catchment area for International Airport including Hyderabad.

4.1.16 Special Purpose Zone along Karachi Northern Bypass:

An urban corridor is planned for special purposes along the Northern Bypass within 300-meter reservation on both sides with a length of 38 Km between the Super Highway and the R.C.D Highway. The proposed land use will include housing, commercial, institutional and public uses. Planning for the corridor development will be based on a comprehensive study on its impact on the bypass functions. An urban design study will be undertaken to evolve land use options within the reservation belt of the Karachi Northern Bypass. This reservation will cover all land owned by CDGK, LDA, MDA, BOR and private owners.

4.1.17 Education City:

The vision envisages bringing together various institutions in the education and health sectors under the umbrella of 'Education City' by maximizing both the intellectual and physical investments in Karachi involving the private sector.

The government of Sindh has already notified Deh Chohar spreading over about 9000 acres as Education City. About 2000 acres of land has already been allotted to the educational and health institutions. However, these allotments were made without any planning of the area.

In order to realize the idea of education city, following actions are recommended:

- i) Conducting physical survey and preparing Master Plan of Education City by involving the allottees/stakeholders
- ii) Provision of all utilities and services
- iii) Establishment of a well defined governance structure at government level with participation of stakeholders to solve their problems pertaining to land consolidation, planning, internal and external development.

- iv) External development to be carried out by the CDGK and utility agencies by charging development charges and the internal development by the stakeholders.
- v) The existing link road, passing through Education City should be widened to 240 feet. Also an alternate 300 feet wide road should be planned to carry the heavy traffic away from the Education City. The possible alignment could be the extension of 300 feet Port Qasim main road passing along oil terminal Zulfiqarabad, Memon Goth and linking Super Highway at east of Dumba Goth.
- vi) Consideration of a link road bypassing Education City at eastern side and linking Super Highway.
- vii) The existing university road shall be extended from Safooran Chorangi, passing through the Malir Cantonment and linking eastward to the education city.

4.1.18 Media City:

To promote growing requirements and needs of the media, a 'Media City' shall be established to be located on suitable site. This will facilitate national and international media organizations to drive advantages from interdependent functions and cluster organization.

4.1.19 Law Enforcement Agencies - Infrastructure Requirements:

The law enforcement agencies have important role in handling law & order situation, protection of sensitive installations, important establishments etc. With a view to ensuring adequate provision for present and future needs to house the associated facilities, the land has to be earmarked in accordance with the strategic plans of the agencies. These primarily include allocation of land along RCD Highway, National Highway, Korangi and Super Highway.

4.1.20 Allocation of Spaces for Graveyards:

The old graveyards in and around the city have become saturated and therefore new sites for graveyards should be identified and allocated.

Three major sites are identified ; (a) in Deh Joreji behind Dewan Cement Factory in the eastern part of the city, (b) in Deh Mahyo in the northern part, and (c) in Deh Mochko in the western part. The area of these sites ranges from 500 to 600 acres. Schemes currently being planned or under development such as Taiser Town, Scheme 33, Hawkesbay and Halkani etc, should be provided graveyard sites on the available vacant land or by re-adjusting the various land uses. In the built-up areas, such as Korangi, Gulishtan-e-Johar, Malir Cantt and Orangi sites have been identified and are under 30- year lease for different purposes.

Each town shall be provided a mortuary facility for the benefit of the town population.

4.1.21 Landfill Sites and Garbage Stations:

Since the existing landfill sites have already been used to their capacity, new landfill sites should be identified and developed. Appropriate space for garbage station in each Town should be provided so that sorting and compacting is done before transfer to landfill sites. Further the garbage 'scavengers' who play an important role in garbage sorting and supplying to the recycling industry should be inducted into the sorting process to be undertaken at garbage station. Appropriate space land for garbage station in each town shall be made available by the land-owing agency.

4.1.22 Reservation of Land for Public Amenities:

The land required for the above mentioned city and government amenities shall be made available (reservation and allocation) by the Board of Revenue, Government of Sindh and other land-owning agencies on priority basis, as mentioned in Table 4.3. Other claims and interests will be set aside to ensure availability of the required land/sites for public and urban amenities and facilities.

Lands currently under 30 year lease will not be renewed without clearance from the CDGK-MPGO.

4.1.23 Incorporating Existing Farm Houses

There are hundreds of existing Farm Houses clustered in Deh Tor, Deh Narathar, Deh Konkori, Deh Shahi Chib and Deh Kharkharo on private and 30 years leased lands. There is a need of formulating a policy regulating Farm House in Karachi District. A comprehensive study is therefore recommended in this regard.

Table 4.2: Proposed Land Use Types

Code	Land Use Type	Description
MU1	High-Density Mixed Use	<ul style="list-style-type: none"> Commercial, institutional, and/or residential development Hotels & high-rise In selected zones, high-rise permitted. Heights and setbacks specified in local plans Improved public transport services and traffic management. Parking provided in separate multi-story structures, preferably located in middle of block Sidewalks and pedestrian amenities provided
MU2	Medium-Density Mixed Use	<ul style="list-style-type: none"> Commercial, institutional, and/or residential development Mid-rise along development corridors with improved public transport services and traffic management. Predominant use of corridors (residential, retail, office) to be specified in local plans Buildings heights along development corridors less than or equal to 0.75 times width of street right-of-way Parking in development corridors provided separate multi-story structures, preferably located in middle of block Sidewalks and pedestrian amenities provided along development corridors Detached or semi-detached housing on local streets
RE1	High -Density Residential	<ul style="list-style-type: none"> Predominantly residential, with commercial and institutional also permitted Plot sizes 80-240 square yards medium rise on selected main roads to be specified in local plans
RE2	Medium-Density Residential	<ul style="list-style-type: none"> Predominantly residential, with commercial also permitted Plot sizes 120-500 square yards medium rise on selected main roads to be specified in local plans
RE3	Low-Density Residential	<ul style="list-style-type: none"> Predominantly residential, with commercial and institutional also permitted Plot sizes 600-2000 square yards (>600 sq yds plots not allowed in new schemes / developments) G+1 height limit High-rise luxury apartments also permitted
RE4	Farm Houses	<ul style="list-style-type: none"> Very low density farm houses with a minimum plot size of 12 acres. No RCC construction.
RE5	High -Density Residential Plus	<ul style="list-style-type: none"> Predominantly residential, with commercial, institutional and cottage-industrial also permitted Plot sizes 80-240 square yards medium rise on selected main roads to be specified in local plans
KA	Katchi abadis	<ul style="list-style-type: none"> Existing Katchi abadis. squatter settlement, detail mapping required and freezing of existing katchi abadis at cut-off date.
CO1	Commercial	<ul style="list-style-type: none"> Predominantly commercial, retail, offices, institutions
CO2	Warehouses	<ul style="list-style-type: none"> Predominantly godowns, storage, container terminals.
CO3	Wholesale	<ul style="list-style-type: none"> Wholesale and transport permitted
SP1	Special purpose	<ul style="list-style-type: none"> Please refer specific rules
OP1	Operational Area	<ul style="list-style-type: none"> Specific operational area of a concern agency / authority
RC1	Recreational	<ul style="list-style-type: none"> Parks, Them Parks, Beach, Retail, Hotels, Entertainment, Residential (Where applicable port activities also allowed)
IN1	Government / Institutional	<ul style="list-style-type: none"> Government / Institutional Authorities, Agencies, Sports etc.
IN2	Educational,	<ul style="list-style-type: none"> Universities and higher education
IN3	Healthcare	<ul style="list-style-type: none"> Tertiary level health care
IS1	Industry	<ul style="list-style-type: none"> Light and Heavy Industry
CA1	Conservation Area	<ul style="list-style-type: none"> Special protection area under international treaties, environmentally sensitive area, wild life reserve.
PK1	Parks	<ul style="list-style-type: none"> City and regional parks
RV1	River	<ul style="list-style-type: none"> River Buffer
AG1	Agriculture	<ul style="list-style-type: none"> Agriculture, animal husbandry, green reserves, open area reserves, poultry farming
GR1	Grazing	<ul style="list-style-type: none"> Animal husbandry, poultry farming, grazing, open spaces
VI1	Villages	<ul style="list-style-type: none"> Goths, villages
TR1	Transport	<ul style="list-style-type: none"> Vehicles Transport
TR2	Transport	<ul style="list-style-type: none"> Air, Railway, Sea Transport

Table 4.3: RESERVATION/ALLOCATION OF GOVERNMENT AND OTHER LAND FOR CITY AND PUBLIC AMENITIES

Sr.No.	DEH	LANDUSE	Area in acres	TOWN
1	Ghagar	Truck Stand National Highway on National Highway option-I	500	Bin Qasim
		Transportation Terminal / Construction Machinery Depot	500	
		Steel Wholesale Market	250	
		Water Reservoir Proposed	50	
		Graveyard	300	
		Central Jail	250	
2	Dhabeji	Truck Stand National Highway on National Highway option-II	500	Bin Qasim
		Multimodal Transport option-II	500	
		Cattle Colony	5000	
		Graveyard	300	
		Oil Tanker and Terminal	300	
		Land Fill Site	700	
3	Tore	Truck Stand Super Highway	500	Gadap
		Government Amenities / Commercial	500	
		Depot Terminal	50	
4	Joreji	Expo Centre	150	Bin Qasim
		Hospital Large Scale	100	
		Sewerage Treatment Plant (proposed)(2 Nos.)	200	
		Sabzi Mandi	100	
		Inter / Intra Bus Terminal	20	
		Depot Terminal	100	
		Water Reservoir Proposed (2 Nos.)	100	
5	Kotirero	Main Commercial Centre on Link Road	500	Bin Qasim
		Sewerage Treatment Plant (proposed)	100	
		Water Reservoir Proposed	50	
6	Gundpas	Main Commercial Centre	500	Keamari
		Hospital Large Scale	100	
		Depot Terminal	30	
		Garbage Transfer Station	10.00	
		Water Reservoir Proposed	50	
7	Amilano	Main Commercial Centre , Junction Super Highway & Link Road	500	Gadap
		Garbage Transfer Station	10	
8	Chuhar	Graveyard near existing graveyard	300	Gadap
		Depot Terminal	70	
		Water Reservoir Proposed (2 Nos.)	100	
9	Mahyo	Graveyard	300	Gadap
		Hospital Large Scale	50	
		Meat Wholesale Market	150	
		Garbage Transfer Station	10	
		Sewerage Treatment Plant (proposed)	100	
10	Mochko	Graveyard Near Hub River	300	Keamari
		Transportation Terminal / Construction Machinery Depot	400	
		Central Jail	250	
11	Phihai	Graveyards Along Malir River	300	Landhi

12	Bun Murad	Education Purpose / University	1000	Gadap
		Inter / Intra Bus Terminal	20	
		Depot Terminal	50	
13	Moach	Education Purpose	1000	Keamari
		Depot Terminal	50	
		Inter / Intra Bus Terminal	20	
		Water Reservoir Proposed	50	
14	Rehri	Education Purpose/University	1000	Bin Qasim
		Ocean Research Institute	500	
		Garbage Transfer Station	10	
15	Mithagar	Hospital Large Scale	100	Gadap
		Amenity Center	450	
		Institutional Hub near NBP	2000	
16	Sharabi	Hospital Large Scale along Malir River	100	Landhi
17	Halkani	Hospital Large Scale near Manghopir Shrine	100	Gadap
		Depot Terminal	50	
		CNG Bus Depot	80	
		CNG Bus Manufacturing Plant	100	
		University	250	
		Sports City/Olympic Village	500	
		Bus / Transportation Terminal + Workshop	150	
18	Kathore	Meat Wholesale Market along Super Highway	150	Gadap
		Slaughter House along Super Highway near Kathore Nadi	150	
		Multi Model Transport	200	
		Wholesale Market	200	
		Large Scale Hospital	100	
		Grid Station +Land fill Site	500	
19	Narathar	Airport (Central)(Option-1)	3500	Gadap
		Water Reservoir Proposed	50	
		Sewerage Treatment Plant (Proposed)	100	
20	Shah Murid	Airport (Central) option-II	3500	Gadap
21	Okewari	Garbage Transfer Station	10	Gulshan
		Depot Terminal	50	
		Large Scale Hospital	100	
22	Mehran	Garbage Transfer Station	10	Malir Cantt
		Graveyard	100	
23	Thano	Garbage Transfer Station	10	Malir
		Inter / Intra Bus Terminal	20	
24	Ibrahim Hyderi	Garbage Transfer Station	10	Bin Qasim
25	Drig Road	Garbage Transfer Station	10	Shah Faisal
26	Gujro	Garbage Transfer Station	10	Gulshan
27	Khari Lakhi	Garbage Transfer Station	10	North Nazimabad
		Sewerage Treatment Plant (Proposed)	100	
28	Orangi	Garbage Transfer Station	10	Orangi
		Sewerage Treatment Plant (Proposed)	100	
		Graveyard	100	
29	Babrano	Garbage Transfer Station	10	New Karachi
		Water Reservoir Proposed	50	
30	Kharkharo	Depot Terminal	100	Gadap
31	Lal Bakhar	Garbage Transfer Station	10	Keamari
		Depot Terminal	80	
		Sewerage Treatment Plant (Proposed)	100	
32	Gabopat	Sewerage Treatment Plant (Proposed)	100	Keamari

33	Hab	Sewerage Treatment Plant (Proposed)	100	Gadap
		Water Reservoir Proposed	50	
34	Khanto	Sewerage Treatment Plant (Proposed)	100	Bin Qasim
		Inter / Intra Bus Terminal	20	
35	Malh	Water Reservoir Proposed (2 Nos.)	100	Gadap
		Land required for CDGK projects affecties	1000	
36	Nangan	Water Reservoir Proposed	50	Gadap
37	Bazar	Water Reservoir Proposed	50	Gadap
38	Pipri	Water Reservoir Proposed	50	Bin Qasim
		Depot Terminal	60	
		Garbage Transfer Station	10	
39	Allah Phiai	Sewerage Treatment Plant (Proposed)	100	Gadap
		Water Reservoir Proposed	50	
		Water Reservoir Proposed	50	
		Water Reservoir	50	
40	Dih	Financial District	400	Korangi
		Inter / Intra Bus Terminal	20	
41	Mai Kolachi Road	Financial District	400	Keamari
42	Hawks Bay Road K-28	Financial District	400	Keamari
43	T-Junction of Shahrah-e-Faisal & Rashid Minhas Road	Financial District	200	Faisal Cantt
44	Taiser	Water Reservoir	50	Gadap
		Inter / Intra Bus Terminal (Three sites each 10 acres)	30	
45		Diplomatic Enclave (Old Race Course Ground)	300	Sadar Cantt
46	Thoming	Transportation Terminal / Construction Machinery Depot	400	Gadap
		Large Scale Hospital	100	
47	Deh Maighari	Hospital	100	Gadap
		Drivers Training Institute	150	
		Community Police Training Academy	200	
		Law and enforcement agencies	500	
48	Doozan	Government Amenities / Commercial	500	Malir Cantt
49	Gadap Town	Land reserve for affecties / shitees	300	Gadap
50	Bin Qasim	Affecties Mass Transit Corridor	100	Bin Qasim
51	Hakesbay Scheme 42	Inter / Intra Bus Terminal	20	Keamari
52	Songal	Inter / Intra Bus Terminal	20	Gadap
53	Safoora	Inter / Intra Bus Terminal	20	Malir Cantt
54	Bakran	Inter / Intra Bus Terminal	20	Bin Qasim
55	Kemari Oil Terminal KPT Godowns, M.T.Khan Road	Inter / Intra Bus Terminal	20	Keamari
		LRT-Stabling Area	20	
56	Azam Basti	Inter / Intra Bus Terminal	20	Jamshed
57	Old City Area	Inter / Intra Bus Terminal	5	Saddar
58	Memon Goth	Inter / Intra Bus Terminal	20	Gadap
59	Bigar Bhutti Sector 12	City District Government, Admin & Residential Complex	364	Gadap
	Sector-12A	CNG Bus Depot	48	
	Sector 7B	Transportation Infrastructure	104	
60	Deh Metan	Intra / Inter Bus Terminal	150	Gadap
		Depot Terminal	50	
		Carriage & Casting Factory	150	
		CNG Bus Depot	80	

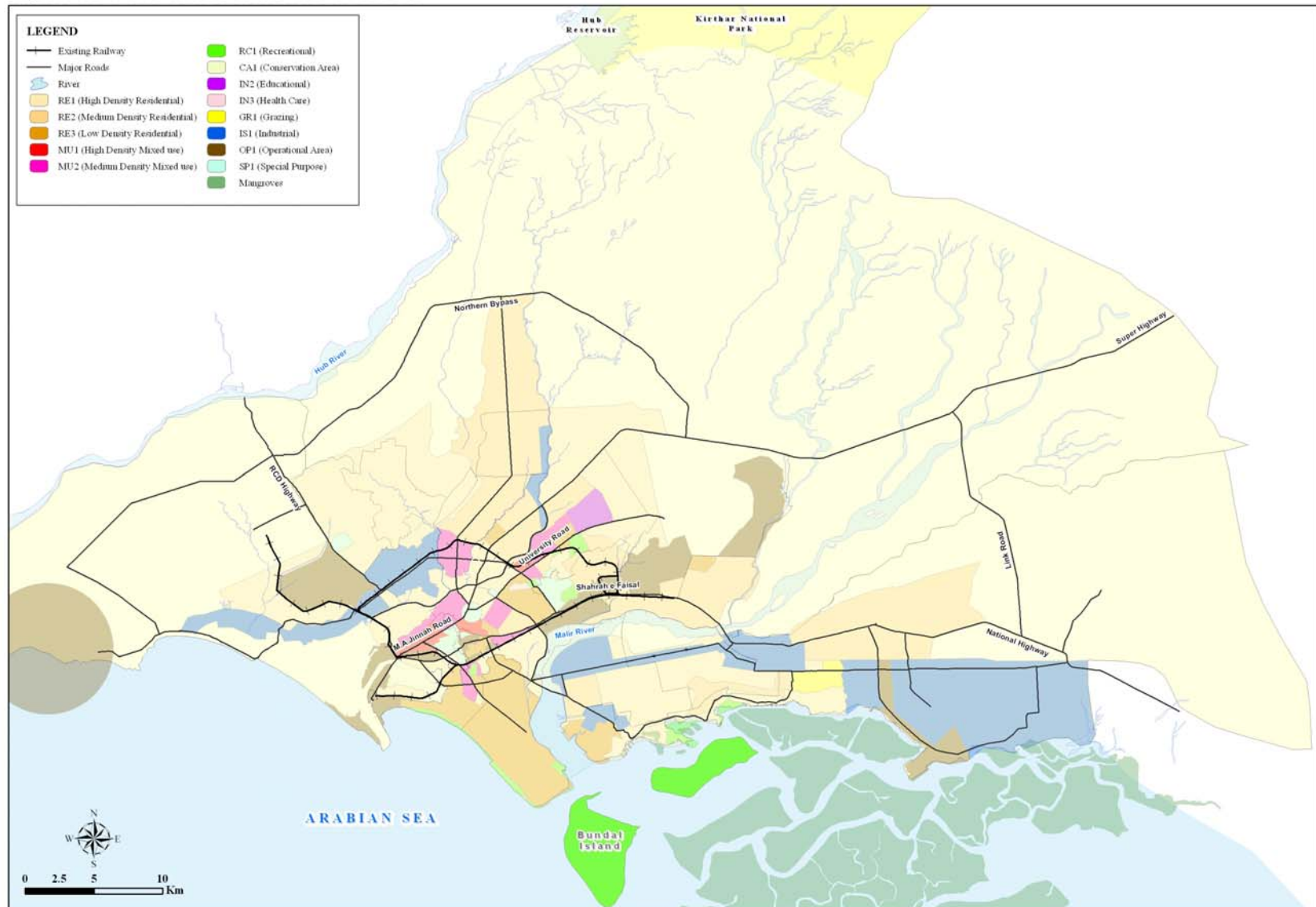
61	Saddar M.A Jinnah Road Near Capri Cinema	Multi Model Transport	150	Saddar
62	Deh Shah Chip	Government Amenities / T.B Centre / Rehabilitation Centre	300	Gadap
63	Available Deh	Land Required for affecties / shitees due to CDGK projects	2500	
64	Surjani	Depot Terminal	70	Gadap
65	Jam Chakro	Highway Police Establishment/Department	500	Gadap
66	Pak Railways KBX Yard	Multi Model Transport Terminal & Other transport infrastructure	15	Saddar
67	Pak Railways Stadium along I.I. Chundrigar Road	High-rise parking facility	10	Saddar
68	Pak Railways Sheds along I.I. Chundrigar Road	High-rise parking facility & transport infrastructure	18	Saddar
69	Military Land adjacent to Capri Cinema, M.A. Jinnah Road,	Multi Model Transport Center	15	Saddar
70	QMMB, Govt. of Pak Land at Shahrah-e-Quaideen	Central Station of Mass Transit System	30	Jamshed

Note: The City And Government Amenities beside above also include, but not restricted to the police station, girls college, technical institutes, girls high school, medical center, parking, community center, parks & play ground)where land available at appropriate locations etc. The Board Of Revenue, Govt Of Sindh and other land owing agencies shall make the land available for the amenities.

Table 4.4: RESERVATION / ALLOCATION OF GOVERNMENT LAND (CDGK Projects)

Sr. No.	DEH	Landuse	Land Requirement (Acers)	Town
1	Maighari	Iron Market	75	Gadap
2	Bund Murad	Electronic Market	75	Gadap
3	Gundpass	Ware House	100	Kemari
4	Mithaghar	Pipe Factory	100	Gadap
5	Mithaghar	Marble Factory	250	Gadap
6	Maighari	Sabzi Mandi	100	Gadap
7	Moachko	Asphalt Plant	50	Kemari
8	Halkani	Timber Market	100	Gadap
9	Bund Murad	Car Showroom	150	Gadap
10	Bund Murad	Paper Market	75	Gadap
11	Bund Murad	Cloth Market	75	Gadap
12	Maighari	Truck Stand	500	Gadap
	Gundpass			Kemari
13	Maighari	Cold Storage	75	Gadap
14	Halkani	Furniture Market	75	Gadap
15	Mahyo	Slaughter House	100	Gadap
16	Maighari	Kabari Market	100	Gadap
17	Moachko	Anaj/whole sale market	250	Kemari

Figure 4.4 : PROPOSED LANDUSE CATEGORY



4.2 HOUSING

4.2.1 Introduction

To keep pace with the housing demand over the Plan period, CDGK and Sindh Provincial Government will create an enabling environment and adopt policies that address housing demand at all income levels. Focus will be on housing needs of middle and low-income groups including katchi abadis with an emphasis on formulation of a pro-poor housing program. CDGK will develop an action program to address the housing backlog in the plan period. It will build its institutional capability in the immediate future to plan and execute the housing programme.

4.2.2 Guiding Principles

The strategy for the housing sector is based on the following principles:

- An inclusive approach : Under the national housing policy 'housing for all' and the Mid-term Development Framework, the CDGK need to adopt an inclusive housing policy that addresses housing demand at all income levels including the poor in the informal settlements (katchi abadis), who form a large segment of the city population.
- A pro-poor policy: While serving the demand of middle and higher income groups having financial capability to acquire developed plots, the CDGK will follow a pro-poor policy that creates an enabling environment for the low-income groups, including the poor to acquire affordable and liveable housing and be able to invest in improving their dwellings. Some key aspects of the policy will focus on subsidies on upgradation of infrastructure and access to loans from commercial banks, microfinance institutions, and the House Building Finance Corporation.
- Appropriate plot allocations in housing projects: To meet the higher demand of the low-income groups, the ratio of small plots in all housing schemes will be set at a much higher level, say, 75 percent plots to address the demand adequately. This is in accord with the MTDf proposals and would be an appropriate response to the growing needs of the low-income people.
- Improving the efficiency of land market: The land market is highly competitive and overridden by speculation which is responsible for price distortions and escalation. Under such market conditions a large section of the needy are increasingly prevented from acquiring suitable housing. A mechanism is therefore called for eradicating speculative practices and improving access to developed land by the low and middle income groups. Further measures will have to be put in place to improve the efficiency of the land market such as amendments in land transfer procedures, appropriate land use, building standards and regulations. Besides, a system of information to public on land market would be helpful.
- Building capacity of land administration: In order to be able to cater for large demand for land for housing and other purposes, the existing capacity of land administration will require compatible expansion at all levels, along with appropriate reforms in legal and regulatory framework. The emphasis on regularization and upgradation of katchi abadis, and low-income housing, would place considerable burden on the existing capacity that may well become a constraint in quick and efficient delivery, if not expanded appropriately.

4.2.3 Housing Strategy: Principal Constituents

i. Adopting national policy guidelines

Reiterating Vision 2030 for Pakistan, the MTDF 2005-10, delineates the national policy guidelines, identifying issues and mass housing strategy in the national context. It recognizes housing as basic necessity and emphasizes the need to quickly bridge the gap between housing demand and the housing supply. Inadequate supply of developed land, limited availability of housing finance and poor land administration identifies, among others, as the major issues. The housing strategy seeks (a) to increase the availability of developed land in terms of enhancing preparation of small size plots for low-income groups and undertaking high-rise condominium development, (b) enhanced supply of institutional finance and long-term fixed rate of financing option, (c) building the capacity of land administration, (d) discouraging speculation in land, and (c) developing an appropriate legal and regulatory framework. The MTDF calls for adoption of a pro-poor policy, and improvement in the housing conditions of the informal settlements. For regularization and upgradation of katchi abadis, it favors the Sindh Katchi Abadis Authority (SKAA) model wherein the land title is tied to payment for land and development cost.

Pursuant to the national housing policy and the MTDF guidelines, the CDGK will formulate a housing policy that recognizes the demand for new housing plots for all the income groups and the need to address the housing backlog through high-rise development, densification and in-fill in the existing metropolitan area, and actuate the occupancy of the developed but so far unoccupied schemes. The policy will adequately address the issue of sprawling katchi abadis in consonance with the emphasis laid by the national housing policy.

ii. Addressing the housing backlog

A major issue in housing delivery is the vast scale of the current backlog which is estimated to be around 100,000 new units per year, based on the difference between new households formed and the number of the new housing units supplied during a reference period from 1981-98. Given the pace of households and housing formation between 1998 and 2005, it is estimated that there is a backlog of 90,000 units per year.

In addition, the population in informal settlements growing at twice the rate is estimated to have grown from 50% of the number of households to 61% of the total households (1.2 million households). It is expected that by the year 2010, the backlog will be 180,000 and new households living in the informal settlements since 1998 will be 941,968. At this rate by the year 2020, the backlog would have accumulated to 330,000 units. Accordingly it is estimated that about 100,000 new units will be required to be added annually.

Apparently there is a marked dichotomy in terms of strategy required to address the backlog in the formal housing and the informal settlements as separate or disparate areas of action.

In the formal sector, the backlog delivery will be effected through a range of measures designed to substantially augment the housing supply.

The required measures are:

- a) Densification through consolidation and infill

- b) Accelerating the occupancy in new developed yet unoccupied housing schemes
- c) Waterfront development with high-rise in designated areas along the coast stretching from Bin Qasim Port to Cape Monze
- d) Providing mixed land uses and high density growth in suitable location of the metropolitan area
- e) Promoting new economic centers together with affordable housing sectors for all income-groups
- f) Appropriate land use and infrastructure improvements in the inner city including the CBD, and area upgradation program including the public servant housing in government-owned housing estates.

iii. Promoting the role of private sector developers, and public and private partnership

In providing affordable housing and maintaining a consistent supply of houses, the private developers have had an important role, some of the performance shortcomings apart. The role of the private developers in the formal sector and to some extent in the informal sector needs to be further promoted by way of unstinted cooperation between the public sector agencies and the private developers, and building partnership in a sustained manner so that the housing development issues are appropriately resolved as a shared responsibility. In the informal sector, the private sector roles will be crucial to the success of improvement and upgradation programs for katchi abadis where models and modes of partnership would be successfully forged.

iv. Meeting the needs of the informal sector, the katchi abadis

Committed as the CDGK is to amelioration of the housing conditions of the katchi abadi residents, the housing program assigns priority to regularization and upgradation of the notified katchi abadis which task will be accelerated with urgency to obtain the goals. The program will move forward with the involvement of the community, the private developers, financial institutions and the assistance of the international funding agencies. While the government will make substantial investments in trunk infrastructure, the residents will be encouraged to improve their living conditions. Experience has shown that where properly supported, housing can be improved in an incremental manner. Involvement of the community and civil society can help create an enabling environment for the poor and low-income groups to acquire acceptable standards with respect to housing quality, infrastructure facilities, basic amenities and the development of their neighborhoods. Assistance from the housing finance institutions and commercial banks would be an important factor for obtaining the desired pace in movement forward.

v. Enhancing supply of institutional finance

Housing finance is a key towards achieving adequate progress in housing program, particularly improvements required in the katchi abadis and low-income housing. The House Building Finance Corporation will be required to make more finance available to all income groups, and make necessary modifications in loan payment and recovery modes so as to facilitate access to housing finance for larger clientele including the low-income groups. Small loan packages introduced by the HBFC would still need to improve and widen the coverage. Special finance packages for the poor in

the katchi abadis, and appropriate instrument should be devised to increase access to institutional finance for acquisition of serviced plots and house-building. Commercial banks are also expected to increase financial loans for housing but requirements of appropriate collateral would be a hindrance in case of the low-income or the katchi abadi residents.

vi. Enhancing the management capacity

In order to implement the housing program laid down by the KSDP-2020, immediate steps will be required to be taken to augment the management capacity, especially in the areas of planning and designing and development of housing schemes and service delivery at the city government level.

The current housing demands emanate in different proportions from the three income categories, for which the estimates of their shares are:

High-income group	5 to 7 percent
Middle income group	15 to 20 percent
Low-income & the poor	75 percent

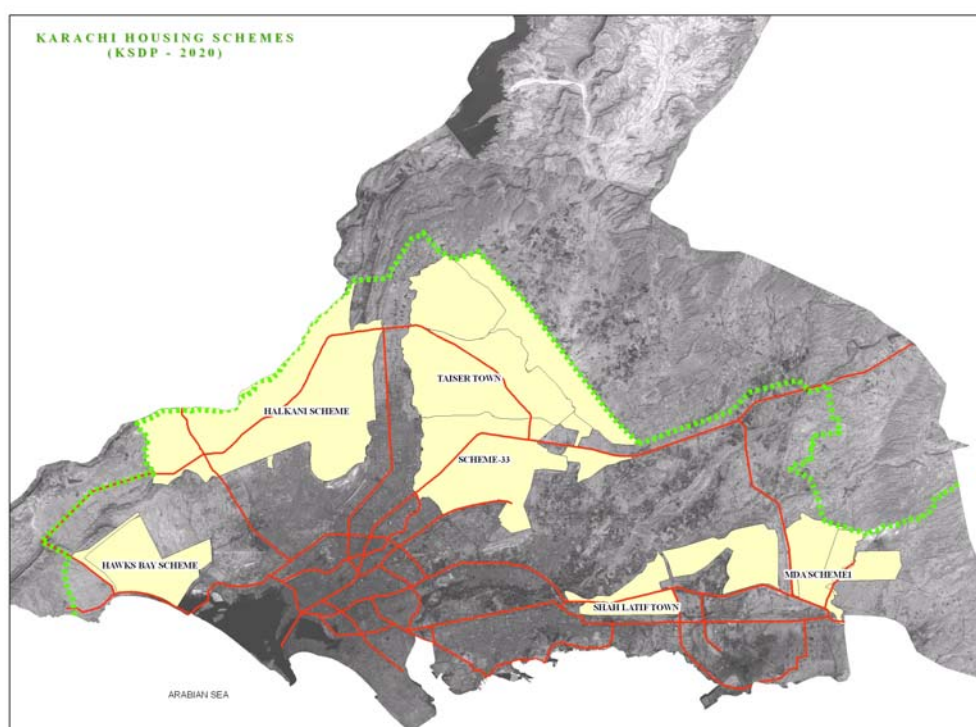
The housing issue in effect pertains to the middle income, low-income and the poor groups. Currently the middle income housing demand is mainly met by the private sector developers and builders in town houses, apartments, and high-rise buildings. The public sector role has continuously declined in respect of middle-income housing. In the new housing schemes, increased provision for low-income housing has been provided.

The low-income housing is divisible into (a) public sector low-income housing and (b) informal sector housing - the katchi abadis, mainly the poor people housing. Each is faced with different issues which block progress.

vii. Formal sector issues and corrective measures

The new housing schemes are located in the distant periphery which is not served by the public bus system, and as a result remain inaccessible to the plot holders. The schemes still remain to be occupied, with very low occupancy rate which has failed to pick up for a number of reasons. Some parts of the schemes remain as yet undeveloped and lack infrastructure facilities/amenities. In addition, allotment policy failed to reach the target group because of inappropriate allotment system and resultant speculation. There is active speculation on a large scale, since the NUF/Tax is low, and not raised to levels enough to discourage or stop speculative practices. These schemes also lack the provisions of built housing which would otherwise have helped in occupancy by the needy/targeted groups.

Figure 4.5: Karachi Vacant Housing Schemes



To correct the situation, it will be appropriate not to develop new housing schemes until the currently unoccupied schemes have reached maturity. It will be essential to attach sunset clauses to force the allottees to construct houses within a specified period. To further facilitate the allottees, specific measures including accelerated supply of housing finance, proper transport facilities with convenient access, will have to be provided. Strong measures such as stringent allotment conditions and raising the NUF/Tax will need to be applied. Built housing must be an integral part of all schemes so that the development and occupation of the schemes in reasonable time span is ensured. Stopping approval of new lay-out plans in the private sector will be instrumental in directing the resources to early maturity of the schemes.

The issue of katchi abadis implies addressing the informal sector posing challenges in the area of housing improvement and checking undesirable growth. Expansion of the katchi abadis has proceeded unchecked since the public sector program for low-income housing was never designed to cover housing for the poor who could only squat on the government land adjacent to the developed areas. Insecurity associated with absence of title giving rise to dislocation fear coupled with lack of resources needed for house-building were responsible for appalling substandard housing and much degraded living environments. Improvements in houses are made by and large in incremental manner, since the poor have no access to institutional finance. Also the katchi abadis show a lack of physical order, besides a marked lack of essential facilities of water supply, gas supply, sewerage and solid waste disposal. Additionally there are hardly any parks and play grounds; very few schools exist for education of children.

Regularization, which addresses the recognition of rights for land title, and upgradation based on sufficient provision of trunk infrastructure constitute

a basic strategy for improvement of housing conditions in the katchi abadis. The residents, the community and the private developers need to be involved to speed up the program. Housing finance facilities specially targeting the poor will serve to realise better housing. Dislocation from non-regularizable katchi abadis will require resettlement schemes for those affected.

Success improvement models should be adopted by involving private developers or CBOs and making the scheme a self-financing venture. At least two katchi abadis should be selected for pilot projects. One of the pilot projects should be designed to target the infrastructure and housing, while the other should aim at complete redesigning of the entire settlement and land sharing with the private developers as a source of finance.

A full assessment of the magnitude of Katchi Abadies in Karachi is also called for. It is essential that, a survey / census of all the Katchi Abadies is undertaken on priority basis to provide information and data for future sectoral priorities / programs and projects.

4.3 TRANSPORT

4.3.1 Transportation Policy Objectives - Towards a Comprehensive Strategy

In order to increase accessibility, Karachi must increase the mobility alternatives available to the public. The city needs to place importance upon safe and efficient movement of vehicle and pedestrian traffic, improved associated amenities, and to provide affordable, safer, faster, more comfortable and efficient transportation alternatives, and to relieve congestion, especially in the central business district and the ports where freight traffic is heavy.

Following are the policy objectives for development of the transport sector plan.

- Provide safe and efficient mobility for people and goods.
- Improve public mass transportation system, targeting affordability and convenience.
- Traffic engineering improvement measures and traffic management techniques.
- Integration of traffic police and enforcement with city traffic planning and management through rationalization of related fundamental structure under a central transport authority.
- Strengthen existing transportation infrastructure and services by considering various alternatives.
- Analyze thoroughly any road building program if it would remove congestion and would not induce more traffic.
- Minimize single-occupancy vehicle use.
- Improve pedestrian safety and facilities.
- Development of transport related GIS data-base.
- Development and adoption of standard and manuals for Traffic & Transportation Engineering Works & Service.
- Evolving a comprehensive transportation plan development and modeling to address vehicular traffic, public mass transportation (bus line and rails

based), parking to provide for development of roadway and public transport/mass transit infrastructure development priorities for long range.

- Reduce congestion in the CBD areas through a combination of rationalized parking, traffic management, pedestrianization, land use control and transit improvements.
- Develop transport infrastructure to support planned land use changes, especially strengthening links between CBD and polycentric commercial centre nodes.
- Improve safety, energy efficiency and air quality.
- Seek improvements through strong private sector participation.
- Formulate strategy for management and operation of local bus terminals.

Transit Improvements

The KSDP 2020 public transportation proposals comprise many improvements to rationalize, modernize and expand the capacity of the city's many privately-operated bus services, para transit, and possibly rail service. There is a need for plan refinement and setting priorities amongst alternatives. These include:

a) Bus Transport

Bus proposals include the following measures:

- Rationalize bus routes.
- Reserve major/high-volume routes for large buses.
- Reserve secondary /low-volume routes for mini buses and small buses.
- Provide bus stops with lay-by, transit terminals and other physical improvements.
- Replace existing bus stock with environment friendly fleet.
- Rationalize fare structure.

b) Para transit

The Plan foresees the need to create regulatory and administrative functions to facilitate minibuses, taxi and rickshaw services and provide parking and garage facilities so that they continue to provide a valuable service to the public while reducing overall congestion. Coordination with buses at transfer points would be useful.

Mass Transit

The Mass Transit programme will follow the following principles:

- i) It should have maximum coverage with minimum input and maximum output.
- ii) It should be built with minimum investment and shall have a short completion period.
- iii) It should also have maximum outreach and be compatible with bus travel cost.

A city of the size of Karachi with a congested centre needs some form of segregated transit so as to increase transport capacity serving the CBD, industrial areas and work centers. Such an alternative is necessary to expand capacity.

The 1990 Karachi Mass Transit Plan identified seven high-volume transit corridors. These corridors are adequate enough to support bus rapid transit, if not LRT. The largest-volume corridors are Sohraib Goth to Tower; and Orangi Town to Cantonment Station, and preliminary analysis indicates patronage would be high enough to support light rail or a large-volume bus rapid transit system.

There are many different options to consider. The following highlights the main features of the mass transit options. A thorough study is required to analyse the feasibility for the best alternative and thereafter plan and design the exact system.

Over the longer term, development of corridors linking the CBD and newer polycentric nodes will represent more opportunities to expand the mass transit services to the larger public.

a. Karachi Circular Railway

The analysis of mass transit alternatives should pay attention to the possibility of reviving and extending the Karachi Circular Railway. This 50-km railway line links the downtown with other dense central parts of Karachi with 16 stations. The KCR system should be extended to cover suburban areas to acquire maximum coverage and utility.

b. Bus Rapid Transit

It may be possible to develop bus service approaching the capacity of light rail service. Bus Rapid Transit can operate on normal roads, have stations just like a rail service, be just as fast, and carry high volume passengers as light rail. However, earlier attempts to develop a Bus Transitway System could not materialize.

c. Light Rail

Two mass transit lines appear possible in some alignments. This will likely take the form of underground / elevated light-rail (i.e. transit) service. Priority I & II corridors are initially intended for implementation.

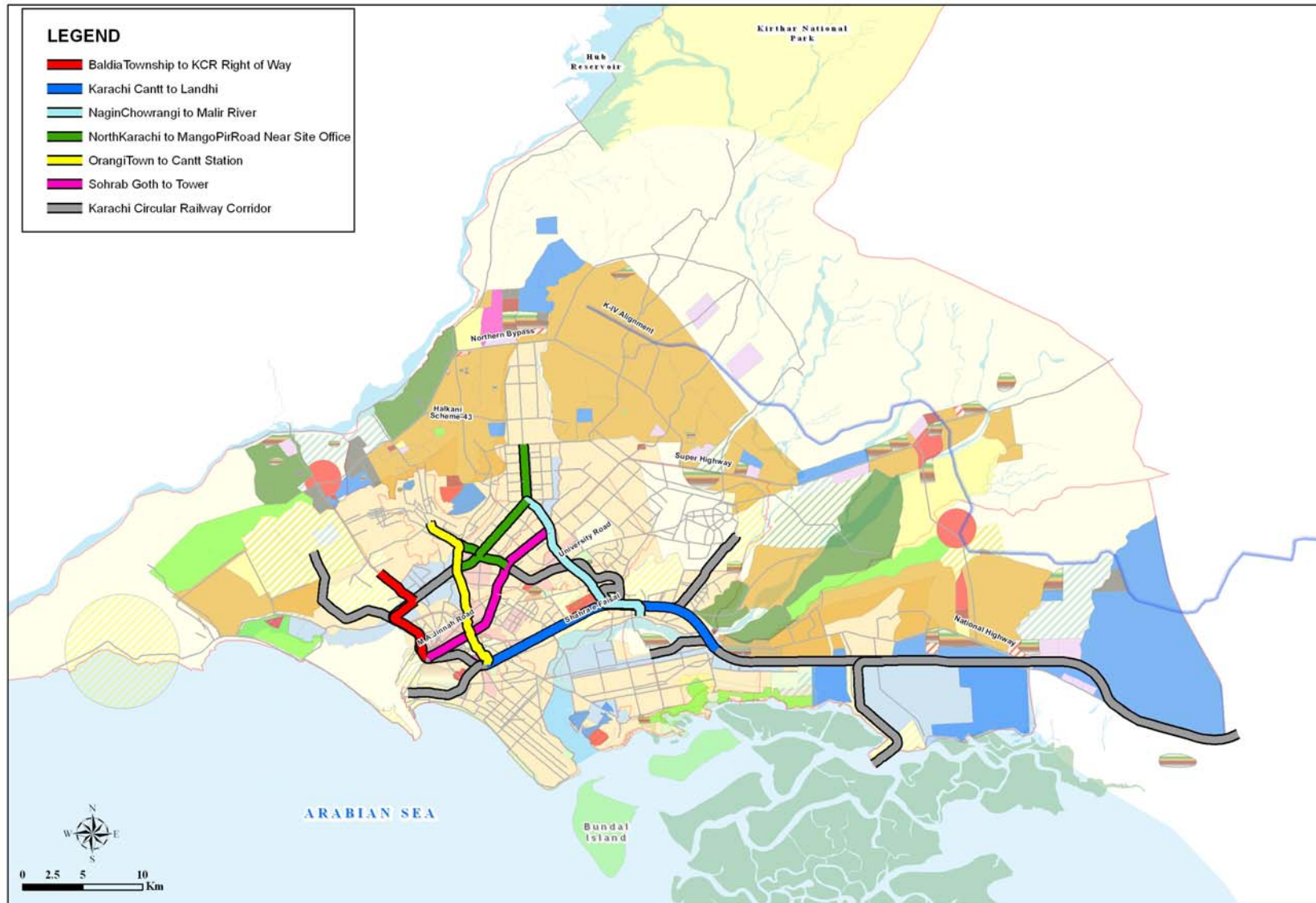
There should be further study of the likely alignments of such mass transit systems, evaluate the advantages and implications of underground, elevated and at-grade services in different areas, and determine the role of bus and para transit services and private vehicles (at transit terminals and in park-and-ride stations) to support high demand corridors. This also requires an evaluation of the disruption to traffic the excavation method might entail. Underground rail lines are expensive, but may have merits in the historical districts of Karachi. Corridors 1 and 2 show particular high patronage and are thought suitable for light rail.

d. Choice amongst Mass Transit Design Alternatives

Each of the mass transit alternatives must be studied in terms of its likely ridership, placement with existing roads, integration amongst other transit modes and ability to attract owners of private vehicles, speed, and many other factors.

Meanwhile, CDGK is currently revising its list of designated likely transit corridors that will provide useful inputs to the evaluation of alternatives.

Figure 4.6 : MASS TRANSIT CORRIDORS IDENTIFIED IN 1990



4.3.2 Park-and-Ride

There exist possibilities to introduce park-and-ride service. People living in the north or east of town might drive to a park and ride destination, and then take a bus to Saddar. Other variations are possible. A parking lot plus superior buses (air conditioning, guaranteed seats) are necessary if such a program is to coax residents out of their personal vehicles. The KSDP-2020 envisions such a service on Lyari Expressway.

4.3.3 Transit Terminals

There is a need to construct at least two additional terminals for inter-city buses so that these buses can stop without interfering with traffic, and passengers can board and alight safely. Such an amenity should increase access to Saddar. Use of Ex-KTC terminals has been proposed earlier. The private sector should be able to develop such terminals, charging a small fee from buses and also renting space for retailers supplying goods to daily commuters. Nearby parking facilities might provide automobile owners a useful link to downtown BRT or longer-distance luxury bus services.

Transit terminals will be useful in the more detailed planning for polycentric nodes. Provisions for new urban bus terminals are to be part of integrated development of new schemes.

4.3.4 Traffic Management

Karachi needs to manage its traffic system better to improve the flow of vehicles, buses, and para transit for obtaining greater efficiency from existing facilities. Traffic management represents 'soft' improvements designed to operate existing facilities more rationally, but may also include minor or major physical improvements in cases where simple management is not sufficient.

Quick, low-cost 'soft' improvements include implementation of regulations, rules and market instruments to encourage drivers to operate rationally. Typical examples of soft traffic management improvements found worldwide include lane reserves, one-way traffic and other direction to users, turn restrictions and other movement controls, improved signaling, signage, driver education, and pedestrian improvements to control their movements in a safe fashion while ensuring predictable vehicle flows. These require coordination with the traffic police.

Minor physical improvements intersection design improvements, road resurfacing, new signals, and street lights etc. will require small investments to correct localized bottlenecks.

Major traffic system management improvements (intersection reconstruction, grade separations i.e. flyovers, underpasses, road widening, and through-streets with limited access from side streets) in a local area may be necessary to improve traffic movements.

Specific traffic management improvements in the Plan include driver training under license renewals, high-occupancy vehicle lanes, designated truck routes and times, intersection improvements, traffic signals, car and van pool programs, shuttle buses, motor vehicle inspection, vehicle emissions testing, fuel quality improvements, an emergency readiness program, pedestrian improvements, the construction of bus shelters, spaces for parking and loading/unloading of goods, through traffic road lanes, the removal of street hawkers and other encroachments blocking the movement of traffic. Traffic demand management

envision formation of carpool and vanpool programmes. Area licensing could be considered after the operation of mass transit corridor.

Transportation Planning, Traffic Engineering, Traffic Management and Traffic Police are currently divided between CDGK and provincial Government. These functions shall be grouped together and placed under the umbrella of CDGK to have an efficient and effective transportation and management system in Karachi.

Appropriate signage on roads shall be provided for users for safety and orderly movements.

4.3.5 Parking Rationalization

An element of traffic management deserving special attention is rationalizing the parking in the CBD/and other commercial/business areas. The irrational use of road space for parking purposes severely restricts traffic and transit options, and must be corrected. The solution lies in providing alternatives to street parking. Traffic demand management envisions formation of carpool and vanpool programs. Area licensing could be considered after the operation of Mass Transit Corridor.

The proposed parking policy includes the following:

- Regulate and meter curb-side parking.
- Strict implementation of within-building parking as mandated by KB&TPR.
- Plan for alternative parking facilities, parking lots and parking garages.
- Provide spaces for loading/unloading of goods in commercial buildings.
- Constructing parking garages, in private and public sector especially multi-story parking garages in congested areas, providing security while facilitating access to land and finance incentives shall be given to land owners to promote construction of parking spaces.
- The improvements should be a part of larger and comprehensive urban design programme incorporating social, environmental and heritage conservation considerations.

Saddar, Tariq Road, I. I. Chundrigarh Road, and Clifton are the most obvious places to develop such initiatives, to be replicated in other commercial centers, including the proposed polycentric nodes.

A parking study would be instrumental for determining the plan according to land use, availability of public properties to lease to private sector parking garage operators, and curb space that can accommodate limited and regulated parking without disturbing flows on the road.

4.3.6 Roads and Highway Improvements

To reiterate concepts expressed in the strategic framework and the transportation policy, there is a great need to reduce congestion and improve the efficiency of Karachi's roads and highways, especially as it affects the central business district in Saddar and freight movement in and out of the nearby port, and as it strengthens the transit process.

Figure 4.7 Proposed Highway Network



The road network improvement program is based upon the following:

- Continue strengthening existing networks.
- Provide for the completion of missing links.
- Add capacity at critical intersections.
- Widen roads where volumes are growing most rapidly.
- Separation of local and through traffic.
- Widen bridges on heavy-volume arteries.
- Rehabilitate choke points.
- Upgrade roads according to a system of functional classification and all associated improvements in each classification.
- Develop ring roads to relieve check points.
- Improving storm water drainage capability of roads.

To improve connectivity and accessibility in the old and new areas, missing links and additional roads should be provided.

a. Radial Road Improvements

Improvement to radial roads network entails rehabilitation of choke/congestion points with intersection improvements, grade separation, road and bridge widening (especially for exclusive/segregated bus lanes, BRT lanes, or light-rail/tram tracks), road upgrading and connection of missing links. Detailed studies will identify the order of priorities for these rehabilitation measures.

The technical sector report on transportation provides recommendations to build fifty interchange flyovers and underpasses, in addition to 11 already under construction, creating more 'signal-free' roads. These grade separations whereby one arterials passes over / under another will improve through-flows on both roads, and channel those vehicles passing from one to another more effectively.

Longer-term area-wide transportation recommendations include expansion of expressways, the construction of a coastal highway with links to national highways, as well as more road upgrading, interchange construction and bridges. This includes extending the Northern Bypass further south to the Malir River.

Reserves for exclusive / segregated bus lanes, BRT lanes, or light rail tracks on radial roads will be particularly useful for the development of improved transit, mass transit, and reduced congestion on the remaining roads.

The KSDP-2020 provides a standard classification compatible with AAHSTO guidelines for functionally classified roadways to guide development of the roadway network.

b. Local Improvements

Improvements to the road network also include upgrading of roads in under served areas such as Orangi, which has only one collector road in a large, densely populated slum. A program to reconstruct, resurface, renovate and refurbish all roads that are used by public transport in the 18 Towns of Karachi, small missing links rationalizing flow among select roads are required.

c. Ring Roads and Bypasses

An important road and highway initiative is the creation of ring roads. These are to relieve congestion on principal radial arterials emanating from the centre, create mobility alternatives near the port and the central business district, create a bypass on the north, east and west allowing freight traffic and thus reduce congestions on radial roads, and help to define the boundary of peripheral growth.

Central Ring Road (R1) is a loop approximately 32 km long with grade separation all along it, and will utilize the alignments of Lyari Expressway, Jail Road, Shaheed-e-Millat Road, Koangi Road, Khayaban-e-Romi, Mai Kalachi by pass, and the Mauripur Road.

Inner Ring Road (2) is 32.5 km long; shares its alignment with R1 in the south-western part, has separate northern & eastern alignment. It begins at the Lyari Expressway intersection with Mauripur Road, proceeds upto Gulbai, intersects the RCD Highway and Manghopir Road, and uses Nazimabad, Liaquatabad Road, Sir Shah Suleman Road, Habib Ibrahim Rehmatullah Road and joins with Shahrah-e-Faisal.

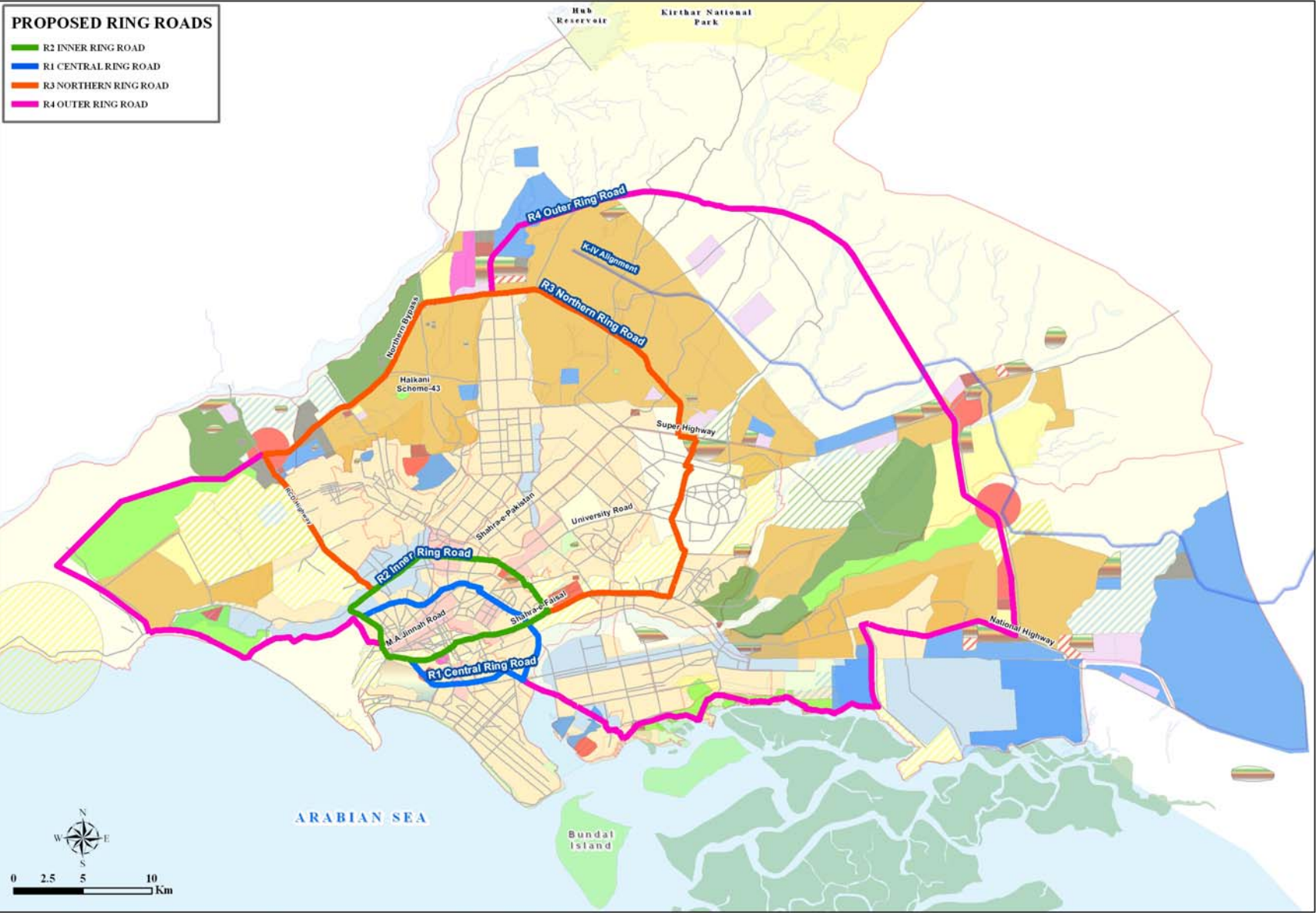
Northern Ring Road (R3) on the northern bypass is 65 km long. It will incorporate the existing northern bypass road and will be extended southward on east and west ends. On the east side it will proceed just west of the Malir Cantonment to Shahrah-e-Faisal. On the west side it is linked to the RCD Highway.

Outer Ring Road (R4) is conceived as long-term development beyond the time horizon of the KSDP-2020. The southern sections are partly in place. The western extension will begin at the RCD Highway, then continue west and end near Hawkesbay. The eastern portion will provide accessibility to the eastern part of the city, running through Korangi, Landhi and Bin Qasim, further linking the existing Link Road up to 'Education City'.

d. Road Widening Scheme

The existing road widening scheme/list mentioned in KB & TP Regulation – 2002 needs to be reviewed. The scope of the scheme may be enlarged, taking into account the current traffic volumes and future developments. This should be done after a study project.

Figure 4.8 Proposed Ring Road



4.3.7 Pedestrian Improvements

Pedestrianism is essential to all Karachiites' mobility. Low-income groups are particularly reliant upon it. Accidents involving pedestrians lend a particular urgency on the subject. The following actions are central to improving pedestrian mobility:

- Greatly expand the number of pedestrian bridges crossing the principal and minor arteries. The transportation sectoral report lists 100 suitable projects, and suggests a review process to expand the number of foot bridges according to data on pedestrian accidents.
- Expand sidewalks where required in commercial districts, including the CBD area and other commercial/business areas.
- Require developers in mixed-use and large commercial developments to include sidewalks, foot bridges, underpasses and other pedestrian amenities in their projects.

4.3.8 Air Quality Deterioration from Transport Vehicles

- Karachi city's air quality is one of the poorest in the world, with levels exceeding WHO guidelines. A major contributor to this pollution and generation of green-house gases (GHG) is the transportation sector, especially from an aging fleet of vehicles in poor mechanical condition and low levels of fuel efficiency. The high levels of sulphur in a automotive diesel (0.5% - 1%) is seen as a major contributor to sulphur dioxide (SO₂) and particular matter (PM₁₀) in ambient air.
- According to the Pakistan Environmental Protection Agency (PEPA), a major share of the emission load from motor vehicles in urban areas, although not quantified, can be attributed to a relatively small number of smoky diesel and 2-stroke (rickshaws) vehicles.
- Traffic congestion affects average speed of vehicles and consequently fuel consumption --- and pollution/greenhouse gases.
- The health costs associated with air pollution are equivalent to 1% of GDP.
- Particularly at health risk are those living within a quarter of a mile of high-volume roads (those carrying 10,000 – 20,000 vehicles per day) and those living near roads with a large amount of truck traffic.
- Measures to be taken include:
 - Launching of effective awareness campaign against smoke-emitting vehicles
 - Creation of public awareness and education
 - Setting up of continuous monitoring stations to record pollution levels in ambient air
 - Improvement of energy efficiency in vehicles
 - Introduction of low-sulphur diesel and promotion of alternative fuels such as CNG, LPG and mixed fuels
 - Review Motor Vehicle Ordinance for inspection of private vehicles
 - Restrict conversion of vehicles from gasoline to second-hand diesel engines

- Stop import and manufacturing of 2-stroke vehicles
- Establish public/rapid transit systems
- Give tariff preference to CNG buses

4.3.9 Noise Pollution from Transportation

- Noise pollution from vehicles, especially in residential areas, is above recommended levels.
- Major contributors to the noise pollution are frequent and indiscriminate use of vehicle horns, removal of silencers on rickshaws and other 2-stroke vehicles, high volumes of traffic especially heavy vehicles.

4.3.10 Energy Conservation

Measures need to be taken to conserve energy and prevent waste of fuel by introduction of alternate fuel such as CNG, LPG, electric, hybrid and bio diesel and other alternate low impact and emission fuels. Also through better management of the traffic reduction in travel time should be achieved.

4.3.11 Transportation and Pedestrianization in the CBD

Transportation improvements are necessary to overcome the serious circulation problems in the central business district (CBD) and preserve its role as a convenient location in which to pursue commerce.

It will be essential to review plans for creating pedestrian malls in Saddar/Tower CBD area with considerations for one-way streets, bus lanes, mass transit service and transit terminals.

Many improvements to the CBD have been alluded to above. The inner ring road is partly designed to overcome congestion by diverting through traffic out of CBD. The missing links in Saddar Area need to be constructed to ease traffic congestion particularly the Preedy Street Extension.

A plan is needed to improve traffic and transit services, pedestrian flows and pedestrianization of congested sections. Such improvements should include:

- Parking reform and enforcement
- Sidewalk improvements to aid and improve the pedestrian flow
- Creation of pedestrian mall
- Establishment of hawkers zone
- Removal of encroachments
- Bus ways, contra flow bus lanes, and bus turn lanes
- Establishment of shuttle bus service
- Mass transit options, KCR revitalization, light rail lines, BRT
- Downtown transit and parking terminals on the periphery
- Intersection improvements and turn restrictions
- Installation/removal of traffic signals
- Changes in directional flows of streets and changes from two-way to one-way streets
- Improved links to radial and ring roads

- Road widening
- Restriction on animal driven cart

The Transportation technical report explains immediate, short and medium term options in more detail, and proposes two alternative programmes worth considering.

The following map attempts to provide an amalgamation of different roads and transit improvements.

Saddar Area : Pedestrianization Plan

In order to decongest the Saddar, reduce air and noise pollution and preserve the architectural heritage of this 150 years old historic part of the city, a pedestrianization plan will be developed to specifically include the following:

- Creation of a pedestrian mall
- Establishment of hawker zone
- Shuttle bus service

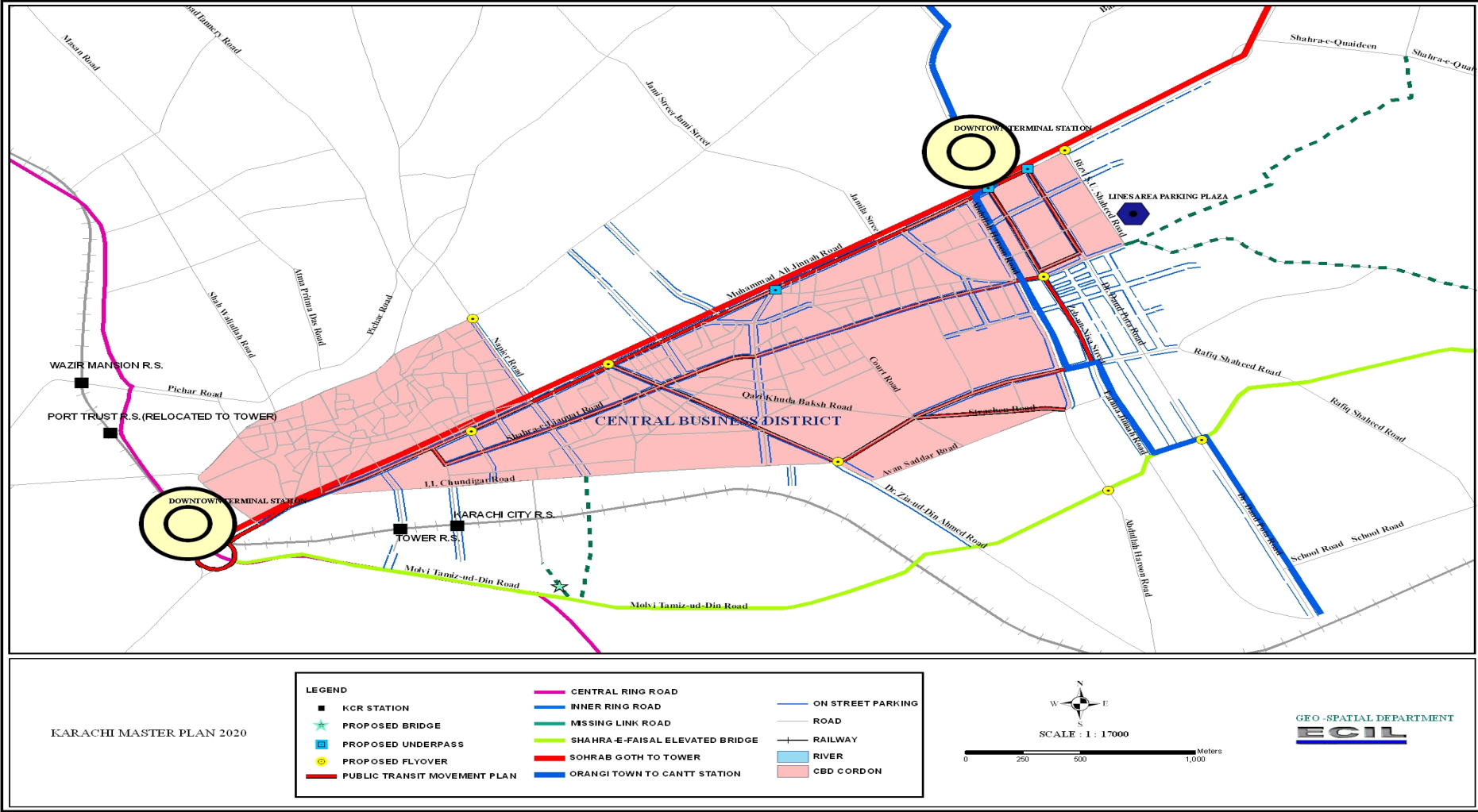
This plan may be undertaken on a priority basis as part of overall CBD Transportation Plan outlined above.

Special Topic: Safety during Road Construction - Diversion & Management

Construction projects can pose direct hazards to motor vehicles. More important, changes in traffic patterns cause driver confusion and lead to road accidents and pedestrian injuries. Karachi's construction work is not normally coordinated with the city's traffic control efforts.

All road construction projects should have a Traffic Control Plan to be approved by the Transport & Communication Group of Offices, CDGK.

Figure 4.9: Transportation Improvements in the CBD



4.3.12 Safety Audit:

Safety Audit be made mandatory for all the projects irrespective of their scope / size.

- Review plans for creating a pedestrian mall in Saddar / Tower CBD area, with considerations for one-way streets, bus lanes, mass transit service and transit terminals.

4.3.13 Traffic Operation Program to Increase Capacity and Safety (TOPICS)

This is a program whereby traffic studies in all 18 towns are required to be undertaken. The studies will identify localized problems and recommend actions that are to lead to improved safety and capacity.

4.3.14 Traffic Management Plan for Other Land Owning Agencies

The traffic management issues related to the areas under the jurisdiction of other land-owning agencies need to be effectively addressed with particular reference to the Karachi Strategic Development Plan 2020.

Although the jurisdiction of these agencies are fragmented, the city being a unified entity, needs an integrated plan; hence all the development plans of the land-owning agencies must be an integral component of the development strategy of the city and in consonance with the KSDP-2020.

Their plan should be supported by traffic impact studies in holistic manner.

4.4 Infrastructure Services Component

4.4.1 Water Supply

Meeting the water supply challenges of Karachi city district over the next 13 years will require a combination of enhanced water supply, demand management, enhanced water utility management, and capital investment.

4.4.1.1 Demand Management

The foremost aspect is demand management. Karachi's water supply system is inefficient and wasteful. Pumping more water into it will proportionally amplify the technical and financial losses, increasing waste in absolute terms. The top priority is therefore strengthening / replacement of affected pipelines (without reducing consumption) in order to reduce losses, energy use, and bulk water supply requirements.

It is recommended that KW&SB simultaneously implement a series of different measures designed to reduce water consumption by end users:

- i. Progressively meter all water supply customers. The utility will create incentives for decreased water consumption through mandatory, phased installation of water meters at all customer connections: domestic, industrial, government, commercial, etc. The cost of the metering investment will be built into the water tariff and spread out over a 3-5 year period. Pakistani firms will be encouraged to produce water meters that meet government standards for flow measurement accuracy and reliability. Review and revise block tariffs to ensure appropriate incentives to limit water consumption.
- ii. Educate the public on the need to conserve water. Prepare and implement primary school teaching modules to teach young children about the value of

water and the need to conserve it in a dry southern Pakistan. Prepare and implement education campaigns for the general public through radio, newspapers, and/or television to raise awareness of the need to be more conservative in water use in order to preserve existing supplies and improve service levels and coverage in Karachi. ('If each of us uses less, existing supplies will go farther.')

- iii. Develop (as required), make mandatory, and market the use of plumbing fittings and fixtures that will reduce water consumption, especially for domestic users.

Provide alternatives to piped water for uses that do not require drinking water quality. Re-use treated grey water for irrigation. Re-use treated wastewater for watering plants.

Table 4.5: Water Demand Projections, 2005-2020

	2005	2010	2015	2020
Population	15.12	18.93	23.13	27.55
Domestic Water Demand (MGD)	414.0	518.0	633.0	752.0
Other User Water Demand (MGD)	33.8	423.0	518.0	616.0
Total Water Demand (MGD)	752.0	941.0	1151.0	1368.0

4.4.1.2 Utility Management and Water System Operation

KW&SB can undertake a range of management improvements to increase the technical, financial and administrative efficiency. The driving principle behind these improvements is the operation of the utility like a business. KW&SB should operate on a commercial basis, become attuned and responsive to customer demand, seek to improve relations with customers and satisfy their needs, and operate increasingly on a cost recovery basis.

4.4.1.3 Operational Efficiency and Cost Reduction:

To reduce costs, KW&SB should reduce technical losses by reducing the leakages of water through system. This involves water conservation measures, including customer metre installation, as described above. The utility should also create water pressure zones to regulate pressure on a zone-by-zone basis, thereby reducing very high pressure in some mains that increases leakage and the likelihood of pipe breakages. At the same time, KW&SB should implement a strategic pipe replacement program.

The Board should also reduce energy consumption by switch over upon gravity flow and also replacing or fine-tuning energy inefficient equipment, which consume more energy in deplorable condition. In particular, replace pumps and motors in pump stations. Refine the operation of water treatment facilities, where energy savings can be achieved.

KW&SB should strive to achieve 24/7 water supply service both to satisfy customer preferences and to reduce contamination of the water supply and associated public health risks.

4.4.1.4 Service Pricing:

A detailed study of expenditure made on providing service on no loss and profit, should be carried out to determine how much tariffs could be raised and still be affordable to different income groups. The Karachi Water and Sewerage Board should carry out public education and customer outreach activities to educate the public about the need to rationalize the tariffs in order to improve service coverage and quality. Tariff change options should be based upon expenditure made on service to equalize with the revenue / tariff.

4.4.1.5 Customer Relations:

Service pricing and tariff collection initiatives must be carried out in a participatory fashion in order to secure customer buy-in, reduce public opposition, and increase willingness-to-pay. This is part of a larger effort to be responsive to customers' preferences and priorities, as would any private sector business in order to increase sales, raise customer satisfaction, and expand its customer base. Admittedly, there are limits to the comparison between a private firm selling a 'substitutable' product (like a cell phone) and a publicly owned utility enjoying a monopoly over provision of a networked public service; but the more KW&SB acts like a business and treats its customers as if it could lose them, the better its technical and financial performance is likely to be.

4.4.1.6 Billing and Collection:

KW&SB loses a huge amount of revenue through non-payment of bills. This greatly impacts the ability of the utility to maintain and expand the system. The Board should move to increase its collection rate by (i) improving relations with customers, (ii) raising public awareness of the need to collect fees in order to provide services on a sustainable basis, (iii) simplify and streamline payment procedures (iv) intensify direct contact with the highest debtors, including but not limited to public sector institutions (v) study to put the bulk metre as well as reservoir in each town and (vi) introduce modern system and techniques of improving collection and efficient and error-free billing system.

Billing recovery should be facilitated by the town administration, while the recovery from the consumer should be the responsibility of the town administration. Incentives should be given in shape of water improvement works.

4.4.1.7 Capital Investment:

In addition to the higher priority water supply proposals above (demand management, enhanced utility management), substantial investment in the water supply system will be required to support the envisioned growth of Karachi city district over the next 15 years. This section identifies the major capital investments required to increase bulk water supply, through K-IV project expand storage. Capital investment proposals set out here should be reviewed and validated by the JICA team developing Karachi water supply and sanitation Master plan, as their data collection and analysis activities are being conducted in greater detail than the preparation of this overall (strategic) development plan will allow.

While other local sources can be exploited more fully, the Indus represents the only surface water supplies that can meet the bulk of future demands of Karachi. The main solution to the city district's bulk water supply needs is therefore to implement the Bulk Water project to double the amount of water that the Indus supplies to the metropolitan area. It is therefore, essential that allocation of water from the Indus source must be enhanced to sufficiently cover

the need/ demand up to the year 2020 which is estimated to be 1368 MGD and reservoir capacity for the same should be expended. Due consideration should be given to the proposal to bring a new water transmission line along Super Highway in order to (more cost-effectively) serve new expansion areas north and northeast through gravity flow. Federal and provincial governments shall approve enhanced allocation for Karachi and shall take appropriate steps to ensure supply in due time.

New water storage and filtration facilities should be built and evenly distributed throughout the existing and new urban fabric to improve water quality and security of water provision (see figure 4.10). Rain water harvesting should also be carried out in the vicinity of storage reservoirs in selected low-density areas.

A pipe replacement program should be prepared and implemented to reduce technical losses. Prioritization of investments should be done on a financial rate of return basis, taking into account investment cost and reduction of leakage. Corrosion-resistant pipes to be laid at shallow depths and equipped with required accessories, valves, and chambers. New water disinfection stations should be increased at intermediate levels in distribution for efficient monitoring and redressing contamination problems.

The land reservation for K-IV supply line alignment corridor of 1000 feet width shall be provided and no allotment shall be made by the BOR, GOS in the reservation. Necessary steps shall be taken by the BOR and KW&SB for reservation and protection of land. For reservoir, treatment plants, pumping station, staff housing and, intake and miscellaneous structure, 800 acres of land shall be allotted.

Large scale development / construction projects of coastal oriented land owning agencies and developers shall ensure required water supply through self- sufficient measures including desalination.

Table 4.6: Water Supply Capital Improvements

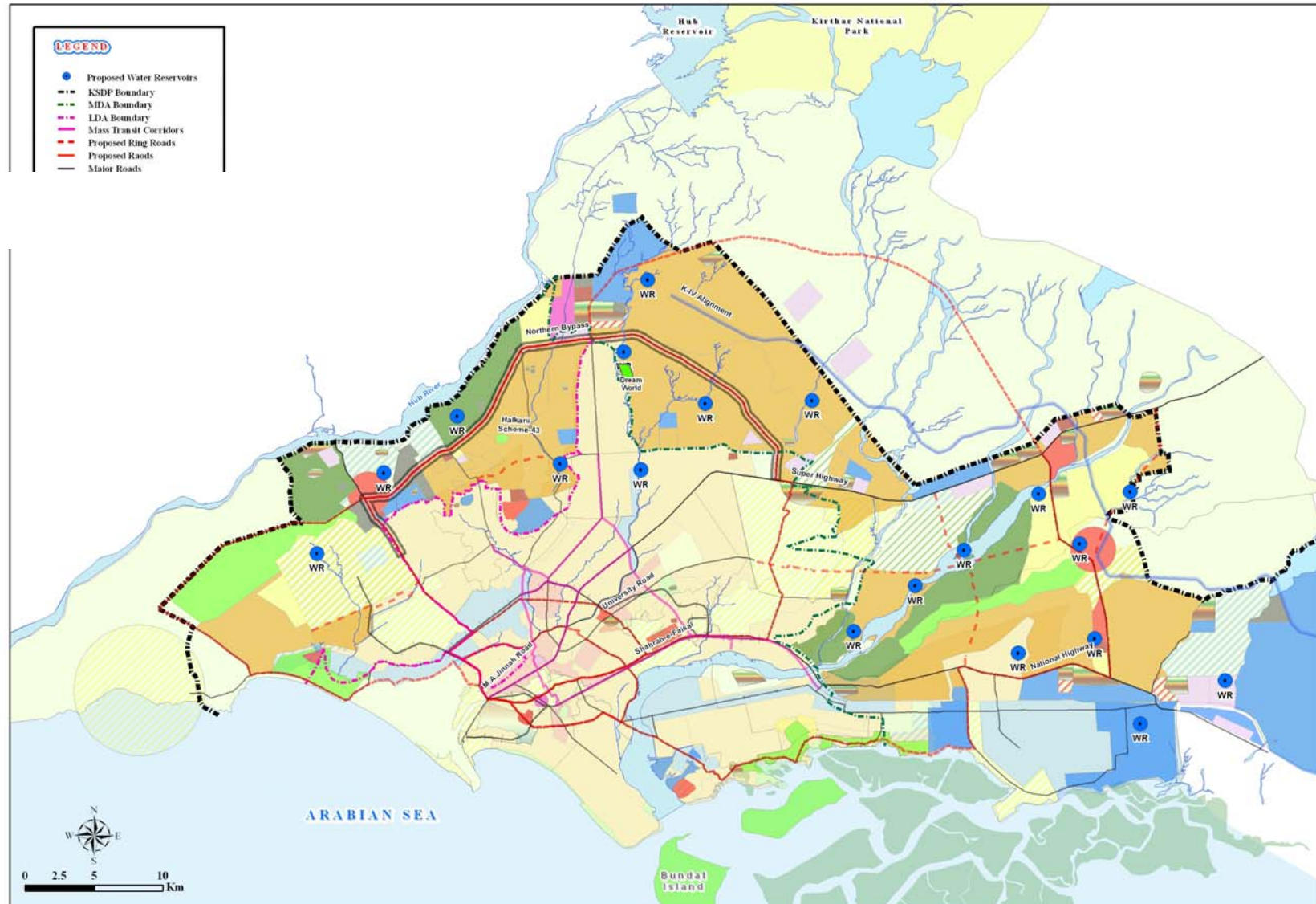
S. No.	Water supply proposal
1	KWSB may be declared single agency with jurisdiction upon all the agencies and constituent bodies including civil areas of cantonment boards and other land owning agencies except their operational areas.
2	Minimizing construction of new pumping station to save energy expenditure.
3	Launching any new scheme (residential, commercial, industrial) by development authorities, cantonment boards constituent bodies (KPT, PQA etc.) shall be subject to prior commitment/incorporating the requirement of water & sewerage by KW&SB
4	Improve recharging measures and exploring avenues for establishing check dams / small dams on Malir, Hub and Lyari Rivers in rural areas for rainwater storage.
5	Leakage and loss reduction program
6	Development of new big reservoir upon hills introducing 24/7 hrs supply on gravity basis.
7	Water supply system shall be laid in all Katchi Abadis and private societies which are yet un-served. Overhead tanks in new societies to be mandatory provision to ensure 24/7 hrs. supply and proper pressure.
8	Zoning meters for Union Council and Towns
9	Upgradation of Water Supply System in 18 Towns
10	Rehabilitation / upgradation of dumlottee wells.
11	Coastal oriented land owning agencies (bulk consumers) to switch over to desalination water and conserve existing water quantity for supplying to surrounding poor areas. KW&SB should be given authority for implementation.

The benchmarks for service improvement in the water sector, by which progress will be measured, are set out in the following table.

Table 4.7: Benchmarks for Water Supply System Performance, 2005-2020

Indicator	2005 Baseline	2010 Target	2015 Target	2020 Target
% households connected to water supply network	60%	85%	100%	100%
Hours of water service per day	4 hours	6	24	24
Tariff collections/billings	60%	70%	80%	85%
Non-revenue water	35%	30%	25%	20%

Figure 4.10: Proposed Water Reservoirs



4.4.2 Sewerage

The proposals for increasing the capacity and performance of the sewerage system can be broken down into capital and non-capital measures.

4.4.2.1 Capital Investment

Capital investment proposals set out here should be reviewed and validated by the JICA team developing Karachi water supply and sanitation Master plan, as their data collection and analysis activities are being conducted in greater detail than the preparation of this overall (strategic) development plan will allow.

- i. Build more interceptors to link collection areas to treatment facilities. It is proposed to construct trunk sewers on both sides of the Lyari River and Malir River. These large sewer pipes will carry most of the city's wastewater to WWTPs; the rivers will be rehabilitated as public greenways. A new expressway is under construction in the Lyari River right-of-way and another is under discussion along the Malir River.
- ii. Construct a network of new small/medium wastewater treatment plants. New interceptors will transport wastewater to a series of small and medium-sized WWTPs that serve a town or other urban area. The plants will be fed to the extent possible through gravity mains, with pumping required only from depressions. A larger network of more smaller plants (average capacity 25 MGD) will reduce wastewater transmission requirements and costs, thereby resulting in greater overall economic efficiency than small set of very large treatment plants. The risk of service interruption will also decrease, since it is spread over more facilities.
- iii. Rehabilitate existing plants to improve their operational efficiency and allow them to function at or near their capacity.
- iv. Prepare and implement a pipe replacement program to reduce wastewater leakage. Prioritization of investments should be done on a financial rate of return basis, taking into account investment cost and reduction of leakage.
- v. Industrial park managers and/or industrial firms to construct new industrial waste pre-treatment facilities (see 'trade waste policy' below).
- vi. A mega project i.e S-III shall be undertaken to enhance the treatment capacity of TPI, TPII & TPIII and for establishment of TP-IV in Korangi Township. The BOR and KW&SB shall take necessary step to make the required land available for the purpose.

Figure 4.11: Proposed Sewage Treatment Plants

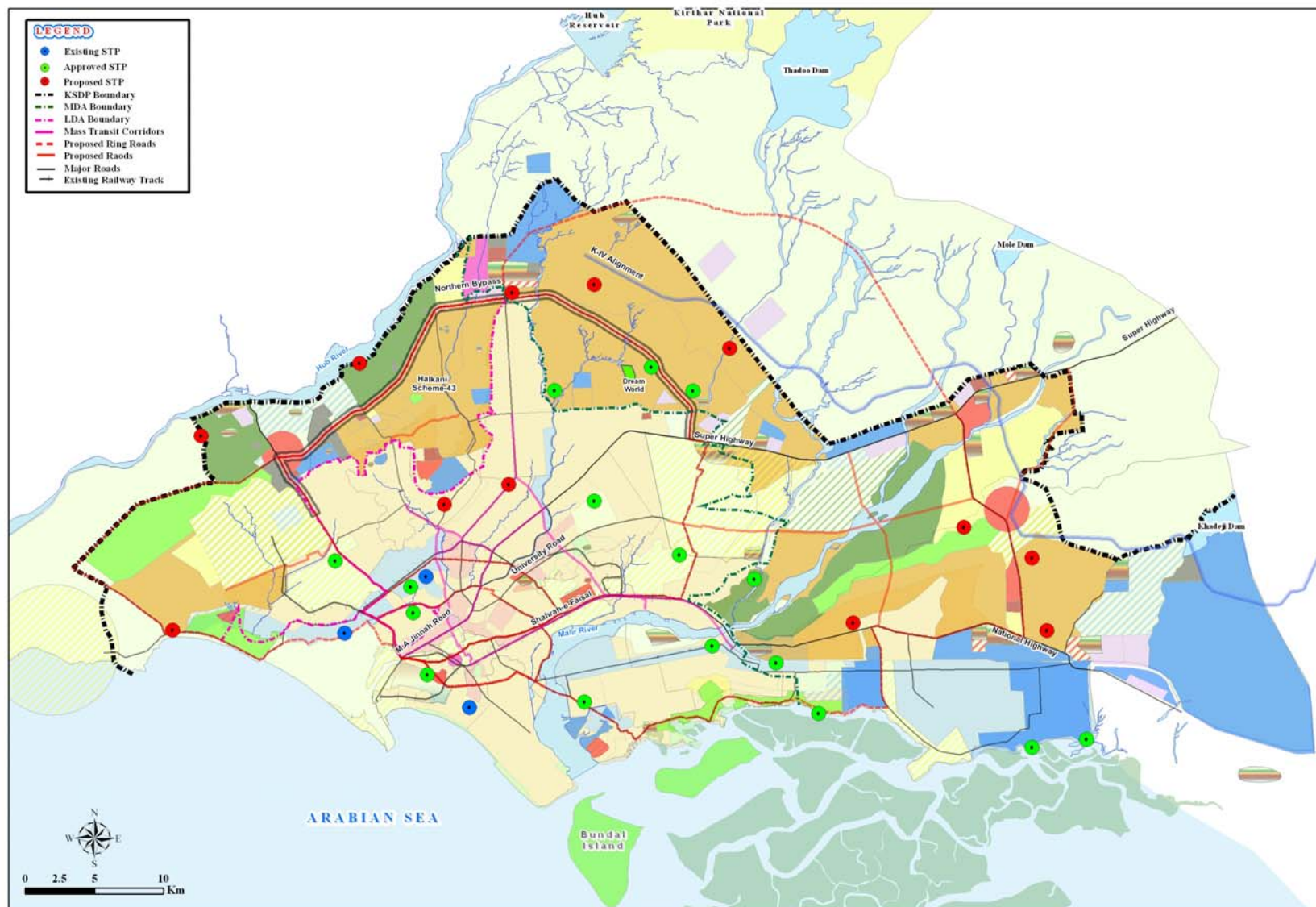


Table 4.8: Sewerage Capital Improvements

S. NO	Sewerage system proposal
1	Development of new sewerage treatment plants
2	Establishment of CET (Combined Effluent Treatment) Plants in industrial zones of city before disposal of effluent into rivers.
3	Proposed Sewerage improvement Plan for Lyari and Malir River interceptor
4	Bitumen coated R.C.C pipe should be used in sewerage network
5	Precast manholes should be used in the sewerage network
6	Improvement of sewerage Treatment Plant for its efficient functioning Desludging Sludge digestion and dry sludge bed need improvement
7	Thirty years old Trunk Sewer should be replaced by new Trunk Sewer because design life of the system has expired
8	Upgradation of Sewerage System in 18 Towns
9	Additional Sewage flow improvement works to increase influent STP-I, STP-II, STP-III & STP-IV (proposed)
10	KW&SB may be declared single agency in city district.
11	Sewerage System shall be laid in un-served areas of Katchi Abadis & private societies.
12	Desalting of pipe sewers and drains shall be made to restore original capacity of system.

4.4.2.2 Non-Capital Measures

- i. Formulate and implement a trade waste policy on the 'user pays' principle. Generators of industrial wastewater should be required to pre-treat before introducing their waste into the municipal system. Construction of pre-treatment facilities should be organised where possible at the level of the industrial zone in order to take advantage of economies of scale and reduce costs per industrial unit and per unit volume of wastewater. For example a, 30 MGD wastewater treatment plant could treat approximately 70 percent of industrial waste at SITE. SITE administration is already planning to construct one such effluent treatment plant in coming years.
- ii. Make available treated wastewater for industry, car washing, watering lawns and public green areas, and recharging the aquifer.
- iii. Increase sewerage tariff in the water bill to 50% to meet expenditures upon Sewerage System.
- iv. Undertake maintenance and repair of the existing wastewater network to eliminate sewerage overflows from (i) streets, public spaces and other inhabited areas, (ii) avoid pollution of groundwater, and (iii) to avoid contamination the water supply network.

- v. As noted for water supply above, given the difficulty of separating the wastewater collection network along TMA administrative boundaries, it is not recommended to decentralize responsibility for O&M of the network to the TMAs.

4.4.3 Solid Waste Management

4.4.3.1 Guiding Principles

In order to progressively improve sector performance, achieve intended outcomes, the program takes into consideration all aspects of the existing systems and its stakeholders, including the various levels of Government and the private sector. The program for SWM is based on the following principles:

- i) waste is considered a resource;
- ii) all individuals must assume responsibility for the waste they generate;
- iii) source segregation is key to any sustainable solution;
- iv) the informal sector plays a critical role in the management of solid waste;
- v) prevention, reduction and recover for recycling and reuse should be priority focus;
- vi) active public participation is essential;
- vii) private sector participation should be encouraged and an enabling environment created;
- viii) economic incentives need to be established; and
- ix) all sectors and various levels of government have different roles and responsibilities in ensuring an effective solid waste management system, and these should be effectively integrated.

4.4.3.2 Goals and objectives

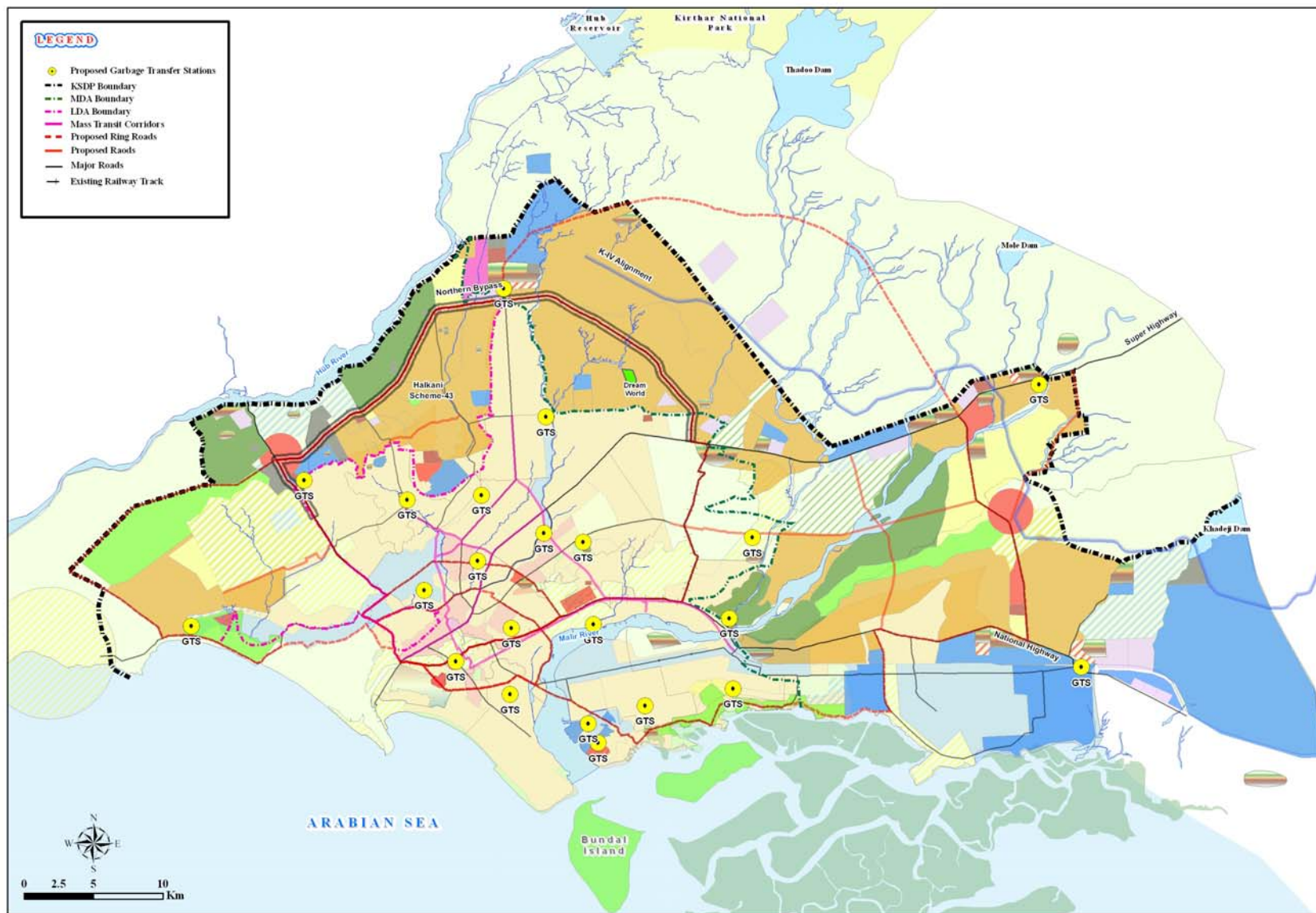
SWM services in Karachi can be significantly improved by building on the strengths of the existing system and moving toward an integrated, transparent and efficient system which meets internationally recognized standards and practices. The objectives of the program are:

- i) Concrete steps ensuring access of the people to sanitation and better environment as pledged in the national government's Vision-2030.

An effective regulatory framework for the environmentally safe and healthy management of all municipal and hazardous solid wastes generated in Karachi.

- ii) Efficient, coordinated, integrated and transparent institutions at the city, town, and union level, able to effectively manage the city's waste over the long term.
- iii) A sustainable and equitable primary collection system serving all areas of Karachi, with the gradual expansion of direct house-to-house collection.

Figure 4.12: Proposed Garbage Transfer Stations



- iv) An efficient and expanding municipal waste collection service covering all the communities of Karachi, with regularized collection and the efficient and environmentally safe transfer, treatment and disposal of wastes.
- v) Proper collection, storage, treatment and disposal of hazardous wastes generated in Karachi from industrial, medical and other sources, and
- vi) Creating an enabling environment and supporting private sector involvement in the segregation, recycling, collection, transfer, treatment and disposal of wastes, and prioritizing the involvement of lower income recycler groups wherever possible.

4.4.3.3 Program Strategies

The strategies for SWM directly address the challenge and will provide the intended service delivery improvements.

Strategy 1: Strengthening the Legal Policy Framework

Although a national SWM framework is in place, a policy framework at the city level is urgently needed in order to provide specific guidance and regulation of SWM sector development for Karachi. The policy framework should define; (i) city goals, policies, standards and phasing to improve the SWM system; (ii) further delineate the roles of the national agencies, the city, the towns, the UCs, and the other administrative bodies such as the cantonments; (iii) clearly establish technical standards, reporting, and compliance mechanisms; (iv) identify modalities to expand private sector participation including the setting of performance standards; (v) pricing mechanisms for solid waste management services and recycling; and, (vi) provide incentive and penalty mechanisms. Such a policy framework can then guide detailed action planning at the city, town and UC level.

Actions

1. Review existing laws, rules and regulations on SWM within the city to identify gaps, constraints and areas for improvement.
2. Convene a regulatory working committee comprising a wide range of stakeholder representatives in SWM in order to guide the regulatory evaluation process and formulation of the city level regulatory policy framework.
3. Prepare a policy framework that sets out the working principles for the SWM policy and improvement program. Working with the committee and ensuring the involvement of all stakeholder groups, formulate a policy document that is workable and acceptable to all stakeholders.
4. Prepare necessary policy framework legislation in order to effectively regulate SWM at the city level, and enact the legislation through a process of consultation and review.
5. Implement a city-wide public information campaign following adoption of the policy.
6. Implement a similar regulatory development process for the HWM sector, including, (a) establishing a HWM working committee, (b) preparing a HWM policy framework, (c) preparing and enacting necessary legislation to regulate HWM, and (d) public information initiatives.

Strategy 2: Rebuilding and Strengthening the SWM Institutions

Unlike other infrastructure sectors, each level of government (at the city, town and UC level) are intensely involved in SWM, and each has an important role to play in ensuring the sustainability of the SWM system. In this context, and given the current status of the sector, it is necessary to strengthen each of these levels of government to be able to adequately perform the functions required of them, and also to ensure the coordination and integration of their functions to the benefit of the complete system.

Actions

1. Provide long-term capacity building support to the SWM Division of the group of offices of CDGK in order to build sufficient capacity to manage the city's solid waste system and improve performance, accountability and transparency. Strengthening should be provided in; (a) technical areas relating to the planning and management of waste collection, recycling, transfer, disposal and the future integration of emerging technologies; (b) waste reduction and recycling; (c) regulation, enforcement and compliance monitoring; (d) SWM financing; (e) private sector participation, including procurement processes, contracting and contract management; and (f) public awareness, community involvement, media and customer relations.
2. Strengthen the capacity of the SWM administrations in the 18 towns of Karachi, who are responsible for municipal waste collection services within their jurisdictions, and which are to be outsourced to the private sector. Support should be targeted at building capacity to adequately manage these outsourced contracts, and also to rationalize their current staffing levels (especially 'sweeper' numbers and allocations) and build capacity within these units.
3. Capacity building at the UC level including; (a) rapid urban assessment of each of the 178 UCs to assess institutional and regulatory capacity, existing status and deficiencies of primary collection systems (including magnitude of illicit dumping), level of support by informal groups, status of informal recycling initiatives and current recycling efficiencies; (b) establishing a working group of all stakeholder representatives involved at the community level; (c) in conjunction with the working group and involving a wide range of stakeholders, devising a series of improvement options and pilot testing of the options; (d) progressively replicate successful options throughout all 178 UCs of Karachi; and (e) provide focused capacity building to UC Nazims, UC Council members and staff in the successful operation of their individualized SWM systems.
4. Perform an institutional needs assessment for regulatory agencies involved in the regulation of Hazard Waste Management (HWM), and develop and implement targeted capacity building and institutional strengthening programs in order to improve the regulation of SWM.

Strategy 3: Replacing Municipal Infrastructure

Improving SWM service delivery in Karachi hinges on the establishment of a completely new physical system, as virtually all of the existing physical assets, such as the communal collection point infrastructure, collection trucks and dumpsites are wholly unsuitable for continued use. The entire infrastructure system needs to be replaced, and a new system developed which is specifically designed to accommodate city solid waste demands for the planning period and beyond, and which meets internationally recognized standards of environmental and public health protection. The new system must utilize 'tried and tested' technologies which are appropriate and affordable for Karachi, recognizing the need for a phased 'transition' from the existing system to the new.

Actions

The following municipal infrastructure is recommended.

1. Basic infrastructure for the primary collection systems in each UC, including collection carts, communal collection bins and where appropriate, community recycling centers.
2. Specially designed road collection vehicles to support an efficient, transparent and reliable town municipal waste collection service for each of the 18 towns. Specialized container vehicles will be used for transportation from GTS to landfill sites.
3. Six strategically located regional garbage transfer station systems (GTSs) in the first phase at Mewa Shah, Mahmud Abad, Gulshan-e-Iqbal, Korangi, Orangi and one site in the north western part of the city to be determined in due time. More GTSs may come up in the second phase after a few years keeping in view the waste generation projections up to year 2020. The land-owning agencies shall provide the required land.
4. Material Recovery Facility (MRF) at all these GTSs for effective recycling of valuables in the garbage. A pilot MRF will be constructed at one GTS and further action will depend on the success of this project.
5. Three major regional sanitary landfill (SLF) facilities. The fourth land fill site will also be identified, reserved for future consumption of next 50 to 100 years but will not be started. It may be for the time being converted into green zone till it is used for the purpose.
6. A comprehensive HWM system to provide for the proper management of the city's hazardous wastes from industrial, medical and other sources.
7. Although problematic in nature, a dumpsite remediation will also be required in Karachi in order to mitigate the environmental and public health damage caused by the presence of existing dumpsites and waste piles.

Strategy 4: Improving Primary Waste Collection and Integrating the Informal Sector

The informal sector plays a critical role in the entire SWM system of Karachi, although currently, their role is not fully recognized or supported. Initiatives to integrate the informal sector into the formal SWM system of the CDGK wherever possible will be strongly supported. Recognizing the vital role of the informal sector in contributing solutions to the current SWM problems of Karachi will allow the city to mobilize these valuable human, financial and other logistical resources to augment its own limited resources. This will also contribute substantially to raising the status and self-esteem of these "illegal players", potentially allowing tens of thousands of disadvantaged members of Karachi society to earn a sustainable income from providing much-needed services in a decent manner (and thus be part of the solution).

Strategy 5: Optimizing Private Sector Involvement

It is recommended that the private sector be involved at every level of SWM, and essentially operate the entire system under the direction and control of various government departments.

Strategy 6: Engaging the Public

An effective solution to the SWM problems of Karachi can only succeed if there is full public participation. To do this, extensive city-wide information, education and communication (IEC) campaign should be launched using the tri-media as well as

more interpersonal means. This is necessary to achieve the short and medium term objectives of maximizing the recovery of recyclable materials in order to conserve valuable resources, and reduce collection, transfer and disposal costs. People have to realize that they are the source of the problem and, more importantly, that they can be part of the solution by segregating the waste at source so that most of these materials can remain useful. The practice of segregating waste at source needs to be understood, internalized and practiced by everyone. This will demonstrate that each individual is assuming responsibility for the waste he or she generates, and is the key to solving the present solid waste problem.

Waste to Energy Options

Various technologies like pyrolysis, gasification, methane to energy, biogas etc. are used world over, but we need to adopt a combination of technologies that suit our ground realities and requirements.

CDGK is at this moment in the process of evaluating a number of proposals which suggest different technologies for generation of electricity from solid waste.

The most important proposal is on Plasma Gasification of 1000 tons of garbage and production of 37 MW of electricity. Other important and the time tested one is collection of methane gas from the landfill site and then combusting it to generate electricity.

Recently a joint venture project with a New Zealand firm on Biogas, composting and electricity production from cow dung in Landhi Cattle Colony has been started. Such projects will be encouraged for other cattle colonies in the city.

All these technologies will also help CDGK in earning Carbon Credits and using these funds to subsidize the expenditure on SWM sector.

4.4.4 Storm Water Drainage:

In order to alleviate the situation, urgent corrective measures are necessary for rehabilitation of the storm water drainage system.

- i. Development of Digital Drainage Network : The CDGK needs to immediately develop a comprehensive database on GIS platform to identify and develop existing drainage network layers with associated databases informing the available flow capacities. Data needs to be provided by KWSB offices and survey and verification to be carried out in coordination with the KWSB and TMA offices.
- ii. Registration of Trouble Spots: Immediate attention is required at all major problem areas such as Teen Talwar, Nursery - Post Office main Shahra-e-Faisal and FTC intersection, Johar Mor Bridge leading to Johar Chowrangi both sides in Gulsitan Johar, I.I. Chundrigar Road and all major intersections, underpasses and bridges. The requirement is to immediately conduct topographic survey of such low-lying areas/locations and evaluate and analyze the existing drainage in terms of its efficiency and carrying capacities for last 50-100 years storm recurrence interval. The volumetric runoff should be calculated based on the selected storm events and a computer model should be generated identifying the flow patterns in these identified localized positions.
- iii. Identification of Catchments Areas: The catchments areas need to be redefined and existing drainage should be examined in the light of local topography of the area.

- iv. Identification of Local Services Area- Catchments and watersheds: In secondary phase of study delineation of catchments and watersheds in the 18 towns will be required to assess the drainage pattern in localized environment. This will require coordination and input at each Union Council and TMA level. The layout of the existing and proposed drainage system is to be superimposed on the topographic map of the area and the points of inlet of runoff to the system identified.
- v. Hydraulic Survey of All Major Channels: All major disposal channels and nalas are to be examined for hydraulic carrying capacities and necessary suggestive measures and geometrical redesigning option to be proposed and evaluated for a comprehensive solution to the drainage problems.
- vi. Future Development: In estimating the future rainfall runoff rate, it may also be necessary to estimate the future development within the tributary areas. The present development patterns will serve as a guide and predicting future development but such factors such as zoning regulation and other city or area planning documents must be evaluated.

A mega project for construction of new storm water drains including replacement of old systems and resettlement of the evictees from affected land around nallahs shall be developed under special financial package to be provided by the Federal and Provincial Governments.
- vii. Installation of Gauging Station Network: It is proposed to install gauging stations on town basis to monitor precipitation and flooding in local areas. The city of Bangkok, Thailand has developed a fully functional application which provides GPRS based information on mobile phones the runoff and flooding situation in the event of storm and provides safe passages and directions to vehicular traffic users. It is highly recommended that CDGK evaluate the existing flood protection and disaster mitigation measures and procedures of the city of Bangkok which in addition to monsoons also faces tropical storms from South China Sea
- viii. Acquisition of Existing Topographic Data: It is suggested that the CDGK, Works & Services Group of Offices should acquire the digital topographic data from the consultants and contractors of all the ongoing and previous infrastructure developments works. This exercise would provide immediate availability of the localized topographic contours and would assist the technical experts to identify the existing drainage problems and suggest measures.
- ix. Infrastructure Monitoring Cell: A Cell consisting of experts should be established for the evaluation of ongoing development works and assess projects from the overall perspective of road/ transportation, water supply / sewerage and drainage schemes. Individual departments and compartment studies preclude the possibility of analyzing on the basis of integrated and holistic approach.

4.5 Electrical Power

To address the perennial shortfall of electrical power in Karachi and its negative impact on economic growth, it is proposed to undertake a two-phased power system development program as described below.

1. Immediate action plan (2006-2011)
2. Long-term plan (2011-2020)

Immediate Action Plan (2006-2011)

The objective is to close the 1628 MW gap between electrical power supply and demand as given below.

Table 4.9: Expected Growth in Peak Demand

Year	Peak Load (MW)
2004-2005	2197
2005-06	2442
2006-07	2666
2007-08	2900
2008-09	3161
2009-10	3539
2010-11	3825
Increase in demand in (5 years period)	1628
Growth rate	9.6%

In order to achieve the supply and demand gap of 1628 MW, the following fast-track approach to generation expansion is unavoidable.

4.5.1 Generation Expansion

- 1000 MW direct power source from Hubco Power Plant. A 500 kV / 220 kV grid station was recently commissioned near Baldia for linking Hubco-Jamshoro 500 kV transmission lines to this completed grid station which will have a capacity of about 1000 MW as against present arrangement of 500 MW. Therefore import from WAPDA through Hubco-Jamshoro line, up to 1000 MW, can be expected, provided that WAPDA's own power requirements allow it.
- 80 MW, DHA Co-Generation Power Plant is under construction and is expected to be commissioned in 2007 and shall feed KESC network. A further extension of this plant by 80 MW is under consideration.
- 350 MW combined Cycle Power Plant by KESC is in planning stage for commissioning in 2007 and another 350 MW plant in 2008. Further, an additional (350 MW) plant is expected in 2011-12.
- 150 MW Western Electric Power Plant in North Karachi, in private sector, is under consideration / negotiation.
- 150 MW Fauji Foundation Power Plant, in private sector, is under consideration / negotiation.
- 240MW Abu-Dhabi Gas Turbine is expected in 2008.
- On conservation side, all hoardings / bill boards, should be powered by solar power. This conservation will save 20 MW of energy in Karachi.

From the above it is clear that there would be shortage of power in years 2006 and 2007 if quantum of power as required by KESC is not made available by NTDC (WAPDA). Shortage of power may be aggravated in case construction of new power generation plants by KESC itself or by IPPs is not started immediately.

4.5.2 Transmission System Expansion

The on-going transmission system projects include establishment of the following grid stations in the existing system which will enable KESC to meet the above demand successfully:

- 220 kV - Surjani Town, Gulshan, Landhi
- 220 / 132 kV - Mauripur
- 132 kV West Wharf, Old Town, Korangi South, Gulshan-e-Maymar near PRL, Memon Goth, Azizabad, Tipu Sultan Road, Jail Road, FTC and in DHA (2 Nos.)

4.5.3 Distribution System

In order to meet the load demand growth during 2006-2011, KESC will have to increase by about 350 to 400 the number of 11 kV primary distribution feeders and will have to establish about 4,000 11kV distribution substations.

A distribution system improvement and loss reduction program is already under implementation by KESC. With the implementation of system improvement plan, the existing system losses of 34 percent are expected to be reduced to 24 percent.

4.5.4 Long Term Plan (2011-2020)

The expected maximum power demand by KESC during the period 2011-2020 is from 3825 MW to 4965 MW (2011-2015) that is an increase in power demand of 1140 MW at a growth rate of 7%, and from 4965 to 6390 MW (2015-2020) that is an increase of 1425 MW at an average rate of 5.2%.

In order to meet the 1140 MW and 1425 MW during the period (2011-2015) and (2015-2020), the due consideration will be taken into account for the town-wise power demand projections, industrial and population growth as well as other developments as proposed in the Karachi Strategic Development Plan-2020.

The maximum power demand as estimated by KESC for the period 2011-2015 and 2015-2020 are given below:

Table 4.10: ESTIMATED MAXIMUM DEMAND (2011-2015)

Year	MW
2010-2011	3825
2011-12	4150
2012-13	4442
2013-14	4704
2014-15	4965
Increase in demand in 4 Years (2011-2015)	1140
Growth Rate	7%

Source: KESC documents

Table 4.11: ESTIMATED MAXIMUM DEMAND (2015-2020)

Year	MW
2014-2015	4965
2015-16	5223
2016-17	5494
2017-18	5780
2018-19	6080
2019-20	6390
Increase in demand in 5 Years (2015-2020)	1425
Growth Rate	5.2%

Demand projection beyond 2015 is yet to be prepared by KESC. On the basis of population projections and Industrial trend, maximum demand for the period 2015 - 2020 is estimated.

Therefore the power demand on KESC system would increase by 2565 MW during 2011 to 2020 for which new sources of power generation would be required in the scenario of the town-wise power demand projections considered industrial & population growth as well as other developments as proposed in the Karachi Strategic Development Plan 2020.

Keamari, Bin Qasim, Gadap, Orangi, Malir & Baldia Town are expansion areas in the KSDP-2020.

Expansion of Keamari Town includes development of Hawksbay, Beach Resorts, Recreation Complex and resettlement areas.

Expansion of Bin Qasim town includes industrial loads of textile city, automobile city, marble city, downstream industries of steel mills and expansion in steel industry, marine university, knowledge based institutions and coastal development. Therefore the load growth in Bin Qasim town will be higher compared to other areas.

Other than above mentioned six towns, remaining towns shall be areas where population consolidation and infill has been proposed. Therefore load will be growing in these areas in accordance with the population growth.

The objective is to respond to the anticipated increase in power demand of 1,140 MW over the period 2011-2015 and 1425 MW over the period 2015-2020.

4.5.5 Power Generation

As per the national power sector development policy, additional capacity requirements in power generation would be made mainly from indigenous resources. Accelerated program has been undertaken to increase hydro-power generation capacity from 6,460 MW to 7,720 MW by 2010, 15,290 MW by 2015, 19,990 MW by 2020 and to 32,660 MW by 2030 through construction of series of hydro-power projects on all rivers, particularly on the Indus.

Although inter-regional power development policy is outside the scope of this master plan, future power development will have an important impact on Karachi's growth. If large sources of hydroelectric power become available, it will provide an alternative low cost energy source for future employment growth in Karachi. Alternatively, if the current reliance on thermal plants continues,

Karachi's energy costs are likely to continue to increase making it a less favourable location for industries reliant on electrical energy.

Feasibility and detailed engineering work on major hydro-power projects is already underway and their construction is scheduled to start soon. These projects are poised to make an important contribution to future supply of power. However, if further substantial hydroelectric power increases prove infeasible, then future power generation in Karachi will have to rely on lower cost nuclear generation. The alternative is to continue the current pattern of reliance on higher cost fossil fuels. The higher cost pattern may tend to discourage energy-intensive industries from locating in Karachi. It may also be a constraining factor in the growth of service sector activities.

The national power sector development policy envisages increasing nuclear power generation from the present 400 MW to 1,300 MW by 2015 and 2,800 MW by 2020. KANUPP (Karachi nuclear power plant) will be retiring during this period; therefore, PAEC must consider putting up 2 x 300 MW power plant in Karachi during 2010-2015. A second nuclear power plant may be established in Bin Qasim Town where a large industrial area will be developed. A parcel of land of about 3,000 Acres should therefore be reserved now in Bin Qasim Coastal Area for a 1600/2000 MW Nuclear Power Plant to meet the future load demand of Karachi and lower Sindh area.

The program of utilization of indigenous coal includes its use in generating 900 MW additional power by the year 2010, 3,000 MW by 2015 and 4,200 MW by 2020 and 6,250 by 2030 as per the National Power Development Policy. KESC electric network is interconnected with the national grid; therefore, power produced at Thar and Lakhra coal fields, if found economical compared to existing thermal plants, may become available for Karachi.

Large-scale development of new natural gas fields might also provide new energy supply for KESC for establishing combined-cycle gas turbine units. which are more efficient than conventional thermal plants.

The present KESC management has given high priority to consumer service. The new management has affirmed that there is a clear understanding and recognition on the part of the new management that without sustainable growth of industry of Karachi, for which uninterrupted power supply is a fundamental prerequisite, the macro-economic targets set for national industrial growth can not be achieved.

It is assured by the new management of KESC that they would primarily focus on rehabilitation of the existing de-rated generation capacity and that the planning to establish new generating units of 1,000 to 1,300 MW would immediately be embarked upon to meet the ever-growing power demand of Karachi City. Large quantities of natural gas would be required for these plants.

GOP policy is to encourage the utilization of renewable energy (such as solar, wind and biomass) especially for remote areas.

It will be mandatory for all big building projects to install self-generating electricity system.

4.5.6 Transmission System

The transmission system expansion plan beyond 2011 has yet to be prepared by KESC. It is estimated that to meet the growing power demand of Karachi towns, grid stations shall be required mostly in North East and East Karachi, where the population and industrial load will be growing at a faster rate compared to other

areas and in South of Karachi due to conversion of residential buildings to commercial use.

The requirement of grid stations during 2011-2015 and 2015-2020 is estimated as follows:

- 2011-2015 (Load Growth 1,140 MW)
- 220/132 kV Karachi East, Tunisia Lines
- 132 kV Deh Taisar, Gadap, Hawksbay, Boat Basin, Kashmir Road, PECHS, Sindhi Muslim Housing Society, Malir East, KDA Scheme 33, NED.Karachi University, Karsaz or any location off Shahrah-e-Faisal Agha Khan Hospital
- 2015-2020 (Load Growth 1,425 MW)
- 220 / 132 kV Gulistan-e-Jauher-II, Near Quaid-e-Azam Mazar, Bahadurabad.
- 132 kV Shah Latif Town, Lawrence Road, Malir West, KDA Scheme-33, Karachi North East, Deh Khar Kharo, Hub-Dam, Deh Langheji, KHA

4.5.7 Distribution System

In order to meet the load demand growth during 2011-2020, KESC will have to increase about 700 to 800 number of 11 kV primary distribution feeders and will have to establish about 8000 numbers 11kV distribution substations during this period. The number of consumers is expected to increase by about 1 million during 2011-2020, on an average of about 100,000 consumers per year.

4.6 Social Services Component

4.6.1 Health Services

Analysis of the health care situation in Karachi showed that the majority of health related problems are basic in nature and that there is a clear need to support, bolster and maintain prevention programs against communicable diseases. Millennium Development Goals for the health sector also focus on reducing child mortality, improving maternal health and combating HIV/AIDs, malaria and other communicable diseases.

Given limited government resources, public-private partnerships provide an important opportunity for CDGK to undertake a broad range of health care initiatives in collaboration with the private sector. These initiatives can include: preventive health programs, health education, disease surveillance programs, sharing of information for a National HMIS, and propagation of programs for reproductive health. Financial partnerships can be used to stimulate private sector investment in health care infrastructure by providing land and/or tax holidays for the construction of much needed health facilities in newly developing areas.

4.6.1.1 Facility Provision

Responding to the city's future health service needs will require the construction of new facilities at all levels of the health care system. In particular, it will require a large number of new primary health care centres, the majority of which will be located in newly developing areas of the city. Based on future population projections, some 50 percent of these new facilities should be built in Gadap, 15 percent in Keamari, 15 percent in Bin Qasim and 20 percent in the already built-up, older towns. New teaching and tertiary level hospitals also will need to be built on the borders of these new towns in order to serve both older towns that do not

have the necessary land for new, large-scale facilities and newly developing towns that have land available.

A low-cost solution to the establishment of primary health care centres would be to place these facilities in existing or ready-to-use buildings that require a minimum amount of modification and can be leased. Financial savings from this approach could then be used to provide subsidies to needy people for certain health care services.

Given limited public sector resources, there should be a proactive plan to involve the private sector in providing capital investment for the construction of new medical colleges, nursing schools and medical training institutes. Hospital restructuring is also needed in order to improve health services, make them more efficient and sustainable, and reduce, or at least better target, government subsidies. The private sector could be engaged to help manage public health centres for the CDGK. Contributions to improving health service delivery by the Sindh Institute of Urology and Transplant, AO Clinic and Aga Khan University should be documented, distributed and incorporated into the future provision of services.

For improved coverage in the metropolitan area, five more large tertiary care hospitals, each covering three towns should be established in the public sector to be funded by special allocation from the Federal and Provincial Governments.

Hospitals/centers for treatment of heart diseases shall be established in towns, such as Malir, Gadap and Bin Qasim.

4.6.1.2 Staff Improvement

Preparing a large new health care staff for the future, while raising the performance of current workers will require a significant training effort at all levels of the system. While the repatriation of quality Pakistani professionals from abroad can be considered as a means of supporting this effort, the use of telemedicine and teleconferencing may prove more efficient in gaining the necessary expertise to help improve the quality of services. Telemedicine at the primary health care level may be an effective way to improve local services and reduce the burden on tertiary hospitals. Computer literacy in Pakistan is growing rapidly and it would be far easier to set up an excellent telecommunication infrastructure within the Karachi area than to attempt to place a large number of medical specialists throughout the city. A broader use of Lady Health Workers and home-based outreach centres run by women could be incorporated into a well-integrated approach. The telemedicine approach can be an excellent way to bring quality medical services to the patient, rather than transporting the patient to expensive and overburdened tertiary care centres. Teleconferencing can also be an effective way to provide state of the art training and knowledge from a wide range of sources to a large number of health care workers within the city.

Health providers at the primary level need to be reoriented towards a preventive approach. They should be able to provide support and guidance for malaria prevention, tuberculosis treatment, HIV prevention, hepatitis prevention and the immunization of children. Because nurses and paramedical staff are more in touch with people, they can educate and guide them well in terms of preventive health related issues. Primary level professionals should be trained in areas of preventive medicine and well versed with required preventive programs in order to make an impact on the health of local communities.

As a result, there should be a greater focus on preventive curriculum and attitude in the medical colleges and training courses for health care professionals. New training programs for health care administration are also needed that could be

conducted, for example, in collaboration with the College of Physicians and Surgeons' diploma for health services administration and/or with specialised training centres in the existing and future teaching hospitals.

The budgets for general and preventive training in particular need to be drawn from both the public and private sectors. Training should be provided at regular intervals throughout the year and/or on-line in order to reach the maximum number of health care workers.

CDGK should undertake a number of institutional actions to improve its management control of the sector. These include:

- establishing Health Management Boards in all government hospitals;
- creating an Accreditation Body that endorses licenses to open and run private health facilities
- working with the National Commission for Career Structure of Health Professionals to develop recommendations on suitable career structures, salary packages and incentives for different cadres of health care professionals; and
- developing a detailed plan of action with local governments to check the clinical practice by unqualified doctors in the private sector.

4.6.1.3 Access to Services

Access to and utilization of primary health care centres must be improved in order to reduce the flow of unnecessary patients to tertiary hospitals for the treatment of minor illnesses. Not only do primary health care centres need to be well located, staffed and equipped, they also require a well-functioning outreach network to support their disease prevention efforts, instil resident confidence in the overall health care system and help manage an effective process of referrals. The person-to-person approach of these outreach centres is particularly important for the growing number of low-income households throughout the city.

Innovative public private partnerships are needed to increase private sector investment in health care infrastructure. Government could also turn over the management of large tertiary care hospitals to the private sector for extended periods of time under a fixed budget agreed upon by both parties. This would improve the management of these facilities, lower costs and free up government funds for more needy activities.

The CDGK should create more opportunities for the private sector to invest in healthcare facilities and their operation, not only in terms of curative services, but also in undertaking preventive programs.

Primary health facilities must be able to provide proper guidance on the reproductive health of women and family planning. Outreach and primary health care centres must be able to guide people in their neighbourhood on how to become more aware of their own health related issues and where to go for treatment.

The government should establish a health related disaster preparedness program with an organised action plan and triage system that is adequately rehearsed with civil defence, policy and ambulatory services, and local government officials.

4.6.2 Education Facilities Proposals

Existing and proposed educational facilities in Karachi are shown in table in annexure, which depict that at present the educational facilities in Karachi are over and above National Standards of Educational Facilities.

Table 4.13: Proposed Education Facilities

S. NO	Education Facilities
1	Develop 760 new primary school facilities
2	Develop 117 secondary school facilities
3	Develop 36 new college facilities

These educational standards are as follow:

One primary school / 6000 persons

One secondary school / 25000 persons

One college for / 100000 persons

Although the educational facilities in Karachi at present are over and above the National Standards of Educational Facilities, for the new settlement / scheme in Gadap, Bin Qasim and Keamari Town a number of additional primary schools, secondary schools, and colleges will be required:

- Educational facilities in Karachi Metropolitan area are in excess due to commercialization of education and active role of private sector. Private organizations NGOs, autonomous bodies have all taken part in providing sub-standard educational facilities, so the measures should be taken to improve standard & quality of education.
- The schools and colleges especially private schools and colleges should be evenly & spatially spread all over the Metropolitan area. Town-wise and U.C.-wise on neighbourhood planning principles.
- Concentration of private schools and colleges in certain area should be discouraged by not allowing schools in private residential buildings.
- Tiers of education system should be minimized.
- To provide specialised training to meet future manpower needs (craftsman, technicians etc.)
- To achieve specialised training through co-ordination between industry and technical training institutes.
- To adequately meet the educational needs upto the year 2020, a comprehensive programme for the establishment of educational institutions, including universities and professional colleges shall be formulated and implemented with finance from the Federal and Provincial Governments. Currently underserved areas such as Orangi, Baldia, Lyari, Korangi, Malir, and Gadap will be paid due attention.
- Special Education Centers for vocational training of special persons shall be established in all towns, particularly Keamari, Malir, Gadap and Bin Qasim Towns.

4.6.3 Conservation of Heritage Sites

Historic resources provide a link to the past, as well as give a feeling of continuity and a sense of history and place. These resources can consist of a single building, such as a government building, a house or a mosque; a group of buildings, such as a commercial block, or a neighbourhood; a site, such as a burial ground or an archaeological site; or a natural feature, such as a river. Historic districts, buildings, structures, and objects provide a tangible link to the

history of people, place and add variety and texture to the cultural landscape in which people live and work. Karachi is filled with historic buildings and places but unfortunately many have deteriorated from years of neglect. If left unprotected, many of these elements of Karachi's cultural heritage may deteriorate beyond repair.

In recent years, there has been a growing interest in preserving historic buildings in Karachi. The passing of the 1994 Sindh Cultural Heritage Act has provided an avenue to legally preserve and protect historic sites and buildings of national interest. Since the adoption of the law, more than 600 buildings in Karachi have been identified for preservation due to their historic value. Karachi has numerous additional resources that could be qualified as historic. Some of important sites are identified in the table below.

To promote 'Cultural Karachi' for cultural tourism, a "Cultural Karachi Board" with representation of urban design professionals shall be established.

Places	Year
Mohatta Palace	1933
Karachi Port Trust	1915
Mazaar Quaid-E-Azaim	1970
Merewether Memorial Tower	1892
Hindu Gymkhana	1925
Wazir Mansion	1860
New Sindh Assembly Buildings	1942
Clifton Promenade	1920
Flag staff House	1865
Maxdenso Hall	1886
Parsi Dare Mehar	1875
City Court (old Jail)	1868
KMC Head Office	1931
Victoria Museum	1987
Ghulam Husain Khlikdina hall	1906
Karachi Central Jail	1906
Empress Market	1889
St. Patrick,s Church	1845
Holy Trinity Church	1855
Frere Hall(Liaquat Hall)	1865
Dayaram Jethmal Science College	1887
Imperial Custom House	1917
Sindh Madressah-Tul-Islam	1885
Jaffar Faddoo Dispensary	1904
Khaliqdina Hall	1906
Dayaram Jethmal (D.J) Sindh College	1893
Lady Dufferin Hospital	1898
Civil Hospital Karachi	1898
Sindh Club	1883
Sindh-Madressah-Tul-Islam	1885



The passage of the Sindh Cultural Heritage Act enables CDGK to facilitate historic preservation, become an agent of thoughtful change, and a responsible steward of its heritage for future generations. Preserving key buildings and districts in Karachi's central business district can also facilitate urban renewal and create an attractive economic centre envisioned by the Strategic Development Plan 2020.

4.6.3.1 Proposals

CDGK should facilitate the preservation and protection of the historic buildings and places by:

- Identifying and designating historic districts, buildings, structures, and sites in Karachi
- Establishing rehabilitation standards and preservation techniques that describe what types of changes are allowed on historic resources
- Monitoring any work done on historic properties through the building permit process
- Reviewing and promoting compatible new design adjacent to historic buildings and in historic neighbourhoods
- Setting up a tax credit program to encourage private property owners to protect their historic properties
- Enforcing the Sindh Cultural Heritage Act
- Increasing public awareness regarding Karachi's history and historic assets.

4.6.4 Sports Culture and Recreation

The KSDP-2020 seeks to improve recreational opportunities and their equitable distribution to all residents of Karachi. This includes spaces for 'passive recreation' such as parks, gardens, green space, and coastal environments and spaces for 'active recreation' such as stadiums, gymnasiums, sports fields and playgrounds.

The main proposals are:

- Develop and maintain a 150-meter wide recreation belt along the beach front
- Double the number of parks, stadiums and playgrounds in each of the 18 towns
- Establish number of sports complexes in each town, including international level sports facilities at suitable locations, that facilitate a larger participation of the sport loving public.

At the metropolitan level, existing park space for recreation is adequate but city stadiums are deficient given the size of the current population. Based on national standards, investments in both types of recreational spaces will be required over the Plan period as the population grows. Table 4.14, illustrates the number of facilities required between 2005 and 2020.

Table 4.14: Estimated Recreational Facilities at Metropolitan Level

Facility	National Standard ¹⁴	Status	Year			
			2005	2010	2015	2020
			Population			
City Park	50-70 ha. Per 2 million population	Existing	9	-	-	-
		Required	8	9	12	14
		Shortfall	-	-	3	5
City Stadium	Cricket (2.5 ha) Hockey (2.8 ha) Football (1.5 ha) + parking	Existing	3	-	-	-
		Required	8	9	12	14
		Shortfall	5	6	9	11

At the local level, the city lacks ample playground facilities for different age groups and genders as well as different types of stadium, indoor gymnasiums, football and hockey grounds, cricket fields, and tennis court.

Towns, Union Councils, and CDGK should seek to reduce these deficiencies. Proposals for recreational areas include the following:

- identify and protect any land available for active recreation within the different towns;
- locate and share sports facilities between towns whenever appropriate;
- engage the private sector to run major parks and collect a nominal entrance fee that will lead to higher level of maintenance, usage and security;
- establish a city sports complex;
- provide a sports complex and zoological garden in Bin Qasim Town out of land reserved for the forest;
- establish a cultural complex at an appropriate location in the inner city preferably in Saddar or Kemari Town
- generally double the number of town parks, community parks, town stadiums and community play grounds in each of the 18 towns by the year 2020.

4.7 Urban Agriculture

In the overall economic matrix of Karachi the rural sector is complementary and as such it is a partner in progress. In more than one way, the rural and urban sectors are mutually reinforcing. Progress in one sector engenders positive benefits in the other. With respect to development of the rural area, the objective of KSDP-2020 is two-fold: it seeks to increase employment opportunities in the agricultural sector for the growing rural population, and to improve the living standard of the populace through higher household incomes by making the

¹⁴ Source: National Reference Manual on planning and Infrastructure Standards

sector more efficient and productive. The existing agricultural activities will therefore be strengthened and further expanded to realize the potential and natural advantage of the area.

The agricultural development program will be designed to cover the following aspects:

- i) Protection of the green belt/cultivated land
- ii) Creating reserves of high capability soils for expansion of cultivation
- iii) Development of a land utilization plan for agricultural areas, including livestock and poultry farming
- iv) Development of groundwater resources and utilization/management program
- v) Construction of check-dams or weirs to recharge the tube wells being used for irrigation, poultry, cattle and dairy farming
- vi) Introducing water conservation practices to reduce losses during irrigation. Drip irrigation, for instance, saves water needs for irrigation by 80%. This needs to be introduced on a mass scale to cultivate more land with same water.
- vii) Development of a support program for supply of inputs and equipment to the farms and financial support.
- viii) Building of agricultural training centers to improve agricultural practices and technical knowledge
- ix) Improvement of veterinary hospitals, dispensaries and centers, and their service delivery system.
- x) Livestock farming shall be promoted at suitable locations on lands to the extent of about 5000 acres.
- xi) Land shall be allocated for cattle markets, dairy and poultry farming. Veterinary dispensary shall also be located near cattle markets.

4.8 Water Front Development

The Plan (KSDP-2020) calls for adoption of the provisions of the Karachi Coastal Recreation Development Plan 1990-2000 which identifies the nature of development on the coast, the areas to be utilized for recreational uses and sensitive ecological areas marked or protection and conservation.

Associated with the coastal development is the mandatory requirement of unhindered, public access to beaches. This is also covered for protection under the Karachi Building and Town Planning Regulations 2002.

Reclamation along any section of the sea front either on the landward side or the bordering sea would not be advised as it would impact seriously the harbor regime. The same restriction holds for the mud flats, marshes and backwater creeks, which in no way be allowed to undergo artificial morphological change detrimental to the existing hydrological environment, in particular around the Karachi Port. Accordingly no reclamation work can be undertaken without in-dept hydrological study, and sequential impacts on the harbor regime. It is essential that the Karachi Port Trust be associated in the conduct of hydrological studies.

The coastal sea and its backwater and creeks provide source of livelihood to fishing communities who live on the coast. The fisherman must enjoy free access to their traditional grounds in the sea, backwaters and creeks. For any

development to be sustainable and acceptable, the historical rights of the communities to the sea and the coastal village land they occupy ought to be respected.

The coast provides opportunities for recreation activities, and their development should be responsive to the demand pattern in order to be economically and commercially viable. Development should, therefore, be based on assessment of actual need and the nature of development at different coastal sections.

The guiding principles of planning for coastal development are the following:

- i) Coastal development plan should be an integral component of the development strategy for the city.
- ii) Land use, commercial and residential development with impacts on water supply, waste water disposal, transportation and infrastructure must be linked with the city. Any development scheme should be self-sufficient and sustainable in this regard.
- iii) The coast must be protected as an environmental asset, and environment quality, including reduction of pollution of the coastal zone must be improved. Green turtle sanctuaries and mangrove ecological system along the beach, in the backwaters and creek must be preserved and measures against its degradation should be urgently taken to control pollution
- iv) The seashore and the beaches should be preserved and promoted as public assets. Public access to the beaches and the coast must remain free and unhindered, and to keep the enjoyment for the general citizen, no development should be allowed in land area upto 150 meters from the high water mark.
- v) The creeks, backwaters and the coast must remain accessible to fishing community.
- vi) The recreational and other development should be self-supporting, demand based and profit/revenue generating.
- vii) Karachi's sea and coast is one of its most valuable and vulnerable assets, and needs to be carefully monitored and maintained as an integral component of the development strategy of the city.
- viii) The fishing community settled in coastal villages should not be forced to abandon their lands or source of livelihood. The local villages should not be dispossessed and their village lands not acquired by the government.

Following programs are proposed for coastal development.

- i. A programme to protect and reserve the coast as an environmental assets, Karachi has some 90 kms of coast, much of it with vulnerable mangroves that needs protection and preservation as an ecological system. Furthermore, the nature of the sea and the coast are such that any modification of the basic structure of the coast can have serious and far- reaching implications on the shape and structure of the coast through erosion and deposits that can affect both the ecosystem and impact on the harbour and access channels. Therefore it is imperative that the various studies and investigations that already exist, be supplemented by further updated data and a comprehensive EPA be commissioned which should lay down the overall guidelines for both the protection and preservation of the coast and also its development.

- ii. A programme to promote the seashore and beaches as a public asset: Karachi has grown rapidly over the years, with many millions of citizen's now living in it - and while there has been some provision for other infrastructure, the provision of open and recreation space has not had as much attention as they deserve, especially if Karachi wants to have any ambitions as a world-class city. The beaches in particular, and the coast in general area valuable public asset and should be preserved as such. While developments along the coast are inevitable, and in many cases even desirable, they should not be at the expense of restricted public access, whether through physical construction or by economic barriers. Land-use and other regulations already prohibit or limit shore-front construction, but these should be further strengthened to ensure public access and ensure that these rights are not eroded or usurped for any particular group.
 - iii. A programme to promote the sea and the coast as a visual resource: As a city by the sea, Karachi has been endowed by a natural asset that it has largely failed to capture and capitalise upon. In particular, the ability to include sea-related activities in the view or vista afforded by the sea can increase its enjoyment manifold. At the moment, what little sea-front development there is, is either by storage, warehousing or industrial uses, or blocked by them. For example, there is an opportunity to develop residential and commercial development that overlooks the harbour and the mangroves. Of course this needs to be done so as not to have an adverse impact on the environment or to restrict its enjoyment by others.

In this context, the development of the water body between the Karachi Port and Hawkesbay/Sandspit for water sports and related activities would provide a rewarding experience both in itself and for its visual impact on developments further along the coast.
 - iv. A program for coastal zone development: Together with coastal development program given above, the coastal area has a potential for development such as housing, business offices, commercial establishments and public amenities in suitable sites. However, any development scheme designed in the area must adhere to the above mentioned guiding principles. Proper detailed studies should be carried out, considering current conditions and constraints encountered in the area.
- Land availability in the area claims priority over all other conditions, necessary for undertaking a development project. Government land exists in shape of fragmented parcels in scattered pattern.
 - There are a number of fishing communities settled in coastal villages who cannot be forced to abandon their lands or sources of livelihood. The local villages should not be dispossessed and their village lands not acquired by the Government.
 - The land-owning agencies in the area include Pakistan Air Force, Pakistan Navy, Karachi Port Trust, Port Qasim Authority, DHA, Lyari Development Authority, KANUPP, Government of Sindh, CDGK and private owners. Their consent and commitment is a pre-requisite for the development scheme / project.
 - There are considerable parts of the area covered by impact areas of KANUPP, Pakistan Navy and Masroor Air Base.

- Studies for project development must assess the extent of population growth, its water and electricity requirements, sewage disposal, transport needs, traffic generated and its impact on the existing city.
- Public access to the beaches and the coast must remain free and unhindered and to keep the enjoyment for the general citizen, no development should be allowed in the land area upto 150 meters from the high water mark.
- The reclamation along the sea front either on the landward side or the bordering sea, and any artificial morphological change in the mud flats, marshes and backwater creeks would not be advised as it would impact seriously the harbour regime.
- The reclamation being detrimental to the hydrological environment, particularly around the Karachi Port and Port Qasim should not be allowed without in-depth hydrological studies.
- The development scheme should be self-sufficient and sustainable with regard to the requirements of water, electricity disposed and treatment of sewerage and solid waste.
- Development plans should be finalised with public participation and be presented for soliciting public opinion.
- The sanctuary for green turtles and mangrove ecological system must be protected.
- The planning control of the area should vest with CDGK to ensure that the development is in compliance with water front development vision and parameters as envisaged in the KSDP-2020.
- Development Plan should be in conformity with the Karachi Building and Town Planning Regulations-2002.
- Environmental Impact Assessment (EIA) study should be carried out.

4.9 Disaster Management

Karachi, with its coastal location, remains at risk from natural disasters i.e. cyclonic storms, earthquakes and tsunamis,

During the last 55 years (1946-2006), about 50 cyclonic storms originated over the Arabian sea; four hit Karachi, causing much damage by heavy rains and flash-floods. According to the record of last 75 years, at least 50 earthquakes visited Karachi. Of these four were major devastating shocks with magnitude of 8 and above. The earthquakes also generated tsunami waves in 1819, 1943, 1945 and 1956, which hit the Karachi's coastal areas and caused considerable damage in and around the port area.

Though such natural disasters are unavoidable, their destructive effects can be minimized and the consequential damages controlled to a great extent, if an appropriate disaster warning, preparedness and relief system is organized adequately to deal with the emergency.

In 2006, the Government of Sindh set up a disaster management committee, headed by the Chief Secretary to prepare a disaster management plan, which will focus on all key issues/aspects including public awareness, warning system, preparedness and relief delivery.

In view of vulnerability of large population and some important installations including the two ports, it is essential that suitable measures should be adopted to face the disastrous events whenever they strike. These measures are:

- A disaster warning system to forewarn the people about the likelihood of occurrence of severe cyclonic storms, earthquakes and tsunamis, using credible, scientific prediction techniques;
- A preparedness and relief plan and a co-ordination mechanism for effective management and damage control;
- Establishing a disaster management cell in the CDGK to plan for and respond to emergencies squarely and effectively.

In order to strengthen the fire fighting services in the city, existing fire brigade stations shall be improved, and keeping in view the growing commercial and industrial areas, more fire brigade stations together with training centre and staff residences will be established and organized as per international standards. Appropriate sites in various towns shall be allocated for this purpose.

5 FINANCING THE PLAN

A world-class city requires stable and predictable resource base systems that enable the prioritization of projects and a plan that is based upon realistic levels of available financing for projects. The CDGK needs to move from dependency on provincial transfers towards self-reliance and higher own-source revenues through more appropriate taxation, valuation, billing and collection. Debt financing of commercially viable investment projects is essential. Utility agencies need to price services economically and collect revenue more effectively. Change in the way the city finances its development is required. However, the Federal and Provincial Governments shall continue to arrange special financial packages.

5.1 CDGK's Local Revenue Base

The challenge of providing infrastructure is to raise the necessary capital from operations and through the market. Transfers can provide such funds, but they are not reliable and often unsustainable. Local governments cannot incur debt. Increasing local revenues is part of the solution, but this needs to be supplemented by the development of commercially viable projects.

In financial year 2005/06, Table 5.1 shows that CDGK raised about 40% of its revenues from taxation and user charges/cost recovery, relying on Sindh provincial government to provide the balance through transfers. Very little overall change has taken place over the past four years. Total revenues of CDGK in real terms have shown a significant increase of 34% in FY 2005/06 over those of the previous year, but from FY 2002/03, they were relatively static. Declines in provincial transfers were evident from 2002/03, but during FY 2005/06 they more than doubled.

Table 5.1: Revenue Sources for CDGK, 2002/03 to 2005/06

Revenue source	Amounts (Rs Millions)				Annual Growth Rates			
	FY 2002/03	FY 2003/04	FY 2004/05	FY 2005/06	2002/03 to 2003/04	2003/04 to 2004/05	2004/05 to 2005/06	Average
Current prices:								
<i>Sindh PFC Transfers</i>								
Rs Millions	5,055.0	4,546.9	3,754.0	8,637.4	-10.1%	-17.4%	130.1%	34.2%
Percent of total	59.0%	54.9%	37.8%	60.0%				
<i>Own Source Revenues</i>								
Taxation	2,213.3	2,451.5	3,200.1	3,200.7	10.8%	30.5%	0.0%	13.8%
User charges/cost recovery	1,294.2	1,276.9	2,966.6	2,552.9	-1.3%	132.3%	-13.9%	39.0%
Total	3,507.5	3,728.4	6,166.7	5,753.6	6.3%	65.4%	-6.7%	21.7%
Percent of total								
Taxation	25.8%	29.6%	32.3%	22.2%				
User charges/cost recovery	15.1%	15.4%	29.9%	17.7%				
Total	41.0%	45.1%	62.2%	40.0%				
Total	8,562.5	8,275.3	9,920.7	14,391.0	-3.4%	19.9%	45.1%	20.5%
Constant 2006 prices:								
<i>Sindh PFC Transfers</i>								
Rs Millions	6,094.6	5,279.5	4,076.7	8,637.4	-13.4%	-22.8%	111.9%	25.2%
<i>Own Source Revenues</i>								
Taxation	2,668.5	2,846.5	3,475.2	3,200.7	6.7%	22.1%	-7.9%	7.0%
User charges/cost recovery	1,560.4	1,482.6	3,221.6	2,552.9	-5.0%	117.3%	-20.8%	30.5%
Total	4,228.8	4,329.1	6,696.7	5,753.6	2.4%	54.7%	-14.1%	14.3%
Total	10,323.5	9,608.6	10,773.4	14,391.0	-6.9%	12.1%	33.6%	12.9%

CDGK's revenue base, as shown in table is largely from taxes and fees.

Table 5.2: Existing Sources of Revenue for Local Governments

Union Council	Town Administration	City District
<ul style="list-style-type: none"> • Fees for licensing of professions and vocations • Fees for birth, marriage and death certificates • Charges for specific Union Council services • Rate for remuneration of village and neighbourhood guards • Charges for execution and maintenance of public works. • Rents on land, buildings, equipment... • Collection charges on taxes assessed by other levels of government 	<ul style="list-style-type: none"> • Education tax • Health tax • Fees related to educational and health facilities • Rents on land, buildings, equipment • Service fees • Tolls on roads, bridges, and ferries (other than national and provincial highways and roads) • Fees for fairs, exhibitions and other public events • Collection charges on taxes assessed by other levels of government • Any other tax authorized by the government 	<ul style="list-style-type: none"> • Education tax • Health tax • Fees related to educational and health facilities • Rents on land, buildings, equipment • Service fees • Tolls on roads, bridges, and ferries (other than national and provincial highways and roads) • Fees on advertisements hoardings • Fees for approval of building plans and construction permits • Charges for execution and maintenance of public works. • Collection charges on taxes assessed by other levels of government • Any other tax authorized by the government

The mandated town and the city district sources are similar, with a few additions at the higher level. Increases in service fees, tolls, assessments on public events, and charges for building and construction approval are relatively easy to impose, but the desire to keep rates low normally prevents these sources from becoming significant contributions to the resource base. The sources that offer the greatest potential are property and motor vehicle taxes. However, various forms of tax evasion exist in most areas, and collections need to increase and services improve before there are rises in taxes and charges.

5.2 Key financing agencies

Many stakeholders will support the proposals under the KSDP-2020. City, town and to a less extent union councils will raise money for roads and traffic management, and solid waste improvements. The government-owned Karachi Water and Sewerage Board (KWSB) will finance investments in water supply and waste water collection and treatment. Private sector bodies including the Karachi Electric Supply Corporation (KESC) will raise its own funds for its development program. Smaller private companies too will finance and provide other capital assets including buses, parking spaces and vehicles for the collection of solid waste. Real estate developers, banks and communities also can provide finance for new housing developments given the appropriate legal, institutional and incentive framework. Civil society, including non-government organizations and communities can provide affordable basic services and micro-credit in katchi abadis and other informal settlements. All of these stakeholders are in reality financial intermediaries in the delivery of infrastructure and services. But it is the

Table 5.3: Capital Funding Sources by Sector

Sector	Source of Funding	CDGK Action
Water supply and sewerage	Federal transfer Provincial transfers Increased collections from end users Efficiency gains Transfers from CDGK Debt instruments	Facilitate capital funding for KW&SB, including that through foreign assisted projects
Solid waste management	Increased collections from end users Efficiency gains CDGK direct funding for landfill development Private sector investment	Assist TMAs to contract out solid waste management services CDGK to commercialize recycling Facilitate capital funding for transfer stations and landfill construction
Roads	Federal transfers Provincial transfers CDGK financing Property and motor vehicle taxes Private sector investment in toll roads	CDGK to rationalise and increase land/property and motor vehicle tax collection Lobby federal and provincial government for transfers for major roads Facilitate capital funding
Public transport	Federal transfers Public transport fares CDGK public subsidies Provincial government transfers Debt instruments Private sector investment	Determine feasibility of recovering mass transit costs from end users In case of short-fall, identify how to fill the financing gap Facilitate capital funding and private public partnerships
Electricity	Capital markets User charges	Assist KESC negotiation rate increases to extent affordable and to mobilize its own financing
Low-cost housing and katchi abadi upgrading	Cost recovery from beneficiaries and savings Builders and developers Public-Private partnership CDGK transfers Mortgage finance from HBFC Micro-credit for house construction and improvement	Encourage the release of land, use the public housing and real estate company to facilitate housing development, and encourage partnerships with communities and financial entities.

residents and businesses of Karachi who in the end will pay for the services, either through taxes or user charges.

There are a number of potential sources of development finance for the key infrastructure sectors of Karachi. These are identified in table which indicates where the CDGK has a significant role in mobilizing funding for capital investment.

KW&SB and KESC face similar challenges in the water supply and sewerage, and electricity sectors. There is considerable additional revenue to be gained from improving collection on existing tariffs and by increasing tariffs to more economic levels, subject to affordability constraints. Urban services tariffs should be the subject of a study to assess affordability against different levels of costs recovery.

5.3 Financing Strategy

The financial strategy for the future development of Karachi is to be based on improving local government financing, maximizing the involvement of the private sector, and improving access to capital markets. Towards this, an eight-point strategy is to be implemented.

1. Institutionalising a process for evaluating and prioritizing major projects and programs.
2. Institute changes in local government financing.
3. Establish or strengthen appropriate vehicles through which CDGK can raise funds.
4. Improve the financial sustainability of infrastructure delivery.
5. Prepare more commercially viable projects and engage the private sector.
6. Expand the use of community resources.
7. Ensure the predictability and stability of provincial transfers.
8. Conform to financial reporting, disclosure and audit requirements.

Each is discussed in more detail below:

Strategy 1: Institutionalizing a process and methodology for evaluating and prioritizing major projects

The process and methodology enables the matching of financial resource availability with demands for financing according to the projects and programmes proposed in the KSDP-2020. This covers:

- The preparation of long-term financial projections for key agencies and local governments in CDGK area to adequately assess financing requirements over the plan period. This covers, in general terms, projections of the demand for finance for the next fifteen years according to the proposed capital investment programs of the KSDP-2020. Projections of financial resource availability, particularly those of provincial and local governments and relevant government-owned corporate entities, are required. This enables a budget envelope to be established for available public sector funding from all levels of government based on alternative assumptions of national and city economic growth and political priorities. This provides the basis for the core investment programme that matches likely resource availability and a core plus programme that could be implemented if more funding was available.

- All major projects proposed in the KSDP-2020 must be subjected to a transparent, comprehensible evaluation methodology that enables the separation of those projects that fully support the objectives and spatial growth patterns of the KSDP-2020 from those that were not fully supportive and those fall in between. This does not seek precision or dictate what should happen in detail, but could be a point-scoring approach against objectives and spatial plans, using a transparent method and subjective weightings between objectives. The approach is used to demonstrate the robustness or risk of the results under the different scenarios.

Strategy 2: Institute changes in local government financing

In common with cities everywhere, CDGK has a lack of financial resources to provide appropriate services to their residents. This gap is a result of both the demand for unrealistically high standards of service and from the mismatch between functions and revenues among levels of government. But the continuing rapid growth of Karachi's population will lead to increasing demands for public services, while rising incomes will lead to calls for better services. Provincial and local government revenues have not increased in line with demand, since the revenue-raising authority is limited to relatively income inelastic sources including property taxes, fees and fines and transfers. Hence, strengthening the financial viability, especially the revenue base and expenditure controls of CDGK and its constituent local governments, is a priority.

Two taxes offer considerable potential; these are those on property and motor vehicles and their use. Property tax is currently based on value, which in most cases is valued well below market assessments. A change in the basis of this taxation from that on property to land should be considered. Property tax, involves charging each property owner a proportion of the value of buildings and other improvements as well as that of land. A land value tax would be more equitable where the improvements that people make to their land are not taxed. Land value taxation, or site value taxation, would charge each landholder a portion of the value of a site or parcel of land that would exist even if that site had no improvements. It taxes the improvements that both society and others have made to the land around a property. The key point of land value tax is that it is applied to the value of a plot of land, and not the buildings or improvements on it. This would mean that a vacant site would pay the same tax as a block of flats on the same area, less the difference in values created by the different planning permissions on the neighboring plots. CDGK should revive the tax and levy it on vehicle use and possibly fuel. Such a tax has the potential to be a significant revenue source since vehicle ownership is forecast to increase substantially into the foreseeable future.

Wider reforms of local government finance should also be evaluated in concert with provincial and national governments. Once agreed, such reform is best undertaken in a phased and focused manner to address change over the medium term. Early stages could involve the legal and regulatory change that leads to clear functional responsibilities between levels of government and an appropriate framework for intergovernmental fiscal relations that enables funding more realistically to follow function. This would then be followed by improving financial management systems and capacity. The focus should not only be on own-source revenues, local government borrowing, and intergovernmental transfers but also reducing local expenditures through improved productivity, revisions of standards, attracting community resources and reducing responsibilities that require local expenditure.

Strategy 3: Establish appropriate vehicles through which CDGK can raise development funds

Neither CDGK nor its constituent local governments can borrow directly. As a result, there is little incentive for local governments to become more entrepreneurial and work with the private sector to develop key infrastructure and capacity building projects. Although small or semi-financially viable local authorities are unlikely to be able to borrow in their own right, those larger authorities that are viable should be able to do so. Granting major local governments, such as CDGK, the power to borrow directly is a key legislative change that should be pursued. A world-class city must be able to raise its own resources from whatever sources it can, including the capital market. As a precursor to this, strengthening financial viability that covers both the revenue base and expenditure controls is essential.

Whilst pursuing legislative change, CDGK should consider creating special purpose vehicles for mobilizing resources for the implementation of major development projects. Under this arrangement the credit risk to the potential funding agencies is with the institution itself and not directly with the local government. Creditworthiness would then be assessed against the performance of the investment portfolio of the special purpose authority. One option would be to establish a special purpose authority as a guarantee fund for municipal credit. But credit insurance in developing countries is risky, expensive and requires high skill levels to determine premiums and remedies for default. The attractiveness of such an approach in Karachi, however, will depend upon the cost of insurance, relative to that of normal borrowing.

Much of the land within CDGK area is owned by national, provincial and local government agencies. This is a substantial asset that should be used as leverage for additional resources and/or as collateral for credit. While such property has been used as security in the past in other Asian countries, trends now are that lenders are becoming more selective. They consider as appropriate security, property that can more easily be transferred to private ownership and is relatively liquid. Karachi has such property and this should be used more effectively for the benefit of the city.

Strategy 4: Improve the financial sustainability of infrastructure service delivery

Infrastructure provision requires more than capital improvements. It requires that services are delivered in a financially sustainable manner. This implies that service providers should recover at least the cost of operation and maintenance from customers through user charges and fees. Full cost recovery demands that all costs of investment are also recovered through user charges; in practice, part of the investment cost is often financed through subsidies.

Infrastructure service providers in Karachi are far from achieving financial sustainability in the delivery of services. Typical problems are:

- Tariffs are too low: User charges for services are set way below the level that would be required to recover all costs of operation and maintenance from customers.
- Collection rates are low: In water supply and wastewater, for example, only 60% of billings are collected from customers.

- Customer relations are poor: Many customers consider they do not receive 'value for money' and are unwilling to pay even the full amount billed, let alone higher tariffs.

Financial sustainability is directly affected by the technical performance of infrastructure systems. The 40% non-revenue water recorded by KW&SB, for example, is largely a function of extensive technical losses (leaks) in the water transmission and distribution system. Losses in the electrical power distribution network mean that power delivered to customers is much less than that which is produced (and paid for) by the utility. When systems are highly inefficient, the only way to achieve cost recovery is to charge customers for a larger quantity of the commodity than they actually receive, or raise the unit price.

Most infrastructure providers in Karachi need to improve the management in general and the recovery of the O&M costs in particular before they can be considered worthy recipients of substantial amounts of new funding for capital improvements. Construction of new works, in the absence of improvements, will only increase the O&M maintenance requirements resulting in increasingly deteriorated systems and larger financial short-falls. Karachi's infrastructure providers, and in particular local governments and their dependent agencies, should implement the following measures before or in parallel with any expanded capital improvement programs:

- Accurately assess service costs.
- Evaluate the ability and willingness of customers to pay.
- Improve customer relations through outreach programs.
- Develop options for service improvement, each of which combines technical characteristics and a price to the end user.
- Integrate customers into the service improvement process. Present them with the service improvement options and seek feedback before selecting the preferred option.
- Increase user charges progressively to the point where they cover at least O&M expenditures.
- Increase tariff collection efficiency.
- Identify and implement measures to reduce operational costs, including demand management, routine and periodic maintenance, repairs and rehabilitation.

Strategy 5: Prepare more commercially viable urban infrastructure projects and engage the private sector

The major capital investment projects identified for the development of Karachi can be designed to attract debt financing. A number of projects will have a guaranteed revenue streams and are the key candidates for such financing. Debt can be issued against the revenue stream and the assets of the project. Such financing is common in the private sector, including that for privatized utility investments in water supply and public transport. Both the lender and borrower have an interest in the performance of the investment. Clearly, a project's financial and economic viability requires assessment. Due diligence of the operating agency and project financial viability, is usually expressed as the financial rate of return, and become the prime determinants of creditworthiness.

Some projects will involve the use of community service obligations (CSO) to ensure access by the poor or for environmental reasons, and these obligations

should be clearly differentiated from the other more commercial components. Experience shows that these obligations could be directly funded from provincial government revenues, which ensures that the costs of the non-commercial objectives of government enterprises are made more transparent through the annual budget process. Direct funding also allows for competition in provision through tendering of services. CSOs are common in public transport franchises.

With appropriate CSO in place, CDGK should pursue public-private partnerships that involve the joint financing and provision of infrastructure. Appropriate enabling environments need to be strengthened by Sindh Provincial Government and CDGK to enable such partnerships to be established.

Strategy 6: Expand the use of community resources

In Karachi, there is an active civil society movement that has encouraged many communities to finance, design and implement local infrastructure and provide basic services. Examples are for local infrastructure in katchi abadis and informal settlements that include schools, health centres, water supply and sewerage, drainage, street paving, day care centres, schools, health facilities, and livelihood activities involving training, production centres and communal assets or equipment. These projects involve partnerships between a funding agency and the community. Such activities should be encouraged and expanded, especially those that involve the improvement of living conditions in informal settlements and other deprived areas.

Strategy 7: Ensure the predictability and stability of provincial transfers

CDGK and its constituent local governments cannot realistically project their expenditure limits unless they are sure of their revenue sources. The high dependence on transfers and the unpredictability of the amounts released can be problematic. Provincial government should ensure the stability of transfers through a firm guarantee to honour and enforce commitments made. In the medium term CDGK needs to have more discretion over its own source revenues, to have maximum control over key local taxes, the determination of the tax base and rates levied for all taxes and charges.

Strategy 8: Conform to financial reporting, disclosure and audit requirements

The Sindh Provincial Government needs to become more demanding in imposing strict time limits on the production and submittal of annual reports from the local governments within Karachi District according to a format that enables the ready assessment of creditworthiness. Over time all local governments should be mandated to adopt national accounting standards that are consistent with international practice. This would mean the adoption of commercial accounting principles, including the proper valuation of assets and provisions for doubtful debts.

This should be accompanied by more effective performance auditing of local government accounts, and the public disclosure of information. The independent audit of the accounts of local governments should be a goal. CDGK can start by enabling the full public disclosure of its annual accounts and findings of audits and those of the constituent local governments. Annual performance reports too should be produced and all such documents must be posted on websites. Such reports should be published and posted within three months of financial year end.

Table 5.4: Summary: Key priorities for action

Improving local government financing	Maximizing private sector involvement	Accessing capital markets
<ul style="list-style-type: none"> • Adopt a methodology for project prioritization • Change basis of property taxation to a land tax • Reintroduce motor vehicle taxes • Adopt measures to improve other own-source revenues, including user charges. • Improve efficiency of all utility and service entities • Develop a program for the phased introduction of local government financial reforms • Ensure predictability of provincial transfers 	<ul style="list-style-type: none"> • Decide priorities for community service obligations • Prepare commercially viable projects • Encourage public-private partnerships • Expand the use of community resources 	<ul style="list-style-type: none"> • Changes in legislation to allow CDGK to borrow • Encourage establishment of special investment organizations and financing vehicles • Main funding source for new infrastructure and mega projects • Use assets to lever additional resources, especially land • Conform to financial reporting, disclosure and audit requirements

6 PLAN IMPLEMENTATION : ORGANISING FOR SUCCESS

6.1 Introduction

As demonstrated by previous attempts to plan more orderly and efficient development in Karachi, the greatest challenges in plan implementation are:

- i. the centralization of sufficient planning and development control authority for the entire metropolitan area in one institution;
- ii. the sustained capacity of an effective planning institution to oversee planning and regulating the varied and complex set of real estate transactions shaping the city of Karachi;
- iii. the enforcement of an effective system of land use control that allows permitting and control of development on private, public and leased land;
- iv. the integration of economic and fiscal planning with spatial planning.

Progress has been made in overcoming some barriers to implementation since the preparation of the Karachi Development Plan 2000 (prepared in 1991), but many problems ' and their solutions ' remain the same. To overcome the stated challenges and implement the Karachi Strategic Development Plan-2020, the following is recommended:

- i. develop an integrated planning process that establishes CDGK as the apex planning institution and ensures coordination with major land-owning agencies operating under federal and provincial government Acts / Ordinances.
- ii. build the capacity of the CDGK to lead the planning process;
- iii. enforce a development controls system that utilises penalties and incentives to guide and control development;
- iv. integrate planning and process of physical development of Karachi into the national economic and fiscal planning process.

6.2 Planning and Development Control

Recent regulatory and institutional changes as result of enforcement fo SLGO 2001, have raised the prospects of centralizing planning and development control that takes care of the entire city district. Now the City District Government Karachi (CDGK) will be entrusted with the responsibility of guiding and managing the growth of the whole district through a holistic and integrating planning, since the local government has acquired vastly expanded function of management and development, while the functions of the Karachi Development Authority have been taken over by the CDGK, the Karachi Building Control Authority and the Karachi Water & Sewerage Board have also come under the management of CDGK.

The CDGK still shares planning and development responsibility horizontally with other government entities that own land and in some way participate in regulation of development in the district. Along with the CDGK, seven institutions have been delegated powers and duties as covered in the Karachi Building and Town Planning Regulations 2002 (as amended in 2005). These are:

- Cantonment Boards under the Ministry of Defence
- Karachi Port Trust

- Pakistan Railways
- Ministry of Works
- Sindh Industrial Trading Estate (Karachi)
- Sindh Katchi Abadis Authority
- Sindh Board of Revenue

Added to the above are Pakistan Steel, Port Qasim Authority, Defence Housing Authority, Exports Processing Zone, Malir Development Authority and Lyari Development Authority.

CDGK's powers, therefore, extend to all the area under its jurisdiction except those under the jurisdiction of the above public agencies. This fragmented authority among eighteen institutions and the CDGK will hinder the formal coordination of planning and development activities between these institutions and implementation of the Strategic Development Plan. To overcome this, a number of strategies are recommended:

1. Establish CDGK as the apex planning institution with legal authority for planning and development controls over all land and buildings within the City District under jurisdiction of all other land owning agencies. This will require amendments in the relevant Acts / Laws at the federal level.
2. After approval of the Plan by the City District Council, the KSDP-2020 will be a binding document for all the stakeholders to follow in their plans.
3. To ensure uniform standards, practices and procedures, development activities in conformity with laws and regulations being practiced by the City District Government Karachi to be mandatory for all agencies throughout Karachi City District irrespective of their jurisdiction boundaries.

6.3 Preparation and approval of Urban Development Plan

Within the unified metropolitan growth management framework, it will be essential that procedures for preparation and approval of urban plans and development projects are clearly specified and followed by all parties. The table below defines the roles for CDGK, TMAs, other agencies and developers.

Table 6.1: Preparation and Approval of Urban Development Plans/Projects

Type of Plan/Project	Content/Scope	Prepared by	Approved by
Karachi Strategic Dev. Plan	Overarching framework for physical development of the metropolitan area	CDGK	City Council - CDGK
Town Plan / Local Area Plan	More detailed land use, transport and infrastructure proposals for the town / local area	CDGK/TMA	1. TMA 2. CDGK
Large Development Project	Specific proposals for land use and buildings on a particular site	CDGK/ Agency/ Developer	1. CDGK 2. Karachi Planning and Development Committee
Small / Medium Development Project	Specific proposals for land use and buildings on a particular site	Agency/ Developer	CDGK

In addition to clarifying the roles of public sector entities and major land holding agencies, the unified metropolitan growth management framework also requires that all major development projects follow the standard review and approval procedures. Projects within the Karachi City District should not be approved without being subjected to the review process. CDGK, as lead agency in the management of the growth of Karachi, must play the role of final arbiter in the project approval process

6.4 CDGK as a Single Agency for Municipal Services

Karachi has an integrated system of municipal infrastructure. The CDGK is entrusted with the responsibility of providing water, disposal of sewage and solid waste for the entire city. But its management authority is restricted to its own jurisdiction which extends over about one-third of the city. In areas under various land-owning agencies, the municipal services are internally managed, without any coordination with the city government, and at times the maintenance problems have overspilling effects on to the areas under CDGK, causing problems for the general public and the city government. The land owning agencies, besides controlling their operational areas, continuously extend their civilian areas, thus increasing the burden and pressure on the CDGK. Also, they have extended their jurisdiction beyond their original areas by including more civil areas through issuance of notifications.

Karachi is the largest and the fastest growing megacity of Pakistan, with a population of over 16 million (2006), expected to reach 27 million mark by the year 2020. The city's land, planning, development and municipal control is fragmented into TWENTY (20) federal, provincial and local agencies with overlapping powers / functions and lack of coordination. These agencies include six (6) Cantonment Boards, Port Qasim Authority, Karachi Port Trust, Defense Housing Authority, Pakistan Steel, Pakistan Railways, Export Processing Zone, Sindh Industrial Trading Estate, Government of Sindh, City District Government Karachi, Lyari Development Authority, Malir Development Authority, Cooperative housing societies and private owners. This multiplicity of ownership, functions and fragmented municipal control has resulted into following problems:

- i. Lack of holistic and unified vision for the city
- ii. Hampering the formulation and implementation of futuristic Master Plan for the City
- iii. Lack of unified Town Planning & Building Regulations.
- iv. Unplanned and haphazard growth
- v. Environmental degradation
- vi. Inter organizational conflicts in provision of basic infrastructure, Municipal services and revenue collection
- vii. Problems in disaster / crisis management

In unavoidable circumstances, City District Government Karachi is facing great difficulties due to noncooperation of other stakeholders / agencies in the City of Karachi, therefore, it is strongly felt that there should be ONE Agency that may control municipal functions and provide civic amenities and ensure redressal of the problems and facilitating welfare of the citizens of Karachi.

The City District Government Karachi has a vision of making Karachi a world-class city and attractive economic centre with a decent life for Karachiites. The vision is ambitious and far-reaching because it challenges the leaders, institutions

and citizens of Karachi to change the way the city works and does business. The vision recognizes the need to stimulate economic growth and create an inclusive city that provides opportunity and a better life for all its citizens. Thus, the city would acquire salient characteristics of world cities, such as the following:

- i) World cities have a vibrant heart and have areas of high amenity; they are the places that people want to live, work, and invest in;
- ii) World cities have clear strategies for coping with growth, and are well governed, managed, and planned for the future of their citizens;
- iii) World cities foster competitive activities, supported by enabling policy and regulatory environments and well functioning infrastructure and services;
- iv) World cities are inclusive, with opportunities for all to earn incomes, work and invest;
- v) World cities are characterized by minimal poverty and slums.

The City District Government Karachi with a commitment to achieving this vision, prepared the Karachi Strategic Development Plan 2020. The KSDP 2020 is not simply about the physical renewal of a city but equally invoking the spirit and commitment of its leaders and citizens to realise a more prosperous, secure and sustainable future.

Also the building control regulations of other land owning agencies vary from those of the CDGK. Permissions have been granted for buildings with high floor-area ratio, with implications on the city's urban design, environment, traffic generation and municipal services. Associated with this, is the issue of disorganized installation of hoardings under different agencies, without proper regulations on their size and safety requirements. During the last rainy season, many hoardings in these areas collapsed against the fury of the storms and caused much destruction of life and property.

The plan specifically provides for management of the sewerage / drainage system including its outlets through nallas. At present some of the stakeholders are allotting space reserved for nallas in addition to creation / emerging of the katchi abadies on the nallas thus creating obstructions in the smooth passage of the sewerage water to its ultimate disposal into the sea after proper treatment. However, City District Government Karachi is trying its best to manage the system.

The KSDP-2020 will have a legal status under Section 40 of the Sindh Local Government Ordinance 2001 (SLGO), for guiding city's growth in a planned and coordinated manner. It will provide an 'umbrella' framework for the development plans of the agencies, stakeholders (Federal, Provincial and Local) in Karachi. The development plans of the respective agencies will be subservient to the KSDP-2020.

City District Government Karachi, is the only agency which is running / managing the Karachi Water & Sewerage Board as an independent agency for the operation / management of water and sewerage systems of Karachi. These two important civic amenities are provided to the citizens of Karachi by KW&SB without any discrimination or limitation. However, this facility is being hampered due to multiplicity and overlapping functions.

The City District Government Karachi is also managing an independent organization namely Karachi Building Control Authority to check and control building and construction activities in Karachi. The city of Karachi is faced with

creation of jungle of unplanned cemented structures due to grant of permission for multi-storey buildings by other stakeholders without consulting MPGO, CDGK.

The City District Government Karachi, is also providing municipal services to all the citizens of Karachi and for this purpose City District Government Karachi, has developed areas for dumping of garbage. No other agency is maintaining this facility. For improvement in the system, City District Government Karachi has also prepared schemes. This too is neglected by other agencies.

In order to have an efficient, coordinated and city-wide municipal services management system, the following actions are recommended:

- i) All municipal infrastructure services in the civil areas under various land owning agencies should be the responsibility of the CDGK, which should be the Single Agency for municipal functions over the entire Karachi. This will not affect the land ownership rights of the agencies.
- ii) The operational defence and strategic areas will remain under the land owning agencies.
- iii) As a Single Agency for municipal services, the CDGK will be empowered to collect taxes, charges, levies and fees from the consumers/users.
- iv) In respect of maintenance of municipal services infrastructure including hoarding installations, the right of way will be given to the CDGK.
- v) All the notifications extending the territorial jurisdiction of cantonments and other agencies should be withdrawn / amended.
- vi) Since the land-owning agencies operate under Federal and Provincial Acts/Laws, appropriate amendments in the existing relevant laws shall be made by the Federal/Provincial governments.
- vii) The existing town and union council boundaries in the city district should also be reviewed for an efficient management keeping in view the new developments, major roads, neighborhoods, housing scheme projects, size and area.

The main steps involved in shifting municipal control and service provision responsibility in these areas to CDGK are the following:

- i) Prepare and implement a public education campaign to build support for the transfer, focusing on the continuity of service provision at the same or higher level of service;
- ii) Shift the area in question formally into the jurisdiction of an existing TMA or create a new TMA/UC;
- iii) Transfer relevant infrastructure-related assets to CDGK and group of offices rights-of-way for roads to the TMA water/wastewater network to KW&SB;
- iv) Transfer of staff to the TMA and relevant infrastructure providers.

6.5 Approval of the Karachi Strategic Development Plan - 2020

The City Council of the City District Government Karachi is empowered under Section 40 of the Sindh Local Government Ordinance 2001 to approve the Karachi Strategic Development Plan-2020. Therefore, the Plan was submitted to the City District Council Karachi for the Plan approval and its implementation in the entire City District irrespective of land ownership and to guide the city's growth in a planned and coordinated manner.

The CDGK will take the lead role in implementing the Karachi Strategic Development Plan 2020. All the stakeholders operating in the city under Federal and Provincial Acts/Laws would be required to make necessary amendments in the relevant laws. KSDP-2020 will be a legally binding document for development in Karachi.

6.6 Implementation

CDGK will be the final arbiter of development control decisions. Development agencies operating in the City District will review and approve development projects within their jurisdiction prior to submission to CDGK. For approval of large-scale development projects, CDGK will secure the participation of other key national, provincial and local stakeholders in approval decision process.

A two-tier structure composed of a Steering Committee and Development Control Committee with representation of all major actors will have overseeing, coordination and selected implementation functions related to the Strategic Development Plan.

KSDP Steering Committee - The existing Coordination Committee for the Development of Karachi, formed by the Federal government and headed by the Governor of Sindh, will act as the KSDP Steering Committee. This Committee will operate at the provincial government level, headed by the Governor. With representation of key stakeholders, this body will ensure that all decisions pertaining to development, land grants, allocation/allotment of land for different purposes, of the Provincial Government and its various organizations, are made in consonance with the Strategic Development Plan. Coordination with Federal Government and its agencies sponsoring and executing schemes in Karachi will be made through the Steering Committee. This committee will meet periodically as required to monitor progress and implementation of KSDP-2020.

Karachi Planning and Development Control Committee - The existing Municipal Services Coordination Committee will act as the Karachi Planning and Development Control Committee. Chaired by the City Nazim, this committee will review and approve key development projects. National, provincial, and local stakeholders in the development of Karachi, such as the Cantonment Boards, Malir Development Authority, Lyari Development Authority, Sindh Katchi Abadis Authority, Pakistan Railways, etc., will sit on the committee to facilitate approval of key development projects. Projects presented for consideration will require preliminary approval from the development control department of CDGK.

6.7 Building MPO as an Effective Planning Agency

In coordination and with assistance of the concerned Group of Offices within CDGK, the Master Plan Group of Offices (MPO) will be responsible for the overall planning process as per KSDP-2020. The primary role of MPO will be to ensure that all planning and development decisions are in line with the Plan. Since the KSDP-2020 will be a living document requiring constant updating and revision to cope with the changing scenarios, a full fledged and well equipped Strategic Planning Unit (SPU) is required to be established within the MPO which need to perform different functions including:

- i) Providing technical assistance to TMAs to articulate the Strategic Development Plan through local area plans;
- ii) Making decisions regarding planning approvals for large and/or priority projects and setting guidelines for building approval;
- iii) Monitoring and evaluation of the progress in implementing the Plan;

iv) Elaborating and detailing the KSDP-2020.

The Strategic Development Plan requires towns, union councils, and other organizations to further articulate detailed local plans consistent with the Strategic Development Plan. MPGO will provide technical assistance as required to towns to this end. MPGO will be responsible for approving these plans (prior to their approval by Karachi Planning and Development Control Committee, see above) and therefore provide the leadership for carrying out the vision of the Plan. MPGO should focus these planning efforts on priority areas of the Strategic Development Plan to utilise its resources most effectively. In doing this, CDGK should position itself to guide development rather than solely to enforce the implementation of the Strategic Development Plan.

One constraint to fulfilling this function will be the technical, managerial, and financial capacity to take on planning and development tasks. It should be a priority of the CDGK to build the technical planning and development capacity of MPGO to undertake effective planning. CDGK should utilise Federal and Provincial government expertise and that of donors to do this. Standard planning practice skill sets to develop should include:

- i) Land use planning, demographic trend analysis, real estate market analysis, local economic development, information management systems, stakeholder consultation;
- ii) Preparation and implementation of development codes allowing multiple mixed uses;
- iii) Public-private partnerships for large real estate development projects;
- iv) Institutional systems and procedures for implementation of metropolitan development plans involving multiple agencies and jurisdictions;
- v) A system of public participation.

MPGO will also be responsible for setting guidelines for building approval made by Karachi Building Control Authority and making decisions on planning approvals for large and/or priority projects. Attention on enforcing development controls should be given to priority areas of the Plan.

MPGO will be responsible for monitoring the performance of KSDP-2020. The MPGO should develop a system of collecting and storing data necessary for monitoring the implementation of the Strategic Development Plan and general urban development trends in the city. The computerised database should be developed so as to minimise duplication with existing information management systems. Where possible, MPGO should play an integrating role, linking existing databases to create a more complete picture of how the city is growing. Where necessary, MPGO can collect additional primary data to supplement the data regularly collected by others. The database should be accessible through a Geographic Information System (GIS) which can be used to analyze these data by geographic boundaries and make it available to urban and financial planners, line agencies, decision makers, and others. The GIS should utilize remote imagery such as aerial photographs and satellite images.

Data and analysis should be used to draft relevant sections of the annual physical development plan for Karachi City District.

Strategic Planning Unit - This unit will be set up within MPGO to carry out three main functions: (i) further elaboration of KSDP-2020, (ii) capacity building of MPGO, and (iii) provision of technical expertise in a variety of fields (including but not limited to urban and regional planning, urban economics, GIS/MIS, municipal

engineering, traffic management, municipal finance, project finance, stakeholder participation, etc.) to support policy development, institutional strengthening, and/or project development activities related to the implementation of the Karachi Strategic Development Plan.

6.8 Integrating Physical Planning with Economic and Fiscal Planning

It is necessary to integrate the national economic development planning and budgeting process so that urban development projects will be consistent with development objectives and positioned to receive adequate public sector financing.

The KSDP Steering Committee and Planning and Development Control Committee will be helpful on this as they will bring together representatives from Federal and Provincial Governments. The Plan must also be considered as part of the Annual Development Program (ADP) process.

To make economic planning and budgeting decisions, this arrangement requires uniform economic analysis of all expenditures, both for capital investment and for operational activities.

6.9 Land Management and Development Control

Land use controls will be its most powerful tool for CDGK to control the physical development of Karachi in line with the Plan. Therefore, the development activities in the entire jurisdiction of the City District would be regulated through the CDGK's citywide Land Use Plan which would be binding for all the stakeholders irrespective of the jurisdiction. This system should utilize both positive and negative controls. Many of the methods proposed in previous plans are still applicable and worth restating, including:

- Planning controls,
- Building controls,
- Vacant land taxation and property taxation.

6.10 Planning Controls

To be most effective in implementing planning controls, application should concentrate on priority areas of the Plan. Priority areas should include:

- Designation of priority areas for development; this includes those areas marked for development in the Plan in the next 10 years, such as sites for major capital investment projects;
- Designation of areas where development should be restricted: this includes areas of the Plan in the outskirts of the City District, environmentally sensitive areas, public recreation areas, and areas planned for low density.

Within the Karachi Building & Town Planning Regulations (KBTPR) 2002, there is a formal procedure laid down for the grant of 'Development Permits.' This system should be utilised to enforce future building developments in conformity with 'priority' and 'restricted' areas of the Plan. It permits the setting of both general standards and area standards, as well as for the establishment of interim control areas which can serve as restricted areas. However, application of such a system by CDGK to all areas of the City District would be restricted because it shares powers and duties associated with the KBTPR with seven other institutions. Correcting this fragmented authority would enable uniform application of controls and implementation of the Plan.

Enforcement of planning and development controls should be carried out by the Karachi Building Control Authority in conjunction with police and enforcement officials.

6.11 Urban Land Allotment and Management Policy

The analysis shows that many large residential subdivisions have not been built and occupied. This is primarily because of speculation. This phenomenon greatly undermines the efficiency of urban infrastructure investments. Water and sewerage trunk mains must extend to new sites and system capacity upgraded to accommodate the additional population. But if the houses are not built and people don't live there, the benefits of that investment are few.

To promote consolidation of housing developments, 'sunset clauses' will be included in the lease contracts for selected land development projects, especially those targeting low-income households. The clauses will oblige the purchaser to achieve substantial completion on the house within three years or lose the right to occupy the land. In the case of non-compliance, the use rights will revert to the developer, which will refund original payment to the purchaser. For already leased / allotted plots, strict conditions and charges should be imposed to accelerate house construction.

Since the land is un-renewable resource, KSDP-2020 calls for its efficient utilization, which purpose will be achieved by defining the KSDP-2020 Development Zone, and controlling land allotment within the zone. The boundary of the KSDP-2020 Development Zone distinguishes the Development Zone in the south from Interim Control/protected zone in the north. The boundary bifurcates various dehs so that they are partially included in the Protected/Interim Control Zone. Following are the dehs under reference.

Table 6.2: Area Included in Development Zone

1	Deh Khadeji	One KM from Deh Chuhar (Deh Amilano)
2	Deh Kathore	One KM from Super Highway
3	Deh Konkar	One KM from Super Highway Side and 2 KM from Deh Tore
4	Deh Narather	2 KM from Deh Bigar Buhti
5	Deh Shah Mureed	2 KM from Deh Mokhi
6	Deh Shahi Chib	2 KM from Deh Allah Phiai
7	Deh Mithaghar	5 KM from Northern Bypass
8	Deh Gabopat	2 KM from Deh Moach
9	Deh Chatara	2 KM from Deh Moach
10	Deh Mondary	2 KM from Deh Moach & Lal Bakhar
11	Deh Lal Bakhar	5 KM from Deh Moach side up to Hawksbay road turning

The existing policy for allotment of Government Lands on below market prices and without its development needs immediate policy change.

- i) It is recommended that the allotment of Government land should be made only in the “KSDP-2020 development zone” that too after preparing a development plan, and providing the trunk infrastructure in the area.
- ii) No allotment of Government land should be made beyond the development zone. Similarly no entity should grant approval of lay-out plans in the restricted/interim control zone to arrest scattered development creating liability of providing infrastructure and services on the part of CDGK, development authorities and the utility agencies.
- iii) It is recommended that first a “structural plan” for the all Government land should be prepared, followed by phased development under CDGK-GOS collaboration with appropriate modus operandi.

The President of Pakistan while taking a presentation on the KSDP-2020 in a meeting held on 25th July 2006 at Governor House, Karachi had directed as under:

- i) No allotment of state land should be made without a development plan and consent of the City District Government Karachi in order to ensure that the allocation / allotment is in consonance with the KSDP-2020
- ii) Instead of allotting raw land on below-market prices the land should be developed and value added in coordination with the CDGK.
- iii) Trunk infrastructure should be provided in order to ensure the early construction, development and occupation of the land.
- iv) The land requirements for the city and government amenities as identified under KSDP-2020 shall be allocated and made available by the Board of Revenue Government of Sindh and other land owning-agencies on priority basis in supercession of all other claims and interests.

6.12 Building Control Regulations

Building controls are another tool for controlling land development. For the Karachi metropolitan area, the Karachi Building & Town Planning Regulations 2002 under the Sindh Building Control Ordinance, 1979 are the operative regulations.

The primary obstacle to their effective application and use is enforcement of rules and conditions for building permits. A program should be undertaken to ensure that the responsibilities of all officials involved in carrying out this system are strictly enforced. This requires further scrutiny of functions carried out by all enforcement officials and procedures for issuance of permits.

As with planning controls, building controls set out under the Building Control Ordinance are not applicable to federal agencies and lands. These laws should be amended so that they apply to all buildings in the City District. This should be put on the agenda of the Steering Committee and Planning and Development Control Committee since they bring together representatives of key stakeholders.

It is also necessary to maintain strong system for public participation in appeals and inquiries to maintain public acceptance and support for these development controls and the implementation of the Plan. To do this, a clear system of rules, penalties and an appeal process should be made public.

Changes to the development code will help to vest necessary development authority in CDGK and enable the types of mixed use, mid-rise and high-rise development envisioned in the Strategic Development Plan.

The existing five categories in the Karachi Building and Town Planning Regulations are not sufficiently articulated to enable the types of development envisioned by KSDP 2020.

- First, land uses need to be regulated on a zone-by-zone basis. This is not to say that zones should include only one land use; rather, most zones should be mixed use, and in many cases the predominant use should be identified. These land uses need to be defined in text and represented on the land use map of the city.
- Height regulations need to be more specific, providing minimum and maximum values in feet and/or number of stories in order to facilitate mid-rise development in high-density areas and along major arterial and some secondary roads.
- High-rise development needs to be undertaken only in a few selected locations in the city district where water and sewerage pipelines are upgraded from the source to end consumer of such locations. High-rise development will be prohibited in other areas.
- Overhead large tanks to serve the community would be mandatory for any scheme or high-rise development to ensure 24/7Hrs supply and pressurised water.

While the Strategic Development Plan designates in a 'broad brush fashion' land uses across the metropolitan area, the TMAs are responsible for preparing more detailed plans for their towns and/or sub-areas of the towns. For example, the Strategic Development Plan demarcates 'Medium-Density Mixed Use' development areas (land use type MU2) in neighbourhoods such as North Nazimabad near the city centre. This land use type calls for redevelopment of selected existing arterial streets into mixed use, mid-rise development corridors but the Strategic Development plan is silent on which streets should be redeveloped, to what height, and with what land use mix. The town plans and/or local area plans to be prepared in the future will provide the degree of detail needed to actually implement the development proposals. This 'vertical' sharing of planning and growth management authority between CDGK and lower-level local governments is consistent with the planning process.

6.13 Efficient Land and Real Property Estate

Taxation of land is another tool to utilise in guiding more efficient land use. Real estate is often not revalued frequently enough and rates are set low. As a result, plots lie vacant and under utilised and land speculation is rampant.

Progress has been made in improving the real estate taxation system but should still be considered as an available tool to improve earnings for CDGK and encourage more efficient urban development and land use. Property taxation should be assigned to CDGK, who could refine property valuation methodologies, frequency of reassessments, property tax rates, and collection systems and procedures. Earnings can be invested in infrastructure service improvement for the Plan.

6.14 Positive Controls

It will be easier to implement the negative land use controls described above when CDGK also provides a system of positive land use and development controls. These could include: advance land acquisition; large scale development of priority sites; and incentives for private development in priority areas. Also, where the Plan has designated areas for increased density and infill, CDGK should use its authority to execute such schemes. The KSDP Steering Committee should build support for this program. CDGK should use incentives for infill such as:

- Provision of credit for building and exemption of unpaid vacant taxes if buildings are constructed on vacant plots within a specified period;
- Building societies and other groups which have been allotted land should have their rights to development revoked unless building is completed within a specified period.

7 RECOMMENDATIONS - A RESUME

Following are the major recommendations contained in the KSDP-2020, and presented here in a consolidated form. This summarizes the range of programs and actions required to achieve the objectives of planned growth and sustainable development of Karachi under the Vision-2020 set by the CDGK for the megacity in unison with the Vision-2030 for Pakistan. The recommendations are listed under captions indicative of the area or nature of the program.

7.1 Land Use:

a. Spatial Growth Strategy

The spatial needs for commerce, industry, housing and infrastructure development will be provided through a set of policies and programs. Spatial changes will occur across the metropolitan area through a development process based on the following spatial growth strategies.

- i. Densification.
- ii. Densification and Infill.
- iii. Infill and Expansion.
- iv. Status Quo.

b. Accommodating New Household:

About 1.776 million households would be increased by the year 2020, which would be accommodated as per the spatial growth strategy covering 18 towns. In three towns namely Gadap, Bin Qasim and Keamari 0.81 million households (45%) whereas the remaining 0.96 million households (55%) would be accommodated in other 15 towns through densification and infill strategy. The already notified but vacant schemes such as Shah Latif Town, MDA Project No.1 Taiser Town, Scheme-33 & Halkani Town, Hawksbay can accommodate the 0.81 million households in Gadap, Bin Qasim and Keamari Town.

7.2 Regenerating the Inner City

- i. A program for local area regeneration shall be developed; the plans to be undertaken area-by-area shall improve local transport, infrastructure, and create a more efficient land use, including expansion through consolidation.
- ii. A program for transferable development rights and a strategy for redevelopment of decayed properties shall be evolved and the complex issue of tenure resolved.
- iii. A program for progressive pedestrianization shall be introduced, restricting vehicular movements and facilitating pedestrian movements to help increase the attraction of the area and possibility of additional economic activity. The CBD including Meri Weather Tower & Saddar shall be the priority areas.
- iv. A program of integrated transport shall be undertaken to improve the efficiency of the public transport, and ways to minimize the use of private cars shall be found.
- v. A program for decongesting the inner city areas shall be developed, and activities/functions such as iron, timber and grain markets and truck stand shall be shifted to other areas. This will allow redesign and redevelopment of the area.

7.2.1 Promoting mixed use developments

Mixed land use development shall be promoted in new development areas, including areas in Korangi, Malir, North Karachi, Bin Qasim, Gadap, Orangi and Keamari towns; In the 18 towns designated centers, concentration of local economic activities shall be encouraged together with development of amenities.

7.2.2 Permitting and guiding vertical development and densification

- i. Vertical development shall be encouraged in specific areas; densification of existing towns shall be promoted through vertical and infill development.
- ii. Mid-rise development shall be promoted along existing corridors, and within the towns through local area plans with due regard to future traffic patterns, parking and utility needs

7.2.3 Enabling densification and vertical development of existing residential areas

In the existing neighborhoods, where the buildings are limited to G+1, building heights shall be increased to G+2, and accordingly infrastructure shall be upgraded to meet the needs of higher population in the existing neighborhoods.

7.2.4 Developing new urban centers

- i. Additional urban centers in existing built up areas shall be promoted to help decentralize the existing economic activity and public services concentrated in the city center.
- ii. A new high-density trade and warehousing center at the interchanges of RCD Highway and Northern Bypass, a new ICT center in Bin Qasim in close proximity of the Education City.
- iii. A new government center at the intersection of the Northern Bypass and Super Highway shall be established.
- iv. A number of civic centers/Awami Markaz shall be established in towns in particular at super market in Liaquatabad, Gadap, Landhi and SITE Towns.
- v. Hawker zones : Hawker zones, including provisions of Kiosk and small utility stores shall be organized at suitable places in towns, wherever feasible.

7.2.5 A policy for urban renewal

For sustainable use of land resources and improvement of the existing land uses, a policy of urban renewal shall be adopted to improve deteriorated/decayed buildings and areas through redevelopment, preservation of historic buildings and rehabilitation.

- i. The government barrack blocks housing the offices of the Federal and Provincial governments are already in advanced state of decay.
- ii. The government servants' residential quarters at Jehangir Road Quarters Martin Quarters, Pakistan Quarters, Central Prison, Police Lines, Police stations and F.C. Area, which are in deteriorated state with sub-standard, decayed houses.
- iii. Urban design projects for the above mentioned areas shall be undertaken for efficient land utilization, such as accommodating present use, public amenities, transport infrastructure and commercial centres to make the projects self-supporting.

7.2.6 Integration of civil areas of Cantonment and other land-owning agencies

- i) The plans for the areas under different land-owning agencies shall be guided and regulated through a city-wide comprehensive land use plan prepared under KSDP-2020,
- ii) The areas under Cantonments, KPT, PQA Pakistan Steel, and Pakistan Railway etc shall undertake appropriate land use reorganization so that these areas develop to their optimum capacity including land for the city amenities/ infrastructure.
- iii) The Cantonment land along M.A.Jinnah Road and Saddar Federal Government land around Lines. Area and area around Karachi Cantt and City Railway stations shall utilized with medium high density uses, including multi-modal transport terminal and amenities.
- iv) In Faisal Cantonment, efficient and rational land use shall be promoted in areas of low-density and vacant land, such as the COD or that around the T-Junction of Shahrah-e-Faisal and Rashid Minhas Road, where another financial district may possibly be developed.

7.2.7 Incorporation of existing Goths into urban fabric

The Goths in the metropolitan area and rural areas of the district shall be provided with necessary facilities and amenities, and their land use shall be reorganized for better living.

7.2.8 Transport infrastructure

All civic agencies shall make adequate provisions for transport infrastructure facilities in conformity with the CDGK land use plan. Inter/intra-city bus terminals facilities, multi-modal transport facility shall be built as per plan. Provision of multi-level car parking, transit stations, and cargo villages shall be adequately provided by all civic/land owning agencies.

7.2.9 Development of City's Entry Points

Urban design projects shall be undertaken to develop the city's three entry-exit points located at Super Highway, National Highway and RCD Highway. This will include development of transport infrastructure, removal of encroachments, construction machinery yards, area beautification and landscaping etc.

7.2.10 Industrial zones

- i. Full utilization of developed industrial spaces in Bin Qasim Industrial Zone, Export Processing Zone, Surjani, SITE-II, Textile City and Korangi Industrial area shall be promoted. Three more locations proposed in addition to existing industrial areas shall be developed when the need arises.
- ii. Cottage Zones announced in 1990s in Landhi, Baldia and Orangi shall be developed and handed over to the allottees who had to wait so long. The encroachments on the lands of these schemes shall immediately be removed.

7.2.11 Decentralization of financial district

To effect decentralization of Karachi's financial district, which continues to grow, a number of sub-centers shall be developed in new locations where the infrastructure and amenity needs shall be adequately provided.

7.2.12 Establishment of diplomatic enclave

Diplomatic Enclave may be established in the city at appropriate location such as old Race Course Ground. The concept, feasibility and the possible sites shall be explored and identified in consultation with relevant Agencies.

7.2.13 An additional site for Karachi International Airport

An additional site for a new international airport has been proposed in Deh Narathar or Deh Shah Mureed for future use.

7.2.14 Special purpose zone along Karachi Northern Bypass

A special purpose corridor shall be built along the Northern Bypass within its 300 meter reservation on both sides, to include housing, commercial, institutional and public uses

7.2.15 Education City

Development of an 'Education City' shall be promoted by bringing together institutions in the education and health sectors on the site notified in Deh Chohar.

7.2.16 Media City

To promote growing requirements and needs of the media, a 'Media City' shall be established to be located on suitable site. This will facilitate national and international media organizations to drive advantages from interdependent functions and cluster organization.

7.2.17 Law enforcement agencies – Infrastructure requirements

Adequate provision for present and future needs to house the facilities and sensitive installations of the law enforcement agencies shall be made and land be earmarked in accordance with the strategic plan of the agencies.

7.2.18 Allocation of space for graveyards

- (i) New sites for graveyards shall be allocated, as the old sites have become saturated. Three major sites have been identified in Bin Qasim, Gadap and Keamari Towns.
- (ii) Each town shall be provided a mortuary facility for the benefit of the town population.

7.2.19 Landfill sites and garbage stations

New landfill sites shall be developed since the existing landfill sites have already been used to their full capacity. Appropriate space land for garbage station in each town shall be made available by the land owning agency.

7.2.20 Reservation of land for public amenities

The land required for the above mentioned city and government amenities shall be made available (reservation and allocation) by the Board of Revenue. Government of Sindh and other land-owning agencies on priority basis. Other claims and interest will be set aside to ensure availability of the required land/sites for public and urban amenities and facilities.

7.2.21 Incorporating Existing Farm Houses

There are hundreds of existing Farm Houses clustered in Deh Tor, Deh Narathar, Deh Konkori, Deh Shahi Chib and Deh Kharkharo on private and 30 years leased

lands. There is a need of formulating a policy regulating Farm House in Karachi District. A comprehensive study is therefore recommended in this regard.

7.3 Housing

- ii. Housing, being a basic necessity, must be provided to all income groups.
- iii. Occupancy in already developed yet unoccupied housing schemes shall be accelerated.
- iv. Housing schemes already notified for development shall be taken up.
- v. Water front development with high-rise in designated areas along the coast shall be promoted.
- vi. New economic centers together with affordable housing for all income-groups shall be developed.
- vii. Built dwelling units and housing for rental shall be developed in unoccupied housing schemes to increase pace of occupancy.
- viii. The role of the private developers in the formal as well as in the informal sector shall be promoted by enhancing cooperation between the public sector agencies and the private sector. The improvement and upgradation programs of katchi abadis shall require the partnership to play its crucial role.
- ix. Regularization and up-gradation of notified katchi abadis shall be accelerated, and a program to upgrade these settlements shall be pursued with the involvement of the community and the civil society.
- x. To assess the magnitude of katchi abadis in Karachi, a survey of all katchi abadis shall be undertaken on priority basis so that future sectoral priorities/programs and projects may be identified.

7.3.1 Enhancing supply of institutional finance

- i. More finance shall be made available to all income groups for the purpose of house construction.
- ii. Appropriate instruments shall be devised to increase access to institutional finance for acquisition of service plots and house building.
- iii. Special finance packages for the poor living in katchi abadis shall be introduced by the financial institutions and the banks.

7.3.2 Enhancing the management capacity

The management capacity for planning, designing and development housing schemes shall be increased at the city government level so as to be able to implement the housing program laid down by the KSDP-2020.

7.4 Transport

- i. Safe, efficient and affordable transport shall be provided.
- ii. Public mass transportation system shall be improved, targeting affordability and convenience.
- iii. Traffic police and enforcement shall be integrated with city traffic planning and management under a central transport authority as part of the CDGK.
- iv. Pedestrian safety and facilities shall be improved.

- v. Congestion on the city roads and in the CBD shall be reduced by rationalized parking, traffic management, pedestrianization, land use and transit improvements.
- vi. Transportation Planning, Traffic Engineering, Traffic Management and Traffic Police are currently divided in to CDGK and provincial Government. These functions shall be grouped together and placed under the umbrella of CDGK to have an efficient and effective, transportation and management system in Karachi.

7.4.1 Transit improvements

- i. Improvement in bus transport shall be effected by adopting such measures as rationalizing the bus routes, reserving high volume routes for large buses, providing bus stops, transit terminals and other physical improvements.
- ii. Replacement of existing bus stock with environment friendly fleet shall be effected.
- iii. Bus fare structure shall be rationalised
- iv. Parking and garage facilities shall be provided to mini bus, taxi and rickshaw services.

7.4.2 Mass transit

- i. A segregated transit system shall be built in order to facilitate travel to the CBD, industrial areas and the work centers.
- ii. The Karachi Circular Railway shall be extended to cover sub-urban areas for maximum coverage and utility.
- iii. Bus rapid transit shall be re-introduced on major roads.
- iv. The feasibility of constructing light rail transit in the form of underground or elevated service on priority I and II corridors shall be examined.

7.4.3 Park-and-Ride

- i. Park and ride service shall be introduced, for which necessary measures i.e. parking lots, plus superior buses (with air conditioning and guaranteed seats) shall be undertaken.

7.4.4 Transit terminals

- i. At least two additional terminals for inter city buses shall be provided and the private sector shall be involved in developing and renting out the facility to bus operators.

7.4.5 Traffic management

- i. Traffic management must be improved on urgent basis through low-cost 'soft' improvements together with major works i.e. intersection reconstruction, flyovers, underpasses and road widening.
- ii. Regulatory measures such as driver training and public awareness programs on traffic rules shall be designed and launched on media.
- iii. Encroachments on footpaths, side walks and on road shall be removed in the interest of smooth traffic and pedestrian movements.
- iv. Appropriate signage on roads shall be provided for users for safe and orderly movement.

7.4.6 Parking

- i. Parking shall be regulated and curb side parking shall be charged / metered.
- ii. The provisions of within building parking as mandated by KB&TPR shall be strictly implemented.
- iii. Space for loading and unloading of goods shall be provided in all commercial buildings.
- iv. Construction of parking plazas shall be undertaken to relieve congestion on roads. Incentives shall be given to land owners to promote construction of parking spaces.

7.4.7 Road and highway improvements

- i. A comprehensive road network improvement program shall be undertaken in order to reduce congestion and improvement of efficiency of roads and highways.
- ii. Improvements in the radial networks, and construction of ring roads and bypasses shall be effected in accordance with the proposals of KSDP-2020.

7.4.8 Pedestrian improvements.

- i. Pedestrian facilities including bridges over principle and minor arteries, expansion of side walks in commercial district particularly in CBD and pedestrian facilities in commercial projects shall be undertaken.

7.4.9 Air quality deterioration

- i. Air pollution caused by transport vehicles must be controlled by phasing out old buses, wagons & paratrasits with poor mechanical condition and low level of fuel efficiency and replacement by efficient CNG vehicles.
- ii. Measures shall be taken to prevent pollution from smoky diesel and two-stroke (rickshaws) vehicles.
- iii. Alternative fuel, such as CNG, LPG, mixed fuels, and low sulphur diesel shall be promoted.
- iv. Tariff preference shall be given to CNG buses.

7.4.10 Transportation and pedestrianization in the CBD

- i. A transportation improvement plan for the CBD shall be undertaken to overcome the serious circulation problem, and preserve its role in business and commerce.
- ii. Creation of pedestrian malls, pedestrianization of congested areas, including diversion of through traffic shall be planned and implemented through an integrated transport and area upgradation program.

7.4.11 Water supply

- i. The KW&SB shall progressively meter all water supply customers. The cost of metering investment shall be built into the water tariff, spread out over a 3-5 years period.
- ii. The public shall be educated on the need to conserve water.
- iii. Alternatives to piped water for uses that do not require drinking quality shall be provided including reuse treated grey water for irrigation, and treated wastewater for watering plants.

- iv. Efficient Water supply service shall be achieved.
- v. Rationalisation of tariff to improve service coverage and quality shall be undertaken.
- vi. In-house modern system and techniques of improving collection, and efficient, error free billing system shall be launched.
- vii. Increase in the bulk water supply through K-IV project, expansion of storage, filtration plants and new transmission lines, and replacement of old pipes throughout the system shall be undertaken.
- viii. Allocation from the Indus river must be enhanced for water supply to Karachi to sufficiently cover the water needs/demand up to 2020, estimated to be about 1200 cusecs/600 MGD and reservoir capacity for the same shall be expanded. Federal and provincial governments shall approve enhanced allocation for Karachi and shall take appropriate states to ensure supply in due time.
- ix. The land reservation for K-IV project alignment shall be of 1000 feet and no allotment shall be made by the Board of Revenue in the reservation. Necessary steps shall be taken by the BOR & KW&SB for reservation and protection of land. For reservoirs treatment plants, pumping stations, staff housing & intake & miscellaneous structure, 800 acres of land shall be allotted.
- x. Large scale development/construction project of coastal oriented land-owning agencies and developers shall ensure required water supply through self-sufficient measures, including desalination.

7.4.12 Sewerage

- i. The capacity and performance of sewerage system shall be increased.
- ii. More interceptors to link collection areas to treatment plants, trunk sewers on both sides of the Lyari and Malir rivers shall be built.
- iii. A network of new small/medium wastewater treatment plants, and rehabilitation of existing plants to raise their operational efficiency shall be undertaken.
- iv. Industrial units and private-public hospitals must construct industrial and medical waste treatment plants.
- v. A policy on the 'users pay' principles shall be formulated and implemented.
- vi. Treated wastewater shall be recycled and made available for industry, car washing, watering lawns, and recharging the aquifers.
- vii. Increase in sewerage tariff by 50% to cover expenditure upon Sewerage System shall be effected.
- viii. Maintenance of existing waste-water network to eliminate sewage overflows and to avoid pollution of water supply network and groundwater shall be improved.
- ix. A mega project i.e. S-III shall be undertaken to enhance the treatment capacity of TP-I, TP-II and TP-III, and for establishment of TP-IV in Korangi township. The Board of Revenue and KW&SB shall take necessary steps to make the required land available for the purpose.

7.4.13 Solid waste management

- i. Clean, healthy environment and sanitation shall be ensured through effective solid waste management.
- ii. An effective regulatory framework for efficient management of all municipal and hazard solid waste shall be developed and enforced.
- iii. An enabling environment for supporting private sector involvement in the segregation, recycling, collection, transfer, treatment and disposal of wastes shall be undertaken.
- iv. Capacity building and strengthening of all institutions involved at all levels shall be undertaken.
- v. Improvements in the collection process and transportation through upgraded infrastructure shall be effected.
- vi. Garbage transfer stations system shall be established, and shall be equipped with material recycling facility (MRF) for effective recycling of different materials. At least one GTS will be provided in each town by 2020. Land owning agencies shall provide the required land.
- vii. Capacity and garbage processing at landfill sites shall be improved by adopting scientific treatment methods/technologies. In addition to two existing landfill sites, a third large site shall be developed to cater for future needs.
- viii. A comprehensive hazard waste management (HWM) system to provide for the proper management of the city's hazardous wastes from industrial, medical and other sources shall be instituted.
- ix. Generation of electricity from solid waste shall be promoted through appropriate technologies, and suitable projects for compost and energy production shall be undertaken.

7.4.14 Storm water drainage

- i. A digital drainage network shall be developed for a comprehensive database on GIS platform, to inform the available flow capacities.
- ii. Spots/areas submerged under storm water shall be identified through a topographic survey of low-lying areas and an evaluation of the carrying capacity and efficiency of the storm water drainage shall be made, and a model of the flow pattern generated.
- iii. Gauging stations shall be installed on town basis to monitor precipitation and flooding in local areas. CDGK shall evaluate the existing flood protection and disaster mitigation measures and procedures adopted in other cities of the world.
- iv. Storm water drainage projects for vulnerable points shall be prepared and executed on priority basis.
- v. A mega project for construction of new storm water drains, including rehabilitation of the old system and resettlement of the evictees from affected land around nullahs, shall be developed under special financial package to be provided by the federal and provincial governments.

7.4.15 Electrical power

- i. A two phased power system development program is proposed; an immediate action plan (2006-2011) and a long term plan (2011-2020). Electric power generation shall be expanded on an urgent basis. The existing

transmission system shall be expanded by constructing three grid stations to meet demand up to 2011.

- ii. The existing system of primary distribution feeders will be extended by installing distribution sub-stations.
- iii. In the long term phase, power generation shall be augmented from a combination of different sources; future power needs of Karachi shall expect to rely more on low cost nuclear power generation, among others.
- iv. It will be mandatory for all big building projects to install self generating electricity system.

7.4.16 Health services

- i. Prevention programs against communicable diseases, including HIV/AIDS, Malaria etc shall be vigorously pursued.
- ii. Healthcare shall focus on reducing child mortality and improving maternal health.
- iii. Primary level professionals shall be trained in areas of preventive medicine.
- iv. Access to primary healthcare centers shall be improved through establishment of more centers in accessible locations, and shall be well staffed and equipped.
- v. New large tertiary care hospitals in the public sector shall be established in new areas where growth is expected during the plan period. Hospitals/centers for treatment of heart diseases shall be established in towns, such as Malir, Gadap and Bin Qasim.
- vi. For improved coverage in the metropolitan area, five more large tertiary care hospitals, each covering three towns should be established in the public sector to be funded by special allocations from the federal and provincial governments.
- vii. Private sector shall be actively involved in establishment of medical colleges, nursing schools and medical training institutes.
- viii. Public private partnership shall be developed and private sector investment shall be promoted in the healthcare system. Management of large tertiary care hospitals shall also be given to the private sector on contract for a fixed time period.
- ix. A health related disaster preparedness program shall be established and rehearsed with civil defense, police and ambulatory services.

7.4.17 Education

- i. Measures shall be taken to improve the standard and quality of education with an emphasis on elementary/primary education. Schools and colleges, especially the private institutions shall be evenly spread over the metropolitan area. Concentration in certain areas shall be discouraged.
- ii. Specialized training institutes shall be promoted to meet future skilled manpower needs.
- iii. To adequately meet the educational needs up to 2020, a comprehensive program for the establishment of educational institutions including universities and professional colleges shall be formulated and implemented with finances from the provincial and federal governments. Currently underserved areas

such as Orangi, Baldia and Lyari in the west and south, Korangi and Malir in the east will be paid due attention.

- iv. Special Education Centers for vocational training of special persons shall be established in all towns, particularly Keamari, Malir, Gadap and Bin Qasim Towns.

7.4.18 Conservation of heritage sites

- i. CDGK shall facilitate the preservation and protection of the historic buildings.
- ii. Rehabilitation standards and preservation techniques shall be established.
- iii. A building permit process shall be developed to monitor construction and repair work done on historic properties.
- iv. Compatible land use shall be promoted in ambient space adjacent to historic building and in historic neighborhoods.
- v. A tax credit program to encourage private property owners to protect their historic properties shall be instituted.
- vi. To promote 'Cultural Karachi' for cultural tourism, a Cultural Karachi Board with representation of urban design professionals shall be established.

7.4.19 Sports and recreation

- i. Along the beach front, a 150 meter wide recreation belt shall be protected and maintained.
- ii. The number of playgrounds shall be doubled in each of the 18 towns and more metropolitan level stadiums shall be provided. A number of sports complexes shall be established in each town, including international level sport facilities at suitable locations that would facilitate a larger participation of the sport loving public.
- iii. Available land for active recreation within the towns shall be protected.
- iv. Private sector shall be engaged to run major parks.

7.4.20 Urban agriculture

- i. An agricultural development program shall be designed to improve agriculture in the rural areas of the district for economic well-being of its population.
- ii. The green belts/cultivated areas shall be protected and preserved.
- iii. A land utilization plan for agricultural areas, including livestock and poultry farming shall be formulated and implemented.
- iv. A program for development of groundwater resources, their utilization and management shall be prepared and put into effect.
- v. Check dams, weirs on rivers and nullahs shall be constructed to recharge the tube wells used for irrigation, poultry and dairy farming.
- vi. A program to support and facilitate proper and prompt supply of inputs and equipment to farmers, along with financial assistance shall be developed and promoted.
- vii. Agricultural training centers to improve agricultural practices and technical knowledge shall be established.
- viii. Veterinary hospitals, dispensaries and centers, and their service delivery system shall be improved.

- ix. Land shall be allocated for cattle markets, dairy and poultry farming. Veterinary dispensary shall also be located near cattle markets.

7.4.21 Water front development

- i. Provisions of the Karachi Coastal Recreation Development Plan 1990-2000 shall be adopted for implementation and development along the coast.
- ii. Public access to beaches must be free and unhindered as a mandatory requirement under existing KB&TP Regulations 2002 and no development shall be allowed in areas upto 150 meter from the high water mark.
- iii. Reclamation along the sea or backwater shall not be undertaken without conducting hydrological studies and without involvement of the port authorities.
- iv. The fishing community must not be dislocated from their villages, and their access to their traditional fishing grounds must remain intact with free and unobstructed movements.
- v. The marine environment quality shall be improved by eliminating pollution of the coastal zone. Ecological system along the coast, backwaters and creeks must be preserved and measures against its degradation shall be urgently taken.
- vi. The recreation and other developments shall be self supporting, and profit/revenue generating.
- vii. A coastal zone development program for recreation, business, offices and housing shall be promoted to harness the economic growth potential of the coast.

7.4.22 Disaster management

- i. A disaster warning system to forewarn the people about the likelihood of occurrence of severe cyclonic storms, floods, earthquakes and tsunamis, using credible predictive techniques shall be established.
- ii. A preparedness and relief plan and a coordination mechanism for effective management and damage control shall be developed.
- iii. A disaster management cell in the CDGK shall be established to plan for and respond to emergencies effectively.
- iv. In order to strengthen the fire fighting services in the city, existing fire brigade stations shall be improved, and keeping in view the growing commercial and industrial areas more fire brigade stations together with training centre and staff residences will be established and organized as per international standards. Appropriate sites in various towns shall be allocated for this purpose.

7.4.23 Financing the Plan

- i. Federal and provincial governments shall arrange special financial packages.
- ii. Increase in CDGK revenues supplemented by development of commercially viable projects shall be effected.
- iii. Local government financing, maximizing the involvement of private sector and access to capital market shall be improved.
- iv. Land value tax on vacant plots shall be introduced.

- v. Rationalisation and improvement of tariff to cover the O&M costs of infrastructure delivery along with introduction of users' charges for recovering of investment costs shall be effected.
- vi. A program for phased introduction of local government financial reforms shall be developed and launched.
- vii. Changes in legislation to allow CDGK to borrow shall be made.
- viii. Toll on selected expressways and highways shall be imposed.
- ix. Property and motor vehicle tax shall be collected by the CDGK to be utilized for infrastructure maintenance and development.

7.5 Plan Implementation

7.5.1 Planning and development control

- i. The CDGK shall acts as apex planning with legal authority for planning and development controls over all land and buildings within the City District under jurisdiction of all other land owning agencies and amendments in relevant acts/laws to this effect will be made at federal level.
- ii. After approval of the Plan by the City District Council, CDGK, the KSDP-2020 will be a binding document for all the stake holders to follow in their plans.
- iii. The KSDP-2020 land use plan shall be followed in the entire city district of Karachi including the areas under Federal, Provincial and other land owning agencies.

7.5.2 CDGK as a single agency for municipal services

- i. All municipal infrastructure services in the civil areas under various land owning agencies shall be the responsibility of the CDGK, which shall be the single agency for municipal functions over the entire Karachi. This will not affect the land ownership rights of these agencies.
- ii. The operational defence and strategic areas will remain under the land owning agencies.
- iii. As a single agency for municipal services, the CDGK will be empowered to collect taxes, charges, levies and fees from the consumers/users.
- iv. In respect of maintenance of municipal services infrastructure including hoarding installations, the right of ways will be given to the CDGK.
- v. All the notifications extending the territorial jurisdiction of cantonments and other agencies shall be withdrawn / amended.
- vi. Since the land owning agencies operate under Federal and Provincial Acts/laws, appropriate amendments in the existing relevant laws shall be made by the Federal/Provincial governments.

7.5.3 Implementation of the plan

- i. A two-tier structure composed of a Steering Committee and Development Control Committee with representation of all major actors will have overseeing, coordination and selected implementation functions related to the Strategic Development Plan.
 - a) KSDP Steering Committee - The existing Coordination Committee for the Development of Karachi, formed by the Federal government and headed by the Governor of Sindh, will act as the KSDP Steering Committee. This

Committee will operate at the provincial government level, headed by the Governor. With representation of key stakeholders, this body will ensure that all decisions pertaining to development are made in consonance with the Strategic Development Plan. Coordination with Federal Government and its agencies sponsoring and executing schemes in Karachi will be made through the Steering Committee. This committee will meet periodically to monitor progress and implementation of KSDP-2020.

- b) Karachi Planning and Development Control Committee - The existing Municipal Services Coordination Committee will act as the Karachi Planning and Development Control Committee. Chaired by the City Nazim, this committee will review and approve key development projects. National, provincial, and local stakeholders in the development of Karachi, such as the Cantonment Boards, Malir Development Authority, Lyari Development Authority, Sindh Katchi Abadis Authority, Pakistan Railways, KPT, PQA etc., will sit on the committee to facilitate approval of key development projects. Projects presented for consideration will require preliminary approval from the development control department of CDGK.

7.5.4 Urban land allotment policy

- i. The allotment of government land shall be made only in the KSDP-2020 development zone after the trunk infrastructure has been provided under an approved plan.
- ii. All land in the district shall be treated as a land bank and shall not be allotted in contravention of the KSDP-2020 Land use Plan. No land shall be allotted without CDGK consent.
- iii. Multi-agency planning control over land shall be done away with to create a unified land control system under the CDGK.
- iv. No allotment of the government land shall be made beyond the KSDP-2020 development boundary (interim control zone).
- v. No land owning agency shall grant approval of layout plans in the interim control zone, to avoid creating liability of providing infrastructure and services on the part of the CDGK, development authorities and utility agencies.
- vi. A 'structural plan' for all government land shall be prepared, followed by phased development under CDGK-GOS collaboration with appropriate modus operandi.
- vii. The land requirements for the city and government amenities as identified under KSDP-2020 shall be made available by the Board of Revenue Government of Sindh and other land owning agencies.

7.5.5 Land management

- i. 'Sunset Clauses' shall be included in the lease contracts for selected land development projects especially those targeting the low-income households so that people are obliged to quickly build their houses and settle in the scheme.
- ii. For already leased/allotted plots, strict conditions and charges shall be imposed to accelerate house construction.

7.5.6 Building control regulations

- i. Building controls set out under the Building Control Ordinance shall be uniformly applied to all land-owning agencies in the city district.

- ii. Under a program, responsibilities of all officials and personnel involved in building control functions must be strictly enforced.
- iii. Appropriate changes shall be made in the development code in order to vest necessary authority in the CDGK and enable the types of mixed use, mid-use and high rise development envisioned in the KSDP-2020.

ANNEXURES

Annexure-I

Main Finding & Assessments

1 POPULATION PROJECTIONS

The 1998 census reported 9,960,000 people living in Karachi. It is widely accepted that the 1998 census undercounted katchi abadi residents and migrants, especially those from Afghanistan, Sri Lanka, and elsewhere. Estimates of the uncounted population vary from one to two million. Following an analysis of different scenarios, the Karachi Strategic Development Plan 2020 estimated the uncounted population, for the purposes of establishing a baseline, at 1,375,000. The corrected 1998 population is therefore 11,335,000.

The growth rate of Karachi has been decreasing steadily since the 1950s. United Nations population sources cite a decline in the annual average growth rate from 5.86 percent in 1950 to 4.92 percent in 1970 to 3.39 percent in 1990.

Although the natural annual population growth rate is now probably close to 3.5 percent, it is assumed the current conflict in Afghanistan has pushed more refugees to Karachi, raising the total population growth rate to 4.2 percent, resulting in 2005 population of 15.12 millions. The trend is continuing in 2007, and perhaps subsequent years, but is assumed to decline slowly over the future.

Table 1.1: Population Growth Forecast, 1998-2020

Scenario	1998	2005	2010	2015	2020
Population (000s)	11,335	15,120	18,529	22,594	27,550
AAGR* in following years	4.20%	4.15%	4.05%	4.05%	--

* AAGR: Average Annual Growth Rate

Source: 1998 Census

The table below converts the population increase into households, and details the increases. Estimates of household size are consistently around 7 persons per household.

Table 1.2: Karachi City Population and Household Trends, 2005-2020

	2005	2010	2015	2020	Change 2005-2010	Change 2010-2015	Change 2015-2020	Total Change 2005-2020
AAGR*	4.15%	4.05%	4.05%					
Population (000s)	15,120	18,529	22,594	27,550	3,409	4,065	4,956	12,430
Households	2,160	2,647	3,228	3,936	487	581	708	1,776

*AAGR = Annual Average Growth Rate

1.1 Infrastructure Requirements

This section sets out the global requirements for infrastructure improvements necessary to support the envisioned urban growth over the period of KSDP 2020.

Water Supply and Sewerage

Karachi City District was divided up into three water supply zones that reflect the spatial structure of the water supply system. Future water supply requirements were then calculated by zone and by town, using the following assumptions:

- Unaccounted-for water reduced to 20 percent of total water production.
- Pure residential area be worked out at 140 litres per capita per day.
- Combined residential, commercial, institutional demand of 180 litres/capita/day (l/c/d)
- Factoring in the industrial water supply requirements, per capital consumption rises to 240 l/c/d.

Presents water supply requirements by town over the 2005-2020 period for population growth Scenario D (preferred scenario). The following table summarises projected consumption by type of customer.

Table 1.3: Projected Water Demand by Type of Customer, 2005-2020 (MGD)

Type of Demand	2005	2010	2015	2020
Population	15.12	18.93	23.13	27.55
Domestic Water Demand	414 MGD	518 MGD	633 MGD	752
Other Users Water Demand	338.0	423.0	518.0	616
Total Water Demand	752	941.0	1151.0	1368

The growth in requirements for wastewater collection in treatment can be estimated at 80 percent of the water delivered to customers (which includes underground extraction for industrial use), with adjustment for industrial production of wastewater by sector for certain selected large producers.

In fact, however, the growth in effective demand for collection and treatment of wastewater depends less on the population growth of the city and more on the capital program for collecting more wastewater through new trunk sewers pipes chemicals sustainable and treating it in new C.E.T. plants. At the moment only a small share of the wastewater is delivered to treatment plants. The rest is collected either in networks and open drains and dumped into the environment untreated, or discharged directly into the environment without collection.

Over the period of the Strategic Development Plan 2020, the sewerage 'requirements' therefore outstrip the capacity of KW&SB to deliver the necessary capital works. The objective is to increase the collection and treatment capacity of the sewerage system as quickly as possible.

Solid Waste Management

Estimate of solid waste generation indicates Karachi will produce 16,000–18,000 tons of solid waste each day in the year 2020.

170 million cubic metres (0.17 cubic kilometres) space will be necessary to store this waste in compacted form over the next 15 years (not including cover materials.)

Electrical Power

Generation — The objective over the period 2006-2010 is to close the 1628 MW gap between electrical power supply and demand with the following fast-track approach to generation expansion. Further, it will be necessary to respond to the anticipated increase in power demand of 1,140 MW over the period 2011-2015 and 1425 MW over the period 2015-2020.

Transmission — KESC has already begun projects to expand the 220KV and 132KV transmission system to meet requirement through 2010. It is estimated that to meet the growing power demand of Karachi towns after that date, grid stations shall be required mostly in North East and East Karachi, where the population and industrial load will be growing at a faster rate compared to other areas and in South of Karachi due to conversion of residential buildings to commercial use. Load growth of 1,140 MW is projected over the period 2011-2015 and of 1.425 MW over the period 2015-2020.

Distribution — In order to meet the load demand growth during 2006-2011 KESC will have to increase by about 350 to 400 the number of 11 kV primary distribution feeders and will have to establish about 4,000 11kV distribution substations. To meet the load demand growth during 2011-2020, KESC will have to increase about 700 to 800 number of 11 kV primary distribution feeders and will have to establish about 8000 numbers 11kV distribution substations during this period. The number of consumers is expected to increase by about 1 million during 2011-2020, on an average of about 100,000 consumers per year.

2 SOCIO-ECONOMIC CHARACTERISTICS

2.1 Urban Economy

A large metropolitan area (mega-city) is usually a primary centre of industry, commerce and trade with a population in excess of 10 million. In a developing country, mega-cities provide a substantial share of gross national product and many of the goods and services required for the development of the other sectors. Their linkages with the surrounding hinterland may be as narrow as the urban periphery itself or, as is the case for Karachi, extend to the entire country or surrounding nations owing to peculiar advantages, such as a natural seaport.

Karachi, benefiting from its status as the country's principal port, and its capital until 1959 has emerged as the main industrial and commercial centre. Until the 1970s, the city's industrial expansion was driven by traditional industries such as food processing, textiles and garments, but in the 1980s a number of modern chemical, electronic and automotive industries began to make an increasingly important contribution to industrial growth. During this period, Karachi became the main attractor for foreign direct investment in manufacturing in Pakistan and its industrial structure was diversified through the establishment of large manufacturing units in the chemical, petroleum and metallurgical industries. However, owing to a deteriorating law and order situation resulting in production shut-downs and payment of extortion to various agencies, the increase in the cost of production through higher energy costs, power outages resulting in loss of output, the last 20 years have witnessed the physical shifting of small enterprises to the Punjab (the origin of most of the small-scale manufacturers) and medium-scale enterprises to Dubai (because of a secure location and employer-friendly labour laws), there has been a continuous decline in manufacturing activity.

Despite these setbacks, Karachi has witnessed a substantial increase in the trade and services sectors. The Financial Services sector has seen the induction of a large number of international banks, the emergence of exchange companies, and a boom in the stock market and consequently in stock brokering, investment managers, and financial advisers. As a consequence of a substantial increase in international trade, of disposable incomes in Karachi, the spatial expansion of Karachi and a de-concentration of commercial activity, there has been an upsurge in the trade and commerce sectors.

*Karachi's Central Business District:
high rise commercial development
surrounded by low rise housing*



2.2 Economic Base

As the largest city and the transportation, trade, and financial gateway to the outside world, Karachi's economic fate is closely tied to that of the nation, and

even that of Central Asia. Karachi's considerable presence can be portrayed best by showing the city's central role in various sectors of national economic activity:

- 40 percent of financial activity
- 30 percent of manufacturing, and 40 percent of large-scale manufacturing
- 50 percent of bank deposits
- 20 percent of federal tax revenue, 40 percent of Sindh's provincial revenues, and 62 percent of income tax collected
- 95 percent of foreign trade passes through Karachi's two ports and its airport

It is estimated that the city generates about 20 percent of the national output, creates more than 30 percent of value added in manufacturing, and accounts for 25 percent of national tax revenues. More importantly, the city provides jobs for a large population, 40 percent of national employment in large-scale manufacturing is based in Karachi.

Karachi's economic hinterland extends to a much wider area, most of which is not under the administrative, management or planning jurisdiction of Karachi. Its economic underpinnings include industries in seven major concentrations, namely, the Sindh, Korangi and Landhi Industrial Estates, Federal 'B' Area, North Karachi, the Export Processing Zone, and Port Qasim. It also has three satellite concentrations of manufacturing industry at Gharo in the South East, Nooriabad straddling the Karachi-Hyderabad Super Highway and the Hub Industrial Estate located in Balochistan which straddles the RCD Highway a few kilometres beyond the Hub River crossing. The city is peppered with small concentrations of small-scale and household manufacturing industries, most of which house one specific category of manufacturing industry or specialised service.

The labour participation rate of urban Sindh – largely Karachi – is 39 percent (68.5 percent for males). Many unemployed males are students enrolled in colleges, universities, and professional and technical education institutes. 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.

Karachi Port is an anchor of the city's commerce and trade sector



One of Karachi's key comparative advantages is the low cost of labour. The low-wage work force lives primarily in katchi abadis (squatter settlements) that run along waterways and on government owned land in pockets throughout the urbanised area. Many poor people work near where they live, which reduces commuting costs and helps keep wages low.

Inflation in Karachi is the lowest among all of the large cities (population in excess of 500,000) in Pakistan with the exclusion of Faisalabad. Between the low inflation and the availability of relatively low-cost housing near employment areas, Karachi is known in Pakistan as a poor-friendly city.

Kaiser Bengali¹⁵ is the only scholar on record who has estimated the size and composition of the economy. This was done for the period 1972/73 to 1984/85. No subsequent analysis has been attempted. The estimates of the size and composition of Karachi's economy for the terminal year are given in the table given below. The long-term growth rate is shown in the third column. Based on this, the estimation of the extrapolated size of the economy is shown in the sixth column for 2006/07 and the resulting composition is given in the penultimate column. As access to the data on Karachi's economy from the Economic Census of Pakistan 2005 was denied, the consultant had to use an alternative methodology for estimating the long-term growth rates. This is based on discussions held with the officials of the Government of Sindh, the World Bank team engaged in preparing the Economic Report of Sindh, trade and industry leaders and civil society, regarding their perception of the movements in Karachi's economic form and fabric. These have resulted in a second set of growth rate estimates (fifth column). The resulting size and composition are shown in the seventh column and the last column, respectively. From these discussions and the ensuing analysis, the consultants have concluded that the future of Karachi's economy lies in the growth of the tertiary sectors. More particularly this will be driven by the provision of financial services, the trade and commerce, and the transport and communications. A much greater impetus will be provided by the investments into the ICT (Information – Communications – Technology) sector.

The future of Karachi's economy lies primarily in the growth of the tertiary sector. Serving its own residents and those of much of urban Pakistan, Karachi will

Table 2.1: Composition of Karachi's Economy 1984/85 - 2006/07
(Rupee billions at 1959-60 factor cost)

Sector	Value Added 1984/85	Share in GRP 1984/85	Long-term Growth Rate		Value Added 2006/07		Share in GRP 2006/07	
			a	b	a	b	a	b
Gross Regional Product	13.7				52.6	61.8		
Primary Sectors*	0.2	1.34 %	3.3 %	3.3%	0.4	0.4	0.7%	0.6%
Secondary Sectors**	5.1	37.4 %	6.7 %	3.5%	21.4	10.9	40.6%	17.7%
Tertiary Sectors***	8.4	61.2 %	6.1 %	8.5%	30.9	50.5	58.7%	81.7%

Notes:

"a" is based on Bengali (1988)

"b" is consultant's estimate based on discussions with GoSindh and World Bank

*Agriculture, Forestry, Fisheries and Livestock; Mining and Quarrying

**Manufacturing; Construction; Electricity and Gas Distribution

***Transport, Storage and Communications; Wholesale and Retail Trade; Ownership of Dwelling; Banking and Insurance; Public Administration and defence; Professional, Social and Community Services

expand and consolidate its role as the financial, trade, and transport hub of the

¹⁵ Bengali, Kaiser; **The Economy of Karachi : Growth and Structural Change**, Applied Economics Research Centre, University of Karachi, 1988

country. Knowledge-based industries and the real estate and construction sectors will also play major supporting roles in the future economic growth of the city.

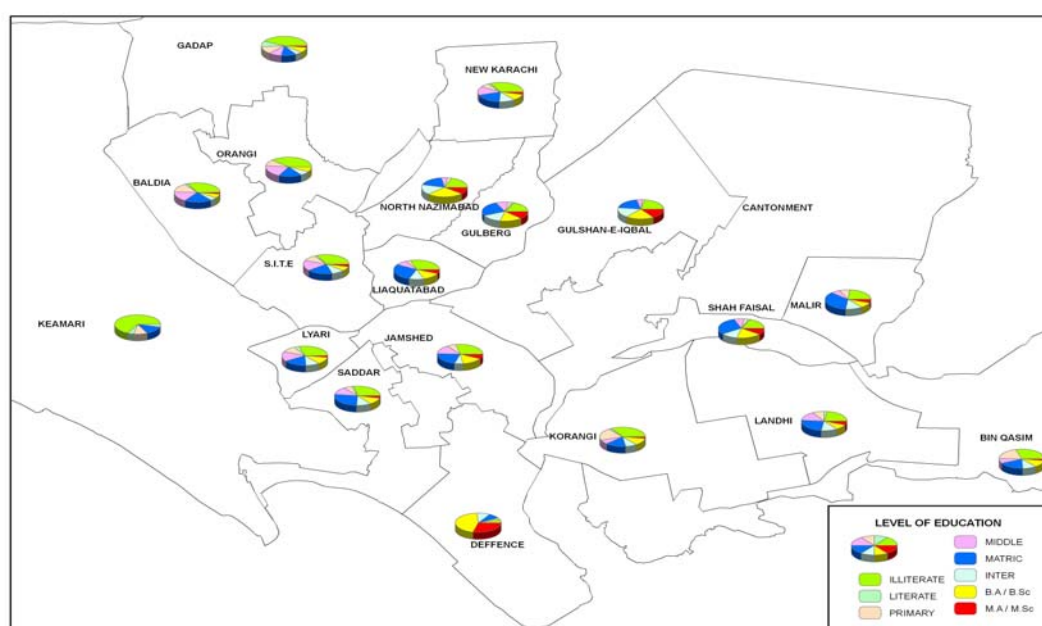
2.3 Socio-Economic Profile of Population

A socio-economic survey was conducted in late 2005 that covered a sample of 5000 households living in the 18 towns of the Karachi City District. The overall objective of the survey was to investigate the living conditions of the population, existing provision of basic services and facilities, living style, economic conditions, social problems and felt needs of the population.

Some of the major findings of the survey are:

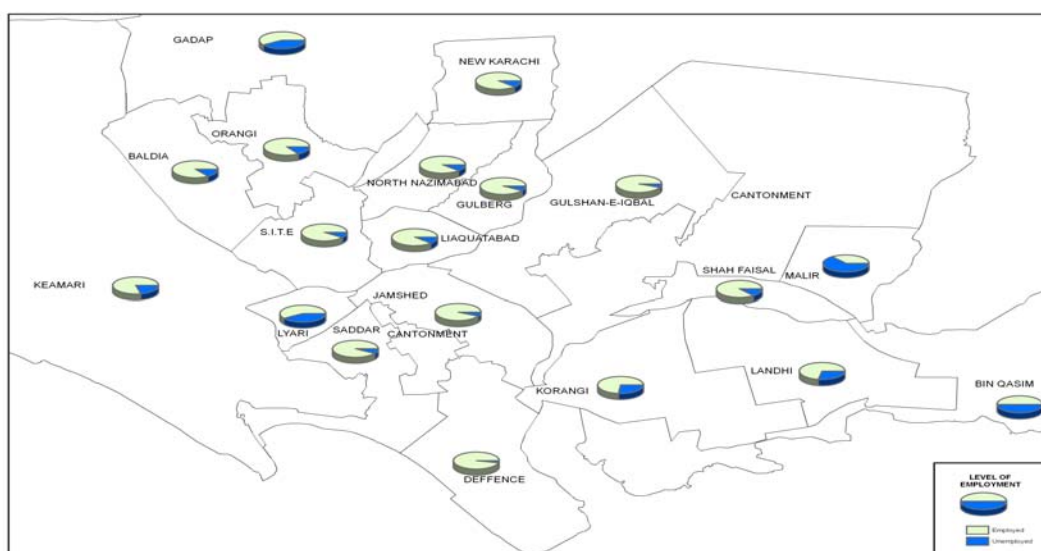
- literacy rates are comparatively low and could be improved through non-formal education that includes both home and street schools;

Figure 2.1: Level of Education in Karachi



- Health is the most neglected area. The present level of facilities is not sufficient to serve the population; small clinics, mother and child health centres and primary health care centres in particular are needed;
- Access to clean drinking water is the greatest perceived need of the population;
- Participation of women in economic activities should be systematically encouraged and ensured in order to enhance household income and upgrade standards of living; and
- Non-completion of development projects and programs has had a negative impact on development.

Figure 2.2: Level of Employment in Karachi

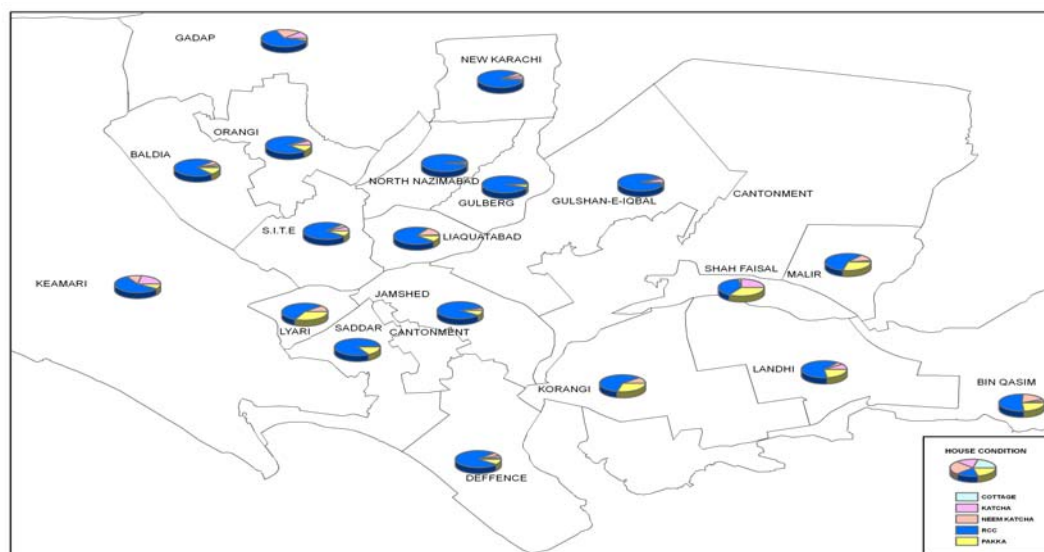


Some of the main indicators from the survey can be described as follows. In describing the characteristics of household heads:

- Roughly 83 percent are male and 17 percent female;
- More than 30 percent are aged between 40 and 49 years, with only 7.4 percent less than 30 years of age;
- Roughly 88 percent are married;
- About 29 percent are illiterate; the remainder literate and/or educated;
- 81 percent are employed;
- 50 percent of the employed are self employed with 31 percent working in the private sector, 3 percent in the semi-private sector and 16 percent for the public sector;
- 32 percent of the self employed are shopkeepers and 12 percent are labourers; and
- 41 percent earn between 3,000 and 6,000 rupees per month.

On the other hand, available resources for housing and infrastructure expenditures are fairly limited at the level of most households, given overall low incomes, high levels of expenditures on basic needs (75 percent of total), and already high expenditures for utilities (19 percent of total). The high percentage of owner occupation, however, suggests that home assets could be used as collateral to get access to finance for improvements. Priorities of Karachi residents include improved water supply quality.

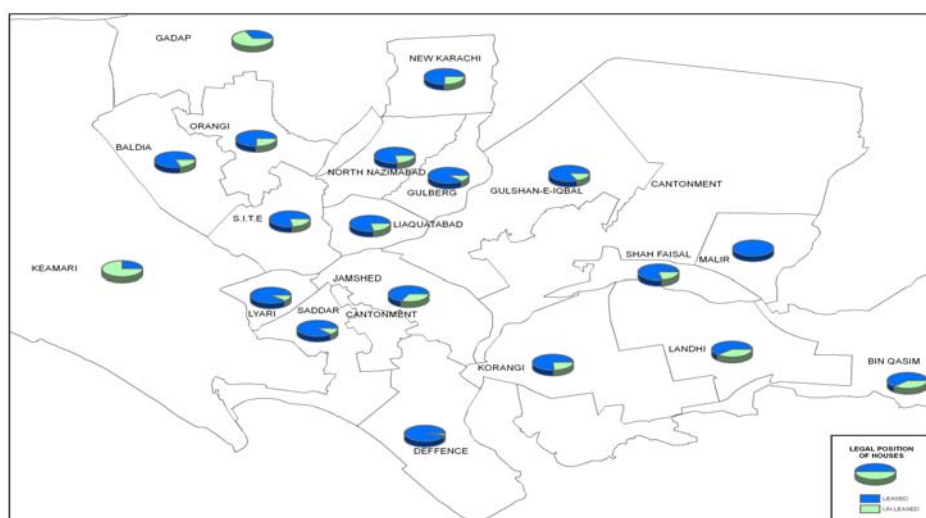
Figure 2.3: House condition in Karachi



These are the characteristics of Karachi households:

- Roughly 85 percent are nuclear families, with the remaining 15 percent living in a combined arrangement of two or more families in one dwelling;
- Family composition includes 35 percent male adults, 32 percent female adults, 17 percent boys and 16 percent girls. (Boys and girls are defined as those under 17 years of age.
- 44 percent earn between 5,000 and 10,000 rupees per month;
- 34 percent have less than 5,000 rupees expenditures per month;
- 75 percent of the monthly expenditures are devoted to food, 19 percent for utilities. and less than 2 percent for housing;
- Close to 39 percent of the male family members and 29 percent of the female members are literate; and
- More than 11 percent have household members that were unemployed; and amongst these unemployed, 89 percent are male and 11 percent female.

Figure 2.4: Legal position of houses in Karachi



In terms of household residential stability:

22 percent had been living in Karachi for more than 59 years, 22 percent for 41 to 58 years; 30 percent for 24 to 40 years; 13 from 12 to 23 years; only 7 percent have been living in the city for less than 6 years;

- 26 percent had been living in their present house for 10 years and 33 percent for more than 20 years;
- 74 percent had lived in the inner city prior to their current residence; and
- 70 percent had migrated to Karachi to obtain employment.

In terms of property and family assets:

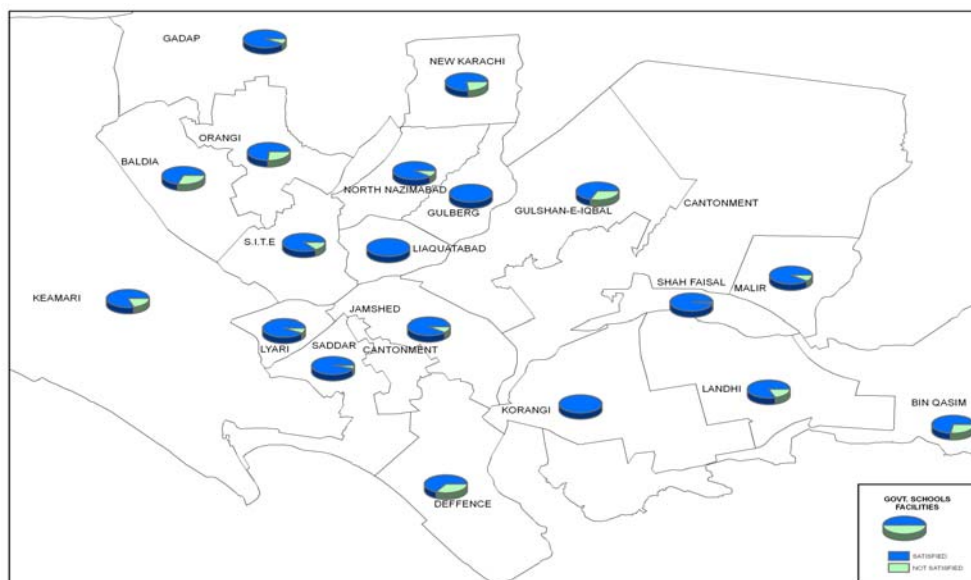
- 75 percent of the houses are on land that was leased;
- 80 percent of the houses are owner occupied;
- 60 percent of the owner-occupied houses are self-purchased; 22 percent self-built, and 19 percent inherited;
- 25 percent of the houses cost less than Rs 300,000, with 16 percent cost more than Rs 1.3 million.

This socioeconomic survey shows the population of Karachi is relatively stable, with most households having lived in the city for many years. This suggests a high level of commitment on the part of Karachiites to stay in the city and build a life for themselves over time. This in turn implies that residents are willing to invest in the improvement of their homes and the infrastructure services they receive at them.

In terms of housing conditions:

- 76 percent of dwelling units are in pakka condition;
- 15 percent of units have less than 60 square yards floor area; 35 percent are approximately 80 square yards; and 30 percent in the 120 square yards range;
- 81 percent have only one portion;
- 36 percent of households are connected to the sewer line.

Figure 2.5: Government schools facilities in Karachi



3 EXISTING LAND USE AND HOUSING

The Karachi City District is spread across an area of approximately 3,600 sq. km. More than half of this area (approximately 530,162 acres) consists of vacant land (see figure on following page). This includes the area dedicated to Kirthar National Park. The analysis therefore concentrates on the KSDP 2020 plan area (575,845 acres) and the current urbanised area (130,169 acres). As shown in the following table, almost 40 percent of the plan area is vacant land, located primarily in the towns of Gadap, Keamari, and Bin Qasim. Narrowing the focus to the urbanised area, however, vacant land accounts for only 7 percent of all land. As in most cities, housing is the biggest user of land (with about 37 percent of the total), while roads and open spaces are also significant.

Table 3.1: Areas and Percentages of Various Land Use Types in the Karachi Urbanised Area and Karachi Strategic Development Plan 2020 Study Area

Land Use	Urbanised Area 2006 (acres)	% of Total Urbanised Area	KSDP 2020 Plan Area (acres)	% of Total Plan Area
Formal Residential	35,206	27.0%	69,369	12.0%
Informal Residential	10,558	8.1%	10,998	1.9%
Goth (villages = residential)	2,043	1.6%	13,126	2.3%
Commercial	2,921	2.2%	3,386	0.6%
Health	685	0.5%	729	0.1%
Educational	3,320	2.6%	3,495	0.6%
Government	3,036	2.3%	69,712	12.1%
Other Institutional	1,218	0.9%	1,450	0.3%
Industries	9,285	7.1%	26,919	4.7%
Cottage Industries	28	0.0%	28	0.0%
Transport	723	0.6%	4,296	0.7%
Warehouses	563	0.4%	2,670	0.5%
Mining	166	0.1%	167	0.0%
Vacant Land	9,541	7.3%	216,198	37.5%
Open Space	13,439	10.6%	26,655	4.6%
Agriculture	7,296	5.6%	56,256	9.8%
Water	2,392	1.8%	11,353	2.0%
Road Space	23,089	17.7%	54,036	9.4%
Other Land Uses	4,660	3.6%	5,003	0.9%
Total	130,169	100.00%	575,845	100.00%

Most of the developed areas are concentrated in the inner ring towns of Saddar, Jamshed, Lyari, Liaquatabad, Gulshan-e-Iqbal, and Gulberg. These towns contain the most diverse mix of uses and include most of the governmental and regional-scale industrial and commercial activities.

3.1 General Land Use Trends

- **Increase in Commercial Activity:** Primary and secondary arterial roads, and main intersections across the city are becoming increasingly commercialised. Along major arterials, commercial uses such as shops, banks and offices are fast replacing existing residences on the ground floor. In some instances, commercial uses are also expanding upwards to

- occupy entire buildings. Along secondary roads, single story residences are converting to two- and three-storied buildings with shops on the ground floor. This trend also seems to be affecting residential neighbourhoods where large plots (greater than 1,000 square yards in size) are changing from residential villas to offices or other commercial uses. This trend is changing the character of arterial roads and residential neighbourhoods, and resulting in traffic congestion due to increased vehicular activity.
- Expansion of Residential Development in Cantonment Areas: Areas such as the Cantonments and Defence, under the control of the defence authorities are rapidly undergoing development. Due to their location near the Arabian Sea and commercial markets, these areas are highly desirable residential enclaves. The boards that manage development in these areas have become substantial players in the residential real estate markets and are developing and leasing serviced residential plots to non-military and military customers alike.
- Growth of Industrial Activities Including Formal Zones and Informal Cottage Industries: There is a general increase in industrial activities across the Karachi City District. Such increase includes the spread of informal cottage industries within residential, commercial and mixed use areas, as observed in Liaquatabad, Gulberg, Baldia, Shah Faisal, North Nazimabad, Orangi, and Korangi. Some of the industrial expansion is within planned areas, such as the proposed Textile City that would extend activities associated with Port Qasim to the east.
- Conversion of Waterways to Open Sewers: Due to lack of an adequate sewage disposal system, substantial amounts of waste ends up in the open storm drains and nallahs throughout the city. Most of these drains and nallahs flow into the Lyari and Malir Rivers that end up transporting this waste to the Arabian Sea. Not only is the waste a health concern, during storm events, it impedes the flow of water and contributes to localised flooding. This condition is further exasperated due to development that has encroached natural drainage nallahs and low-lying areas which traditionally served to divert storm water away from built-up areas.

Clifton beach development project. Some city beaches have been developed as public open spaces



- **Revival and Development of Parks and Open Spaces:** Another trend across Karachi City District is the recent interest in reviving existing recreational parks and open spaces and developing new ones. This trend affects parks at both the city- and town-levels. Some of the parks that are being improved include the Jinnah Park in the Clifton area, Polo Ground in Saddar Town area, Safari Park in Gulshan Town, and the Karachi Zoological Garden in Garden West area. New recreational areas include those being developed privately, such as Dream World, Cosy Water Park and Samzoo in Gadap, as well as those being developed by the local government, such as locality parks in Gulshan-e-Iqbal Gulberg, North Nazimabad, Clifton and Defence to development beaches coming up in DHA and Clifton area.
- **Development of Social Assembly Facilities:** Along major arterial roads, especially in North Nazimabad, Gulshan, Gulberg and Malir Towns, one of the new commercial uses that are replacing large-sized residential plots is social assembly facilities such as Shaddi halls. These facilities bring large volumes of vehicular traffic, predominantly during evenings and weekends, and result in congestion on local neighbourhood streets. These facilities also introduce high noise levels in predominantly residential areas and can be a nuisance to adjacent residents. On the other hand, entertainment areas such as cinema houses are fast diminishing across the city. In most of the areas, these facilities are converting into shops and market places.
- **Proliferation of Aggressive Signage:** Across towns such as Saddar, Gulshan-e-Iqbal and North Nazimabad that have high levels of commercial uses, there is an increasing proliferation of hoardings and neon signs. These signs appear in all sizes, heights and colour. Rather than benefiting the commercial establishments by presenting a coherent message, these signs compete with each other for prominence and result in a highly inconsistent and cluttered visual environment.

*In the absence of
standardisation of
hoardings,
Karachi's major
roads are crowded
with aggressive
advertising.*



3.1.1 Trends in Housing

- **Vertical Development of Residential Neighbourhoods:** Driven by a strong real estate market, residential neighbourhoods are rapidly being developed across Karachi. Along main arterials, intersections and other land with high potential commercial value, offices and shops are replacing residences on the ground floor. In some cases, houses are being demolished and replaced by multi-storied buildings, with commercial uses on the ground floor and apartments above. In other cases, the G+1 height limit is being ignored and floors are being added to existing houses. This trend can be observed in towns such as New Karachi, North Nazimabad and Gulberg that are experiencing rapid commercial and cottage industrial growth. This growth results in increasing the burden on the infrastructure networks, without any associated investment to increase capacity.

Along many major avenues, landowners are building extra floors and



- **Continuing Horizontal and Vertical Growth of Katchi Abadis:** There continues to be an increase of katchi abadis throughout Karachi. A significant and growing portion of the low-income community in the city does not have access to public sector housing. To accommodate these persons and households, new units are being added to existing katchi abadis through additional land acquisitions and vertical growth. New housing is also being provided through continued informal sub-divisions of public land and rural areas, often mimicking formal sector KDA layouts with plot sizes typically ranging between 80 and 120 square yards. Housing is also being provided through informal construction in planned residential and commercial areas, especially in inner ring towns, and in labour colonies surrounding industrial areas.

The densities in these informal settlements continue to remain significantly higher compared to regular housing areas, the quality and coverage of services remains inadequate, houses are built as katcha structures. The growth of these types of informal settlements is visible in the towns of Orangi, Baldia, SITE, Korangi, Landhi, Lyari and Keamari.

- **Phased Development of Large Subdivisions:** Low-, middle-, and high-income subdivisions in Taisar Town, New Malir, DHA Phase 8, Shah Latif

Town, Scheme 33, Hawk's Bay, and now Halkani continue to remain unpopulated and raise serious investment vs utilization issues.

- Increased Foreign Developer Participation: There is significant interest from foreign developers in building high-income residential subdivisions across Karachi. The strong real estate market and the predicted increase in income-levels due to growth of Karachi's commercial sector are some of the factors contributing to a continued demand for high-income housing. This demand is attracting foreign developers to invest in the housing market.

4 TRANSPORT

4.1 Travel Demand

Every workday, 24.2 million person-trips are taken in Karachi. Daily traffic volumes on major arteries are generally 70,000 to 180,000 vehicles. The most heavily travelled intersection, Guru Mandir, hosts 420,000 vehicles per day.

The composition of transportation demand is not well understood. Although the city has more than 15 million citizens, many women and children do not travel far beyond their homes. Many katchi abadi residents find casual work in or near their neighbourhoods.

Similarly, there is no detailed estimation of mode split. Pedestrian trips represent about 20 percent of all trips. Public transport (buses) are thought to provide 50-60 percent of all trips, and private transport and paratransit account for the remainder. In other words, transit and paratransit represent four-fifths of all motorised trips.

Knowledge of the trip generation and the distribution of trips amongst different modes (e.g. mode split) are important inputs to all transportation planning efforts. A proper origin-destination survey and modal breakdown of traffic counts would be useful to any further work in the transportation field.

4.2 Road Infrastructure

The Karachi City District has 9,764 kilometres of roads at all levels, from expressway to collectors to alleys. This is equivalent to almost 10 percent of the nation's total road network.. However, the overwhelmingly share of such roads are local and collector roads. A disproportionately small number of roads can be classified as major arterials (3.45 percent) and minor arterials (4.37 percent), while international standards are 3 or 4 times that proportional amount. There are no expressways. Too many roads are low-capacity local collectors and feeders.

Figure 4.1: Major Road Network of Karachi City District



There are no expressways in operation in early 2007, but construction of the Lyari Expressway's (following the Lyari River) is almost complete. The road begins north of Karachi City Port and west of the central city, and runs northeast between Lyari and S.I.T.E. districts, between Jamshed and Liaquatabad, and between Gulshan e-Iqbal and Gulberg. The Lyari Expressway is about seventeen kilometres in length.

Similarly, the Northern Bypass road forming a wide semi-circle beyond the north of urban Karachi is almost complete. It connects the RCB Road north of Baldia with the NBP interchange on the Superhighway north of Cantonment. The RCD Highway provides an important, if often constrained, link it to Karachi Port Trust. Other than the Northern Bypass, there are no circumferential highways to speak of.

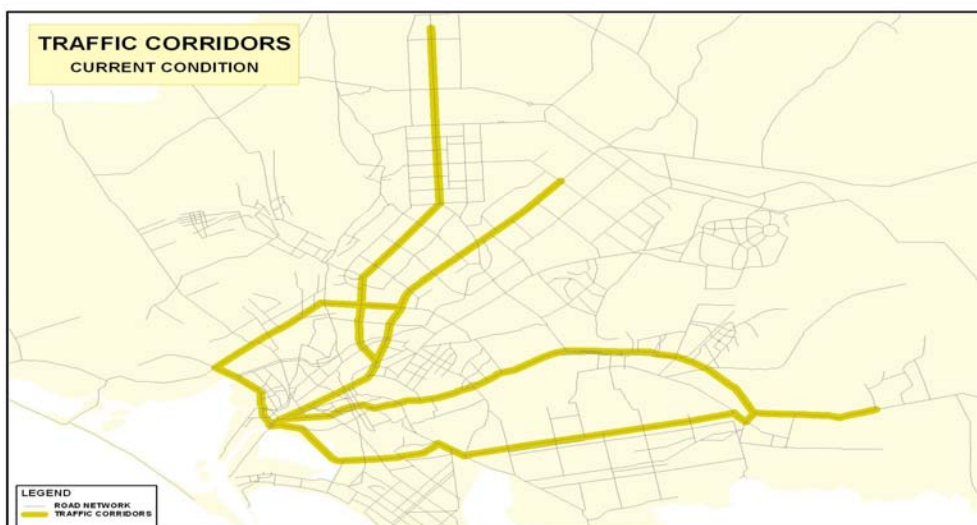
Three national highways connect Karachi to the northeast (Super Highway to Hyderabad and Punjab), southeast (National Highway to Badin), and the northwest (RCD Highway to Quetta). These all terminate at Karachi Port Trust.

The essence of the intra-city road network is a series of arterials emanating north and northwest from Saddar, Karachi's traditional centre and the town closest to the port. These arterials create a radial pattern that defines much of Karachi's urban structure today. While this provides the central city just north of the port with a certain degree of connectivity, a large volume of goods must move through the central city on the way to the port, and that causes congestion.

There are many connectors linking the radial arterials in vaguely circumferential pattern, but the links are not consistent. For instance, Sharae-e-Millat leads northwest into the signal-free corridor, which then becomes an important southeast radial leading into the city centre. There is no ring road today. S.M.S Taufiq Road and Hakeem Ibn-e-Sina Road have high volumes, but ultimately cover only a short stretch across Liaquatabad and a little beyond.

The traffic pattern is overwhelming radial. The following map reveals the vehicular flow across Karachi towards Saddar, with the exception of a diversion along Estate Avenue through S.I.T.E. town, linking to Maripur Road, Saddar and KPT port.

Figure 4.2: Traffic Corridors



Many towns have arterials roads, but a certain number — Baldia, Keamari, Shah Faisal, Malir — only have access to an arterials running along its boundary, and otherwise has no roads above the class of collector. One town — Orangi — has no access to any arterials.

Figure 4.3: Road volume capacity



The roads in the CBD are wide, but they are encumbered greatly by parked cars, street hawkers and the like. This, plus the proximity to the port, has made the city centre a major congestion point.

Overall, Karachi roads are in poor condition in many respects: poor surface, irregular geometry and poor intersections, inadequate pavements, and various encumbrances. There has never been an effort to integrate private vehicles, trucks, buses and paratransit into a system offering residents adequate choice or the ability to transfer from one mode to the other. Above all, there has never been an overall Karachi urban transportation plan, so highways and other improvements are not part of an integrated regional vision.

Recently completed projects include bypass roads and an expressway, ten bridges and flyovers, a tunnel, and six road-widening projects; plus various interchange improvements and road rehabilitation projects.

Current road projects include 51 road reconstruction, rehabilitation and upgrading projects. The key initiatives at present are 11 flyovers and three underpasses.

4.3 Road Traffic Conditions and Congestion

Travel speeds in most part of the city are 30-40 kph. Peak travel speeds in the central business district can be 15 kph, and even lower.

The ratio of traffic volumes to road capacity is high, especially in the central business district between Saddar and Tower. As early as 1962, volumes were often double those of design capacity. More recent traffic counts reveal volumes are often 5 to 25 times that of capacity, with higher ratios in central towns.

There are various reasons for Karachi's congestion: misuse of road space thereby reducing effective road width making capacities below demand, missing or constrained links in the road network, at-grade rail crossings, poor road maintenance, and poor signaling. The extreme congestion in the central business district is a function of excessive on-street parking consuming as many as four lanes (combined with a lack of parking garages, and lax enforcement of parking regulations), in addition to street hawkers and shops and other encroachments inhibiting traffic flow. Pedestrians are forced to walk off the narrow curbs and into the road space. The CBD also suffers from the large amount of through traffic travelling to and from KPT port.

The shortage of bus stops and generally poor access to transit provide no alternative for those who own private vehicles. Increased population, economic activity and vehicle ownership forecasted for the next several years (if not decades) are likely to contribute to a marked increase in traffic congestion.

4.3.1 Vehicle Fleet

There are almost 1.5 million vehicles registered in Karachi today. Almost one-half are cars or jeeps; more than one-third are motorcycles.

Table 4.1: Karachi Vehicle Fleet, Year 2005

Type of Vehicle	Registered, Year 2005 (‘000)	% of Total
Cars and Jeeps	685.6	48%
Motorcycles	547.1	38%
Rickshaws	39.5	3%
Taxis	44.5	3%
Buses and Minibuses	20.5	1%
Trucks	20.8	1%
Vans and Pickups	73.3	5%
Tractors	4.5	0%
Total	1435.8	100%

Population growth, economic expansion and rising incomes in recent years have steadily accelerated the growth in vehicle registration. About 130,000 vehicles were registered in year 2005, an 11.8 percent increase over the previous year.

The number of vehicles is actually relatively low by world standards and Karachi's size. However, the recent growth in vehicles indicates Karachi might

soon have an automobile population equal to that of Delhi or Jakarta, without maintaining same pace of road infrastructure development.

4.3.2 Parking

There is a shortage of off-street parking lots and parking garages. This forces vehicle owners to park on the streets, often in a disorganised and even chaotic pattern that quickly obstructs lanes and reduces road capacity.

The parking situation is extreme in Saddar, where many wealthy persons are employed and drive their cars to work. Faced with an absence of parking garages, people turn to the curb side and road lanes as the only alternative. Covering 3-4 lanes with parked cars and allowing traffic to pass on only one lane is a systematic practice found throughout Saddar.

4.3.3 Safety

There are 500-600 fatal road accidents in Karachi each year, most of them involving pedestrians and motorcyclists. Many result from poor traffic control planning during road construction. Poorly managed construction projects also cause confusion amongst drivers and lead to more accidents. The road fatality rates in Saddar and Bin Qasim are particularly high.

4.4 Public Transport

Twenty thousand privately-owned buses and minibuses provide transit to the Karachi public, yet the service is considered inadequate. All service is by privately-owned formal buses, informal minibuses, plus a large share of school and company buses (about one fifth of the fleet.) The para-transit fleet includes about 45,000 taxis and motor cab rickshaws.

Bus service is poor. Transit service is particularly inadequate during peak hours, and there is considerable overcrowding. Connections amongst buses are purely ad-hoc, and there is no transfer payment system.

Although there are three proper intra-city bus terminals, there are almost no formal bus stops, much less formal transit terminals. Waiting for a bus is an unreliable process. The absence of bus shelters is inconvenient to patrons during hot and rainy seasons, and disrupts road traffic.

Only those who have no other option, particularly the poor are more likely to ride on bus / minibus, though having unsatisfactory level of service with serious safety concerns. Overall, the low income of many of Karachi's residents means that three-fourths of the public belong to the captive transit market.

The poor linkages in the bus network are brought out in following map of transit corridors identified in the 1990 Karachi Mass Transit System Plan. Many bus riders in the north find it necessary to first travel southeast (Nagin Chowrangi to Malir River corridor) and transfer to other service on Sharae Faisal and then travel southwest (Karachi Cantonment to Landhi corridor).

4.4.1 Inter-City Travel

1,300 inter-city buses travel to and from Karachi on a daily basis. Although there are no formal terminals, two hundred more informal locations serve to load and unload passengers.

4.5 Pedestrianization

As stated earlier, about 20 percent of all trips are made on foot. Most of these are necessarily short trips.

Many streets lack sidewalks. Where sidewalks exist in the Saddar-Tower central business district, stores often encroach upon them.

Efforts to improve pedestrianism are limited largely to the construction of foot bridges across major arteries. These ultimately fail, as they are spaced too far apart and require pedestrians to make major detours from their route. Many people prefer to cross roads in high, speeding traffic, even if it requires jumping barriers.

There have been plans to introduce pedestrian malls in the CBD, but none has been developed. The strong demand for parking in the downtown area no doubt works against such initiatives.

The lack of pedestrian facilities leads individuals to navigate roads any way they see fit. This has caused a high incidence of fatal accidents involving private vehicles.

4.6 Transportation Planning

Karachi has no comprehensive transportation plan or integrated multi-modal plan. Traffic engineering capacity exists, but occurs on an ad hoc. Traffic management institutions are weak and rules are out of date. There are three CDGK agencies concerned with roads and transport, and their roles and responsibilities are not clearly defined.

Previous transit plans, such as the 1990 Karachi Mass Transit System Plan, have not been fully implemented. The 1987 Karachi Mass Transit Plan envisioned progressive transit improvements, route rationalization, and transit fleet upgrading.

The government does not invest in transit. Many bus owners respond well to the profit motive, but there is no supporting infrastructure or coordination. There has yet to be any serious thought about, much less investment in, mass transit.

4.7 International Links

Karachi is the home of Pakistan's principal deep water ports: Karachi Port Trust south of the central business district and Port Qasim to the east. Together, these two ports handle 95 percent of the nation's exports and imports. The throughput volume of Karachi Port Trust is almost triple that of Port Qasim. Together, the two ports handled 18 million tons of general and dry bulk cargo, substantial liquid quantities, three million tons of iron ore and coal, and 1.3 million TEU of container traffic in 2004-05. Karachi Port Trust (KPT) is directly south of the Saddar / Tower CBD, and the traffic from the port interrupts access to and within the business District.

Jinnah International Airport to the east is the nation's largest international and domestic commercial air destination. Ten million passengers a year use the facility. However, various inadequacies and bureaucratic practices are causing some international airlines to cease service to Karachi.

Pakistan's trade is growing rapidly, so these facilities can expect to see a large expansion of operation. This will add even more vehicle traffic to the roads. Road congestion will also be exacerbated by the many industries locating in future near Port Qasim.

Railways link northern Pakistan with Karachi Port Trust and Port Qasim. There are also internal rail links within the ports and to nearby industrial areas. Karachi is linked by double-track connections as far as Bahawalpur in southern Punjab, and then the larger Pakistan rail network. There is a container handling facility at Karachi Bandar near Tower. Roughly one-eighth of the two ports throughput is carried by train. There are thirteen stations in Karachi, and 45,000–50,000 passengers ride the train daily.

5 INFRASTRUCTURE SERVICES

5.1 Water Supply

Water supply services in Karachi face major challenges with respect to water quantity and quality. Existing surface water supplies are not sufficient to meet demand today; much more water will be required to enable the anticipated growth of the city district over the next 15 years. Drinking water is not adequately filtered and treated, resulting in quality shortfalls. Underlying both dimensions of the water supply challenge is the issue of management: with non-revenue water at 35 percent of production and tariffs too low to cover costs, the Karachi Water and Sewerage Board can greatly improve the efficiency of the water supply system by strengthening operational and financial performance.

Bulk Water Production and Transmission

The current water supply sources for the population, business and institutions of Karachi are the Indus River (546 million gallons per day [MGD]) and the Hub River Dam (100 MGD). The supply is not sufficient to meet existing demand; water is therefore delivered on schedule, for only a few hours per day. Dumlottee source of supply is depleted which needs to be restored / re-habilitated including check dams in upstream of Malir River.

Karachi competes with many other agricultural and urban water users for water from the Indus. The Bulk Water project, which is intended to generate another 650 MGD of water for Karachi from the Indus, thereby satisfying most future needs of the city district through 2025, is currently under study of deciding alternate route and design work is in progress. Project of K-IV, 130 MGD out of that can be initiated in 2007.

The water flow of the Hub River has been depleted in recently years because of low levels of precipitation. While it has the potential to generate significantly more water, its contribution to meeting metropolitan water needs depends on weather patterns and rainfall.

Sixty percent of the bulk water supply is filtered, while the remaining 40 percent is only disinfected through chlorination. The inadequacy of water treatment results in frequent quality problems for end users.

Water from the Indus flows by gravity through transmission mains to the south east of Karachi City District, and then by a combination of pressurised and gravity mains along the National Highway to the eastern edge of the built-up area and into the centre of the city. Some transmission mains are too small for the volume of water they are now expected to carry. Many illegal and legal direct connections, especially in peripheral neighbourhoods, have been made to the transmission mains over the years, undermining their technical performance.

Storage tanks are insufficient at the metropolitan and town levels most water supply zones do not have sufficient storage to meet the 'eight hour rule,' thereby putting local residents at risk of potentially longer periods without water service. Katchi abadis and other low-income settlements are particularly underserved.

Water Supply Distribution

The distribution system is about 40 years old on average and in an advanced state of disrepair. Many pipes are corroded, which reduces effective capacity to

transport water. Many pipes are now five to seven feet under ground as a result of repeated build-up of the wearing course of city streets. Valve chambers and air relief valves are buried underground.

The distribution system is pressurised only for short periods (a few hours a day); the continual depressurization and repressurisation of the system causes wear and tear on the pipes and allows contamination (wastewater and other) to enter the water supply mains when the pressure is low, causing public health risks.

As a result of the deterioration of the distribution system, technical losses are estimated at 20 percent of production. The net water supply is thereby reduced to about 530 MGD.

Connections are not metered, and customers pay by norms rather than by actual consumption. There exist no incentives to conserve water. Consumption is generally excessive and inefficient in relation to uses of water. Piped drinking water is used for fire fighting, while non-potable groundwater is generally available in the city. Piped water is also used extensively for horticulture. There is little or no water re-use.

Operational Issues

Non-technical losses in the system, including unbilled water, represent about 15 percent of total production. Non-revenue water is therefore 15 percent (non-technical losses) + 20 percent (technical losses) = 35 percent of total production. It clearly would not be advisable to address current and future water shortages only through capital investment in additional bulk water production. Demand management and operational improvements should be the first line of attack.

Existing water supply tariffs are too low to cover the cost of operation and maintenance, never mind capital investment. There is need to enhance from 25% to 50% tariff. Developers build projects that require improved infrastructure services, but do not systematically make financial contributions toward the necessary investments. Under the current service pricing scheme, Karachi Water and Sewerage Board is overly dependent on intergovernmental transfers and international assistance to improve the performance of the system and meet the future water supply needs of the Karachi City District.

Collections represent only 60 percent of billings. Non-payment for services has become endemic in many katchi abadis and other informal areas. At this time KW&SB does not enjoy sufficiently open and trusting relations with customers to embark upon a consensus-based, demand-driven program of improving services, raising tariffs, and increasing collection rates.

5.2 Sewerage

Three sewered areas of central and southern Karachi are connected by Trunk Sewers and interceptors to existing treatment plants at SITE, Meharnoodabad, and Mauripur. (see figure) Other areas are sewered but discharge directly into nallah, rivers or the sea without treatment. The main problems in the system are low coverage of the collection network, lack of major interceptors, insufficient treatment capacity, and low operational efficiency of existing treatment plants.

Collection

The share of the population connected to the piped sewerage system in 1990 was 37 percent. No more recent data are available. Some neighbourhoods are sewerage and connected to interceptors; others are sewerage and discharge directly into the natural environment. Katchi abadis and other informal areas have no piped sewerage collection; waste flows through open drains and is discharged without treatment into nallah and rivers. Industrial waste generally flows into open drains and into rivers or the sea without treatment.

Built 25-35 years ago, the sewer network was originally laid close to the road surface but is now located five to seven feet below the wearing course of many roads, complicating maintenance and repair activities. Due to the 'crown effect' the absence of vent shafts in larger pipes causes pipes to sink further along main arterial roads and zones of high commercial and industrial activity. Manholes are insufficient in number and poorly maintained. Wastewater pumping in trunk sewers is exacerbated by frequent power cuts, causing effluent overflow through manholes. As a result of poorly sealed joints and damaged manholes, there is a high degree of infiltration of groundwater into the network; this increases the volume of wastewater and the load on treatment facilities.

Due to the lack of sewer interceptors, most sewage collects in nallahs and the Malir and Lyari Rivers, which have in effect become open sewers throughout the length of their passage through the built-up area of Karachi. The insanitary conditions in the city's main waterways pose serious health risks for local residents and create unpleasant odors in adjacent neighbourhoods.

Treatment

The current wastewater treatment situation in Karachi is summarised in the table below. In comparison to a net sewage flow estimated at 388 MGD, the capacity of the three operational domestic/mixed use wastewater treatment plants (WWTP) is only 151 MGD. Due to operational inefficiency, only 87 MGD - or 21 percent of demand - is actually treated in those plants today.

The plants provide primary treatment (filtration) and some secondary (aerobic) treatment. No tertiary (chemical) treatment of wastewater is provided because same is not required as per EPA's effluent standards except quality for re-use, if required. The WWTPs suffer from blocked pipes, stagnant waters, and mechanical failure. Overall they are working at only about 50 percent efficiency.

Table-5.1: Existing Sewage Treatment Plant Data

Sewage Treatment Plant Status

Current Situation of Sewage Flow 2005-2006

Present Water Supply

Indus Source **546** MGD

Maximum Hub Supply **100** MGD

Total: 646 MGD

Total Losses 25% **160** MGD

Net Supply **486** MGD

Sewage flow **60% if Bulk**
Gen. 388 MGD

Present Sewerage Treatment Plants

Existing Treatment Plan	Treatment Capacity		Present Treatment MGD		Disposal	Remarks
TP-I (SITE	51.00	MGD	30.00	MGD	Lyari River	Under capacity 60%
TP-II (Mehmoodabad)	46.00	MGD	25.00	MGD	Sea	Under capacity 55%
TP-III (Mauripur)	54.00	MGD	32.00	MGD	Sea	Under capacity 60%
TP-IV (Korangi)	50.00	MGD	-		Sea	To be constructed under S-III
TP-V (New Karachi)	5.00	MGD	-		Lyari River	Out of order
Industrial combined flow (Korangi)	10	MGD	-		Sea	Under construction
Malir Cantt Treatment Plant	1.00	MGD	1.00		Reuse	Full Capacity
Defence Treatment Plant and Clifton Cantt. PQA	5.50	MGD	2.00	MGD	Reuse	30%
Steel Mill	15	MGD	15.00	MGD	Reuse	Full Capacity

Retain STP Steel Mill TOTAL: 237.50 TOTAL 105.00

Raw sewage in river and nallah and final disposal into sea

319.00 MGD

Most industrial waste is not treated prior to being discharged into rivers. The exception is Pakistan Steel, which has on-site pre-treatment of 02 MGD against 22 – 25 MGD Bulk Water waste; treatment facilities for CET's for wastewater from tanneries are also under construction in Korangi. Organised pre-treatment of industrial waste at SITE and Port Qasim, EPZA, Landhi, Korangi, FB Area and North Karachi Industrial zones are required before such waste can enter the municipal system and undergo additional treatment at conventional WWTPs, if required for re-use.

There is no re-use of treated wastewater for uses such as washing cars, watering private lawns or public green areas, or recharging the aquifer.

5.2.1 Operational Issues

The operational and management problems related to the sewerage system are similar to those for water supply (see above). The service provider, Karachi Water and Sewerage Board, levies tariffs for sewerage services as 25% of water tariff; the water tariff provides the only own-source funding for operation/improvement of the sewerage system. Developers that build new housing and mixed use projects do not make financial contributions toward the cost of associated required sewerage system improvements. KW&SB does not enjoy sufficiently good relations with customers to embark on a consensus-based and demand-driven program to improve services and raise user charges. As a result, the utility is overly dependent on intergovernmental transfers and international assistance to improve the performance of the system and meet the future sewerage needs of the Karachi City District.

5.3 Solid Waste Management

Karachi has a rudimentary and inefficient solid waste management system today. Wastes are not separated before they are collected and hauled long distance to two sites near Karachi's western border. One site may be nearing capacity within the next five years. Most of the transport and one of the two sites are privately operated.

Solid Waste Generation

Karachi's 15.12 million persons and substantial manufacturing and construction sectors produced approximately 9,000 metric tons of household, commercial, industrial, construction and institutional solid waste per day in 2005. Food markets are particularly large generators.



Landfill in Karachi

The composition of solid waste is as follows: 55 percent organic and 5 percent garden waste, 18 percent inert, 15 percent recyclable or reusable, and 7 percent is suitable for incineration.

Estimate of solid waste generation indicates Karachi will produce 16,000 - 18,000 tons of solid waste each day in the year 2020.

Collection and Transportation

The collection process is not very well developed. Most households remove their waste to community dustbins. There are more than 4,000 community dustbins across the city. Private-sector contractors to the CDGK and government teams operate a variety of vehicles to clean the community dustbins a few times a week. There are no garbage transfer stations, so the same small vehicles needed to manoeuvre narrow roads in the city must make long trips all the way to the landfill sites northwest of town.

Estimates indicate 60 percent of the waste is collected and transferred to landfills. The remaining forty percent is recycled, burnt, dropped in drains and sewers, or eaten by cattle.

Recycling is an effective method to reduce the volume of waste and environmental impact. Certain groups of people in Karachi are able to make a living by scavenging and sorting garbage and finding new uses for selected materials. They sell scrap metal to foundries, discarded bread to livestock farmers, broken glass to makers of bangles and other kinds of jewellery, and used paper to informal vendors of paper bags and wrapping materials. More than 50,000 families earn a living by scavenging the city's refuse. Karachi is probably able to recycle a larger share of solid waste than many cities in the world. Still, one estimate indicates scavengers only process about 10 percent of all the solid waste Karachi generates.

Some pharmaceutical and fertiliser factories dispose of wastes in incinerators. Some factories have their own incinerators on site, while others utilise commercial services.

Specialised incinerators designed to destroy hazardous wastes exist to serve hospitals and clinic, but are not said to function well. The management of many more health facilities are unaware of, or not interested in, the service and often dispose of dangerous liquids and chemicals in the general solid waste system.

Existing Site, Capacity, and Processing

Karachi has two working landfill sites. The Gondpass and Jam Chakro landfills are about 30 kilometres northwest and west of the central city. Both sites cover 500 acres (200 hectares) each, although the volumes of these sites are not known. Jam Chakro has recently been privatised. CDGK now pays the Jam Chakro operator by the truckload to use the site. Gondpass may reach capacity and close in the near future.

All wastes from different sources, including construction, are dumped in Gondpass and Jam Chakro, and there is no separation. There is no processing to compact or otherwise reduce the garbage volume. Open burning and

dangerous smoke are common nuisances. Data on the soil type, preparation and lining, and leachate outflow of these landfill sites are not readily available.

Another solid waste site exists in Dhabeji, east of Karachi's outskirts. The suitability of Dhabeji as a 1,200 to 3,500 acre (480-1,400 hectare) capacity landfill site is being studied. In fact, some waste has already been dumped in Dhabeji, but more arrangements and construction are necessary before it will be a true working landfill able to handle the volumes Karachi generates.

Meanwhile, two more sites along the northern bypass road have been identified and are currently under study. These sites are within the city district, and represent lower transportation costs than Dhabeji.

5.4 Electrical Power

Energy is the lifeline of economic growth. Pakistan has historically has been subjected to energy demand suppression due to limited supplies and lack of infrastructure development for provision of energy to the industrial sector. The unavailability of sustained and affordable energy to industry has suppressed economic growth and created declining tendency for industrial investment in the country. The per capita energy consumption, which is one of the key development indicators as well as a measure of quality of life of a country, is low with only 14 million BTUs, as compared to 92 million BTUs for Malaysia and 34 million BTUs for China.

Generation

The electric power is generated by KESC in the following power stations and their available capacities are shown in the table below.

Table 5.2: Power Generation

Station	Available Capacity (MW)	Source of Energy
Bin Qasim Power Station	1130	Natural Gas and Furnace Oil
Korangi Power Station	215	Natural Gas and Furnace Oil
Site Gas Turbine Power Station	90	Natural Gas
Korangi Gas Turbine Power Station	72	Natural Gas
TOTAL	1507	

(Source: KESC Annual Report 2005)

KESC operates four generating plants, but the bulk of the total energy that it distributes comes from only one plant — Bin Qasim Power Station, which generates energy at the lowest cost per kWh of the four plants.

KESC generating plants employ two fuels, natural gas and furnace oil. KESC is the biggest customer of Sui Southern Gas Company. Due to limitation in natural gas supply, KESC is able to run SITE and Korangi Gas Turbine only during evening peak hours.

The operating capacity, peak demand and load factor for the FY 2004-2005 is shown below.

Table 5.3: KESC Operating Capacity, 2004-05

Demand and Load Factor

Description	MW
Actual Capacity	1,387*
Evening Peak Demand	2,197
Day Peak Demand	2,104
Base Demand (Night)	860
Load Factor	70.25%

(Source: KESC Annual Report-2005)

**BQPS Units 2,3 & 5 were under restoration.*

Therefore, to meet power demand, KESC had to import power from the following plants:

Table 5.4: Other Contributing Plants to Karachi's Power Needs

Tapal Energy (IPP)	114 MW
Gul Ahmed Energy (IPP)	113 MW
Kanupp (Karachi Nuclear Power Plant)	40 MW
PASMIC (Pakistan Steel Mills)	10 MW
WAPDA (NTDC)	500 MW

The shortage of power generation led to some extent to load shedding in Karachi.

The KESC transmission system has been integrated with WAPDA since 1978. The links are via 220 kV and 132 kV transmission network. Power import by KESC from NTDC, WAPDA, is via 220 kV. Jamshoro-Karachi double circuit transmission line has a transmission capacity of 500 MW.

KESC is also interconnected with the Karachi Nuclear Power Plant (KANUPP). The plant is inside KESC licensed area under the jurisdiction of Pakistan Atomic Energy Commission. Commissioned in 1970, the KANUPP plant is relatively small, with an installed capacity of 125 MW. Presently, it could support only 40 MW via a 132 kV transmission link.

Private power plants Tapal Energy and Gul Ahmed Energy are connected to KESC network via 132 kV transmission lines.

There are at present 52 132/11 kV Grid Stations and 5 220/132 kV Grid Stations linked primarily by a system of overhead transmission lines.

Distribution System

As of June 2005, KESC had roughly 6,200 kilometres of overhead and underground 11 kV distribution network and 10,500 kilometres of 400 volt lines fed by 9,293 11 kV distribution substations. About 60 percent of the primary distribution network is underground.

More specifically, electrical power is distributed through:

- 2200 km overhead 11 kV distribution system,
- 4000 km underground 11kV distribution system,
- 9300 distribution substation (11/0.4 kV),
- 9600 km over-head L.T and
- 921 km under-ground L.T network

Customer of KESC break-down as follows:

- 1.4 million residential,
- 0.4 million commercial
- 32,000 industrial

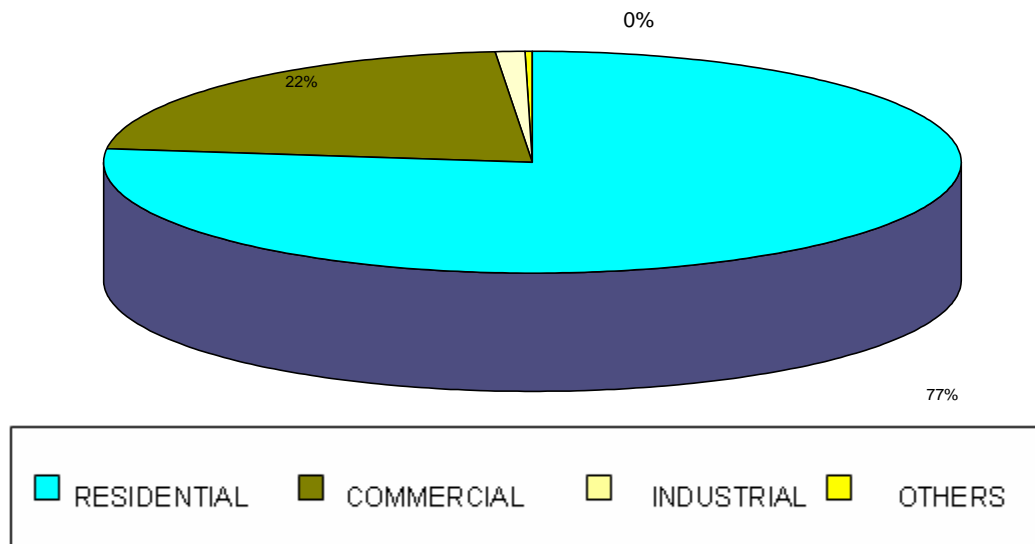
Total energy supplied to different types of customers last year (2004-05) in Mwh was as follows:

Residential	3,508,000
Commercial	888,000
Industrial	3,023,000
Others*	997,367

*Agricultural, street lights and special contracts

Number of consumers, categories wise, and their consumption is shown in the figure below.

Figure 5.1: Breakdown of Customers by Type, 2004-05



6 SOCIAL SERVICES

6.1 Health

Karachi's health care system is facing issues that are both challenging and growing as the city rapidly expands. Health care needs by the year 2020 will have grown exponentially from where they are today. An estimated 90 percent the city's population will have to rely primarily on the public health care system, including its primary, secondary, tertiary and specialised centres.

Pakistan as a whole is in the middle of an epidemiological transition. Almost 40 percent of the total burden of disease is now due to infectious/communicable diseases such as diarrheal disorders, acute respiratory infections, malaria, tuberculosis, hepatitis B and C, HIV/Aids and preventable childhood illnesses. Non-communicable diseases, including a high rate of breast cancer, hypertension, diabetes, systemic heart disease and lung cancer present more traditional problems for Karachi's overtaxed health care facilities.

The majority of health related issues for both communicable and non-communicable disease are basic in nature. A public awareness campaign through all forms of media, meetings and events is needed to increase population awareness of key health and environmental issues. People need to know more about potential diseases, what to do about them, and where they can be treated. At the same time, efforts to improve the health care system must also be coordinated with health education, improved water supply, sanitation and solid waste collection, improved food quality control, population planning and inoculation against disease.

Facilities

Public Health System facilities in Karachi include: (1) outreach and community-based activities that focus on immunization, malaria control, maternal and child health, family planning and the Lady Health Workers program; (2) primary care facilities that focus on outpatient care; (3) taluka and district headquarters hospitals for basic inpatient and outpatient care; (4) tertiary care hospitals; and (5) teaching hospitals and centres of excellence.

Major deficiencies exist in both the quantity and quality of these public health care facilities. The current system has 33 hospitals, 271 health centres and 152 dispensaries. It includes an estimated 15,000 beds, of which 9,000 are in the tertiary and teaching hospitals and the remaining 6000 dispersed among the primary and secondary facilities. The ratio of beds to people is 1 to 1700 in the tertiary and teaching hospitals and 1 to 1020 for all public health facilities. The private health care system has 356 hospitals (of which 145 are large), 391 maternity homes, 2,347 dispensaries and about 6,600 beds.

Requirements for the year 2020 indicate the need for more than 2,000 public health care facilities, many of which will be primary and secondary level health centres, and 52,000 beds, based on standard ratio of 1 bed for 500 people.

The maintenance of buildings, medical equipment and vehicles is neither properly funded nor managed and has become a major problem at the primary and secondary levels. Considerable budgetary savings could be achieved if funds were made available and maintenance done in a timely and proper manner.

Staffing

There are 4,600 registered doctors and 10,739 public and private sector health care workers active in the city. The National Planning Commission has set a standard of 1 health care worker per 1,000 people, which translates into a requirement for at least 25,000 health care workers by the year 2020. By that time, the number of health care workers will need to more than double with an increase of some 15,000 workers. This includes nurses, paramedics, medical technicians, pharmacists and other technologists. There is also an urgent need for trained health care managers who can deploy existing health care resources in an effective manner. Much of this type of management, including referrals, currently is being done by doctors who are not trained in the art of delegating services to different levels and/or members of the health care system. At present, there is no well-defined policy on human resource development or in-service training opportunities that would enable health care workers to upgrade their skills.

Access to Health Care Services

Many people in Karachi either do not use public health facilities at the primary level. They do not use health facilities at all or prefer to go to private ones. If they do use public facilities, they try to attend the larger hospitals, even for minor ailments that could be treated more effectively at the primary or secondary levels. Hospitals are overburdened as a result of this situation and the cost of delivering simple services is increased.

This problem is due in part to the inequitable distribution and poor geographic location of many primary health facilities. Most of these centres are housed in run-down buildings that operate for only a few hours per day. Many are also deficient in female staff and basic medicines. The quality of care they provide is highly variable, but generally perceived to be poor.

Funding for new and improved health care services is inadequate. While health care funding has increased from Rs 9,257 million in 2004-2005 to Rs 12,885 million in 2005-2006, its percentage of the budget has remained at 28-29 percent. Administrative devolution has empowered CDGK as an important financial intermediary that will need to account for 60 percent of the total government health expenditure in its budget. The regularization of user fees within the total health care delivery system will be important for the overall sustainability of the system.

Finally, the city's emergency and ambulance system needs to be improved. At present, the Edhi system is the only organised system able to provide efficient health related transport and work with first responders trained to provide initial treatment.

6.2 Education

The SES of 1987/1988 showed a literacy rate of 75 percent in the formally planned areas of Karachi and 49 percent in the unplanned ones. Subsequently, key development priorities were identified in Plan 2000 that included an increase in literacy and primary school enrollment in the unplanned areas of the city. A particular emphasis was placed on education for girls. The Government of Sindh, Federal Government, the then KMC, private sector and voluntary organizations all provided education facilities in the city.

The Pakistan Social & Living Measurement Survey of 2004-05 showed a 72 percent literacy rate for the urban areas of Sindh. The rates were 80 percent for men and 62 percent for women as shown in the following table 6. The overall literacy rate for urban areas in Pakistan was 71 percent. A socio-economic survey conducted by consultants in 2005 showed a similar rate of 71 percent for city of Karachi.

Table 6.1: Literacy Rates in Pakistan and Provinces (% population)

Area	1998-99 PIHS			2001-02 PIHS			2004-05 PIHS		
	Total	Male	F/male	Total	Male	F/male	Total	Male	F/male
Pakistan	45.0	59.0	31.0	45.0	58.0	32.0	53.0	65.0	40.0
Rural	36.0	52.0	20.0	36.0	51.0	21.0	44.0	58.0	29.0
Urban	65.0	73.0	56.0	64.0	72.0	56.0	71.0	78.0	62.0
Sindh	51.0	65.0	35.0	46.0	60.0	31.0	56.0	68.0	41.0
Rural	35.0	53.0	15.0	33.0	51.0	14.0	38.0	56.0	18.0
Urban	69.0	79.0	58.0	64.0	74.0	54.0	72.0	80.0	62.0

Source: Pakistan Social & Living Measurement Survey 2004-2005

About 73 percent of the overall primary school-aged group was enrolled in school, with some 79 percent of enrolled in public schools. At the same time, roughly 40 percent of the secondary school-aged population was enrolled in school. While teacher/student ratios were generally adequate, many of these schools lacked necessary facilities. Most did not have playgrounds or had only limited facilities for indoor games. Karachi had 221 tertiary educational facilities that included universities, colleges and technical / vocational institutions. The participation rate dropped substantially at the tertiary level of schooling, with only about 3 percent of the school aged population enrolled.

Table 6.2: Percentage of School Age Population and Enrolment Targets

Percentage of School Age Population in the City Population	
Primary Schools	14%
Secondary Schools	13%
Tertiary Schools	11%
University	9%
Enrolment Targets in Terms of School Age Group	
Primary	100%
Secondary	90%
Tertiary	20%
University	5%

There are some 465 voluntary agencies registered with the Government of Sindh's Department of Social Welfare. Many of these agencies (22.2 percent) are reported to be inactive, so no details were available concerning their activities. Others, such as the Edhi Welfare Centre, Orangi Pilot Project and All Pakistan Women's Association, render multiple social and welfare services to Karachi's resident population.

Table 6.3: NGOs by Focus of Activity

Activity	Number	Percentage of Total
Education	25	5.4
Health	32	6.9
Multi Purpose*	98	21.1
Industrial / Vocational Centre for Women	18	3.9
Community Welfare	12	2.6
Service to Handicapped	17	3.7
Women, Children and Youth	60	12.9
Welfare Service	58	12.5
Other Purpose	42	9.0
(not mentioned in survey)	103	22.2
Total	465	100.0

* Included industrial homes, MCH Centres, education and recreational services

Current statistics for Karachi show that 44.4 percent of the 566,998 enrolled students are male and 55.6 percent female. Though these figures appear progressive in terms of gender development, the number of female students enrolled in secondary schools drops by an average of 25 percent from those enrolled in primary school in many of Karachi's towns. In some towns, including Jamshed, Shah Faisal, Landhi, Korangi, North Nazimabad, New Kararachi and Gulberg, there is an encouraging increase in the number of female students in secondary schools when compared to primary. Nevertheless, the number of female students drops even more dramatically when going from secondary schools to higher educational institutes. Only in North Nazimabad does the number girl students increase. Though most towns have a high ratio of girls to boys, Malir, Bin Qasim and Gadap have more boys than girls attending schools. This is especially true for secondary schools. The teachers, however, are predominantly women (66.8 percent) compared to men (33.2 percent).

The Sindh Education Department has executed a complete census of government-run educational institutions and analyzed the results by town. These data have been entered into the Sindh Education Management Information System (SEMIS), which provides statistics on institutions, student enrollment and teachers for the year 2002. High enrollments are projected for the towns of Landhi-Korangi, New Karachi, Jamshed-Gulshan and Lyari. The lowest needs for educational facilities are expected in the towns of Gadap, Keamari and North Nazimabad. These needs ultimately will need to match the real population and spatial growth of each town over the period until 2020, as well as their socioeconomic standing.

6.2.1 Special Education

Special education is a relatively new area of education in Pakistan. The total number of disabled persons based on the 1998 population census was 3.3 million, or about 2.5 percent of the total population. The education and rehabilitation of persons with disabilities was previously a concern of the Ministry of Education and Social Welfare. This continued for some time until observance of International Year of the Disabled in 1981 led to greater recognition of the need to provide better accessibility and means of communication for the disabled population.

6.3 Recreation

Karachi has a fair number of recreational parks and gardens at the metropolitan level, but an inadequate supply of playgrounds and sporting facilities for 'active recreation' by different age groups and genders at the local level. This includes stadiums, indoor gymnasiums, football and hockey grounds, cricket fields and tennis courts. This deficiency is particularly true for the heavily built-up areas of the inner city, including, for example, Lyari, Liaquatabad, Kharadar and their immediate surroundings. Where facilities do exist they are generally in substandard condition and not well maintained.

Recreational lands are not distributed evenly across the city and some areas are seriously deficient in such space. The land use survey of 2005 showed roughly 4,800 acres being used for recreational activities. This gives an overall city average of 0.34 acres per 1000 persons. Most of the towns in Karachi have less than 0.5 acres of recreational area per person. Some, like Korangi and North Karachi, have been subject to land grabbing and have lower ratios of only 0.17 and 0.19 acres per 1000 persons. Three of the 18 towns have ratios that are even less than 0.1. These include Liaquatabad and Lyari, both with 0.06 acres per 1000 persons and Baldia with 0.03. Gulshan-e-Iqbal is at the upper end of the scale with a ratio of 0.75 acres per 1000 persons. This is due to the location of Safari Park, one of the largest recreational areas in Karachi covering some 354 hectares, and the National Stadium and Coaching Centre which covers roughly 104 hectares.

Table 6.4: Recreational Facilities in Karachi at Metropolitan Level

No.	Recreational Facilities	Area in Hectares	Location
1	Aziz Bhati Park	16.2	University Road
2	Bagh-e-jinnah	6.7	Fatima Jinnah Road
3	Hill park	12.2	Shaheed-e-Millat Road
4	Safari park	141.7	Adjoining Gulestan-e-Jauhar
5	Bagh-e-Quaid-e-Azam	9.9	Aiwan-e-Sadar Road
6	Bagh Ibne Qasim	44.5	Ikram Ullah Road
7	Boating Basin	81.0	Clifton Block-7
8	Zoological Garden	17.0	Pakistan Quarters East
9	Hockey Club of Pakistan	2.8	Liaquat Barracks Hockey Stadium
10	National Stadium and Coaching Centre	41.7	Stadium Road
11	Race Course Ground	35.0	Race Course
12	Ala-din Parks	20.2	Gulistan-e-Jauhar

The Karachi coastal zone runs for several miles along the southern edge of the city. It offers a unique opportunity for local recreation and regional tourism. It is open to swimming most of the year, except during the summer when tides are too high, and presents a variety of spatial experiences that include beaches, bays, backwater areas, creeks, mangroves and small islands. These environments maintain the marine environments ecological balance and provide habitat for a complex and interdependent community of invertebrates, fish, birds, and reptiles.

7 URBAN ENVIRONMENT

The urbanization of Karachi has seriously impacted the natural environment on which it depends and must be considered if the city is to sustain future development. To do this, the necessary infrastructure facilities and regulations must be put in place to properly manage its natural resources and prevent their further pollution. This section provides an examination of the current environmental problems and trends in Karachi city district, presented by the following components: water supply, sewerage and wastewater disposal, coastal marine environment, air pollution, and land use.

Water Supply — With its close proximity to the Arabian Sea, the Indus river and the Malir and Lyari rivers, Karachi enjoys ready access to major water sources in an otherwise arid country. But Karachi faces a shortage in water due to growing demand and non-dependable supplies. Wells dug in the Malir river bed at Dumlotti, the city's original source of water, are no longer a dependable source as overuse and bulk consumption by farmers has dried up the wells. Water sourced from the Hub Dam was cut off in 2002 when its supply dried. To help fill the gap in supply, K-IV of the Greater Karachi Bulk Water Supply Scheme was launched in 2006.

Inadequate water supply has given rise to use of groundwater from depth exceeding 10 metres in core areas and 150 metres in the suburban areas. In Orangi Town and Gadap Town signs of salinity intrusion are apparent.

Poor installation and maintenance of the water supply lines has reduced the distribution systems capacity and polluted the water reaching the end users. In old Karachi in particular much of the pipes have deteriorated and are due for replacement. Faulty pipe connections and ruptures have allowed water to leak and pool underground and at the ground surface. This has provided a breeding ground for biological contaminants and infiltration of sewage from leaking sewerage pipelines that are crisscrossing the supply lines. These pools of water are sucked back into the supply lines during idle hours contaminating water piped from the Hub Dam and Indus river. Plugging the seepage could help in making a major improvement in the quantity of water available to the end user.

Many studies have found widespread contamination including one conducted by the Aga Khan University which found pathogenic organisms in 335 out of 338 samples of water taken from different underground wells / individual tanks of parts of the city. As a result, the water available from private services in Karachi does not meet the water quality guidelines as proposed by World Health Organization.

Open sewerage channels cutting through Karachi's neighbourhoods have also exposed residents to many diseases. And their release into the Malir and Lyari rivers which traverse the city have turned them also into open sewers, impacting the harbour marine environment downstream. Any water that might dilute this discharge in the rivers has virtually dried up from consumption upstream.

Excessive loading of nutrient and chemical contaminants into the Lyari River system, have rendered much of the natural aquatic and terrestrial habitat associated with a river of this size virtually uninhabitable. Air pollution, solid waste,

dumping of industrial sewage, and runoff from adjacent agricultural and other land uses further contaminate the Lyari River.

The excavation of millions of tons of sand and gravel from these riverbeds has extensively degraded them and the Hub River and caused irreversible damage to their environment by exposing the rock bottom of the respective riverbeds thus making it vulnerable to flash floods.

Sewage and Wastewater Disposal — More than 380 million gallons (mgd) wastewater is generated daily against optimal capacity of 151 MGD in Karachi out of which only approximately 90 mgd is treated daily at the wastewater treatment plants due to lack of linking Trunk Sewers / Interceptors and the rest is discharged into drains and nullahs / rivers which are terminated in the Arabian Sea where it is causing tremendous pollution. Poor industrial wastewater disposal practice and lack of private and public industrial waste water treatment facilities also results in the direct discharge into surface drains and nullahs. The treatment plant capacity of Karachi must be increased if the city's growth is to be sustained.

Coastal Marine Environment — The Karachi coastline, which stretches over 135 km, is facing severe pollution from industrial, port, municipal, and transportation activities in the area. Effluent of Malir and Lyari rivers is also a major contributor. The marine environment is being overwhelmed with pollution discharged in the shipping process into the marine environment. A recent study found that some of the marine life was contaminated with lead. When consumed by humans through seafood, this has been linked to anemia, kidney failure, and brain damage.

The coastline is heavily dependent on the mangrove forests that line the coast to maintain the marine environments ecological balance. The mangroves provide habitat for a complex and interdependent community of invertebrates, fish, birds, and reptiles.

Air pollution — Air pollution is a significant environmental problem in the Karachi City District caused by automobile exhaust, industry emissions, open burning of garbage, and domestic/commercial fuel sources. Firewood, dung and solid wastes are still used as alternative sources of energy in certain parts of the city, particularly the villages and Katchi Abadis. Biomass is used by 17,000 households, or 2.01 percent, of dwellings in the city, according to Bureau of Statistics.

Air pollution is a major problem specially in city centre and is mainly caused by industry and public transport



Vehicular traffic has increased significantly in recent years, far exceeds the capacity of the city district's roads. Air pollution and noise pollution levels along road sides and at intersections exceed the limits recommended by World Bank and WHO Guidelines as well as National Environmental Quality Standards of Pakistan. Such high levels of air pollution cause serious public health concerns such as asthma and respiratory ailments. Traffic safety and negative impacts on urban ecology such as early senescence and dwarfing of trees are also of concern.

Open burning of garbage at the landfill sites is another major source of air pollution. Solid waste disposal from the industries has also contributed to environmental degradation. The waste is dumped outside the factory premises (especially in the case of ceramic industries) or burned in an incinerator on the factory premises. Incinerators are not always designed for hazardous waste being disposed such as pharmaceutical factory waste, hospital waste or other chemicals like pesticides.

Land Use — The urban sprawl covering the largely flat or rolling plains of the greater Karachi area is taking its toll on flora and fauna habitat and its biodiversity. This is caused from disturbance or destruction of sensitive habitats for birds, mammal and reptile species during construction. Encroachment of the built environment into rural areas and vacant recreational land or otherwise natural habitat is further driving habitat fragmentation and destruction. The increase in impervious surface is also increasing runoff which carries pollution, decreases groundwater recharge, and increases chances of flash floods.

Annexure-II

Abbreviation used in KSDP-2020

ABBREVIATIONS USED IN THIS REPORT

ADB	=	Asian Development Bank
D.C.O	=	District Coordination Officer
D.O	=	District Officer
CDGK	=	City District Government Karachi
CBD	=	Central Business District
CAA	=	Civil Aviation Authority
CSO	=	Community Service Obligations
DHA	=	Defence Housing Authority
E.D.O	=	Executive District Officer
EPZA	=	Export Processing Zone Authority
GDP	=	Gross Development Progress
JBIC	=	Japan Bank of International Co-operation
JICA	=	Japan internal Co-operative Agency
KSDP	=	Karachi Strategic Development Plan
KESC	=	Karachi Electric Supply Corporation
KMC	=	Karachi Metropolitan Corporation
KW&SB	=	Karachi Water & Sewerage Board
KPT	=	Karachi Port Trust
KDA	=	Karachi Development Authority
KBTPR	=	Karachi Building & Town Planning Regulations
LDA	=	Lyari Development Authority
MPGO	=	Master Plan Group of Offices
MTDF	=	Mid-Term Development Framework
MDA	=	Malir Development Authority
MRF	=	Material Recycling Facility
PQA	=	Port Qasim Authority
PR	=	Pakistan Railway
PMT	=	Pole Mounted Transformers
P.M	=	Project Manager
SPU	=	Strategic Planning Unit
SLGO	=	Sindh Local Government Ordinance
STP	=	Sewage Treatment Plant
SEPA	=	Sind Environmental Protection Agency
T.P	=	Treatment Plant
UNDP	=	United Nation Development Programme
WHO	=	Work Health Organization

Annexure-III

Reports Prepared

REPORTS PREPARED

S.No.	Sectoral Report
1	Review of Existing Planning and Building Control Rules & Regulations
2	Institutional Arrangements for Implementation of Master Plan
3	Karachi Housing Study
4	Environmental Profile of Karachi
5	Karachi Economic and Fiscal Profile
6	Landuse Survey Report
7	Existing and Proposed Health Facilities
8	Transport
9	Evaluation of Previous Master Plans
10	New Sources of Water Supply
11	Existing and required Potable Water Supply for Karachi City
12	Sewerage System for Karachi City District
13	Solid Waste Management for Karachi City District
14	Renewable of Electric Supply of Karachi City
15	Draft Karachi Master Plan Act, 2006
16	Recreational Facilities in Karachi City

Annexure-IV

Bibliography

Bibliography

Sr. No.	Title	Author	Year of Publication
1	Low-Income Housing Markets in Karachi 1998 Conspectus	J. Van der Linden	Aug-88
2	Report: The Urban Management Plan: A new planning approach for Karachi	Mark Richard Brown Vittorio E, pareto	Sep-88
3	Final Report: Karachi Transport System and Constraints	J. Revis	Feb-89
4	Final Report: The Urban Data Base and Data Index System: Current Status	Padco/Peac	June-89
5	Final Report: Population Dynamics of Karachi	S.Chishti & S. Rehman	June-89
6	Technical Note 08: Planning to learn	David Oakley	Sep-88
7	Technical Note 14: Using the Karachi Mass Transit Study model for Master Planning	J.Revis	Mar-89
8	Technical Note 15: Notes on the Proposed Digital Mapping Center for Karachi	S.Q. Hasan Mark Richard Browns	Oct-88
9	Technical Note 31 Karachi Environment Report	Ernest Slingshy	Feb-89
10	Technical Note 37 Karachi House Typology	Marie-Agness Bertaud	Apr-89
11	Technical Note 32 Karachi Electrical Power Report	Ernest Slingshy	Feb-89
12	Socio-Economic Profile of Katchi Abadies in Karachi	Applied Economics Research Centre	1988
13	Socio-Economic Profile of Planned Areas in Karachi	Applied Economics Research Centre	1988
14	Final Report: Water Supply Report	E. Slingsby	Aug-89
15	Final Report: Infrastructure Sector Profiles Urban Surface Drainage, Sewerage and Waste Water Treatment, and Solid Waste Management	M. Hanf Chaudry	Aug-89

Sr. No.	Title	Author	Year of Publication
16	Final Report: Karachi Regional and Economic Development Report	S. Chishti	Jun-89
17	The Fiscal Base of Karachi	Aisha Ghaus	Mar-88
18	The Economy of Karachi Growth and Structural Change	Kaiser Bengali	1988
19	Technical Note 04: Decision in Urban Planning: Concept and Practice	Padco/Pepac	Sep-88
20	Karachi Municipal Mapping Issues, Opportunities and Constraints	Mark Richard Brown	Apr-92
21	Housing Affordability in Karachi	Hafiz A. Pasha & Mohammad Akbar	Sep-91
22	Final Report: Financial Feasibility Assessment Model	Padco/Pepac	Aug-89
23	Final Report: Zonal Profiles Model	V.E Pareto	Dec-88
24	Final Report: Scenario Development	V.E. Pareto, Ph. D.E.A, Slingsby	Aug-89
25	Scenario Development Zonal Profile-1986	V.Pareto	1989
26	Progress Report 1: Spatial and Special Studies Database and Model Development	Vittorio E. Pareto	Aug-88
27	Technical Note 3: Urban Dynamics of Karachi	David Oakley	Sep-88
28	Technical Note. 17, 18, 19 Notes on Karachi Finance, Taxes and Budgets	B. Binder	May-89
29	Technical Note. 24 Reports on the Workshop: "Comprehending the City"	KDA	Oct-88
30	Technical Note, 2: Planning to Meet Objectives	David Oakley	Aug-88
31	Technical Note 10: Urban Development Model Preliminary Design Structure	S. Chishti, V. Pareto, H. Mian	Aug-88
32	Technical Note 9: Professional Development and Institutional Change	David Oakley	Sep-88
33	Final Report: Karachi Electrical Power Report	E. Slingsby	Jul-89

Sr. No.	Title	Author	Year of Publication
34	Final Report: Telecommunications	E. Slingsby	Jun-89
35	Technical Note 16: Evaluation of KDA Resources for the Establishment of a Geographic Information System	Gar Clarke	Aug-88
36	Technical Note 12: A Microcomputer Model for Managing, Presenting and Analyzing Municipal Finance Data	Jun Zhang	Aug-88
37	Technical Note 1: An Overview of the Institutional and Conceptual Setting for Development Planning in Karachi	David J. Oakley Mark Richard Brown	Jun-88
38	Final Report: Developing a Management Information System for the Master Plan and Environmental Control Department (MPECD)	John H. Magill, PH.D	Jul-89
39	Final Report: Infrastructure Models	Padco/Pepac	Aug-89
40	Final Report: The Institutional and Legal Framework Required for the Implementation of an Integrated Physical Planning Process in Karachi.	S. Sheer M. A Khan	Nov-88 (Rev. June-89)
41	Evolution of Policies and Strategies Background Papers for the Plan	D. Oakley	Aug-89
42	Final Report: Karachi Land and Housing Study	Dr. D Dowall	June-89
43	Mid Term Development Framework	Planning Commission Pakistan	2005
44	Karachi Development Plan 2000	UNCHS (Habitat) UNDP, PADCO, PEPAC	1991
45	Karachi Development Plan 1974-1985	Master Plan Deptt., KDA Karachi, UNDP, PADCO Polytechna/Terplan	Aug-74
46	Environmental Legislation (Compilation of existing Law, Rules & Regulation)	MP&ECD KDA	Dec-86
47	An overview of KDA's Housing Schemes	MP&ECD KDA	1984

Sr. No.	Title	Author	Year of Publication
48	Feasibility study for future expansion of Karachi Water Supply System (4 volumes)	MPP (Pak) & ACE	1985
49	Feasibility study for preparation of sewage and waste water disposal in Karachi (4 volume)	KWSB Bal fours + Engineering Consultant	Jul-88
50	Report on solid waste management	KMC Arnoldvan De Klundert	May-85
51	City District Govt. Budget 2004-2005 (2 volumes) 2006-2007 4 volume	CDGK	2004 2006
52	Karachi city profile		2005
53	National Housing policy 2001	Ministry of Housing and work G.O.P	2001
54	Karachi coastal recreation development plan 1990-2000	MP&ECD UNDP UNCHS	Apr-90

Annexure-V

Acknowledgment

ACKNOWLEDGEMENT

During the course of preparing the Karachi Strategic Development Plan – 2020, the contribution of Federal Government, Provincial Government of Sindh, City District Government Karachi, International Donor Agencies/Development Partners, various Technical Committees formed by the City District Government Karachi, participation of various Authorities/Departments/ Organizations and valuable input from Professionals and Individuals is highly acknowledged and respected. The views and comments received from them were thoroughly reviewed and incorporated wherever appropriate and possible.

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- | | | |
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| xii. | Abida Tarranum | Deputy District Officer |
| xiii. | S. Nishat Ali Rizvi | Deputy District Officer |
| xiv. | Nighat Jabeen | Deputy District Officer |
| xv. | Muhammad Irshad | Deputy District Officer |
| xvi. | Riaz Ashraf Rizvi | Deputy District Officer |
| xvii. | Muhammed Ali Rizwan | Deputy District Officer |
| xviii. | S. Nadeem Hasan Jafri | Deputy District Officer |
| xix. | S. Karar Askari | Deputy District Officer |

xx.	Asif Ahmed	Deputy District Officer
xxi.	S.Ashoor Abbas Rizvi	Deputy District Officer
xxii.	M. Nadeem Ahmed Siddiqui	Deputy District Officer
xxiii.	S. Laiq Hussain	Deputy District Officer
xxiv.	Abdul Qudoos Khan	Deputy District Officer
xxv.	Hurra Javed	Deputy District Officer
xxvi.	Shahid Khan	Senior Planning Assistant
xxvii.	Umar Sharif	Assistant District Officer
xxviii.	Muhammad Saleem	Social Surveyor
xxix.	Mushraf Hussain	Telephone Operator
xxx.	Abdul Majeed	Book Binding Supervisor
xxxi.	Muhammed Sharif	Junior Clerk
xxxii.	Lal Mohammed	Driver
xxxiii.	Muhammed Younis	Driver
xxxiv.	Zotha Khan	Messenger
xxxv.	Abdul Qadeer	Naib Qasid
xxxvi.	Hazrat Ghulam	Naib Qasid
xxxvii.	Jamil Ahmed	Naib Qasid
xxxviii.	Ghulam Murtaza	Naib Qasid
xxxix.	M. Saleem Khan	Helper
xl.	M. Saleem	Helper

e. The Consultants of KSDP-2020, M/S ECIL-PADCO-AECOM

- i. Zaheer Mirza, Chairman, ECIL
- ii. Naved Zaheer ,Project Director/Team Leader
- iii. Khalid Mirza, Transportation Specialist.
- iv. Tahir Soomro, Advisor Transportation
- v. Afzal Ahmed Khan, Coordinator / Senior Town Planner
- vi. Ashraf Sulimany, Civil Engineer
- vii. Javed Shah, Infrastructure Specialist
- viii. Bux Ali Abro, Transportation Specialist
- ix. Babar Sani, Land Use / Modeling
- x. Col. Siddiq, Coastal Development
- xi. Dr. Syed Ahmed, Socio Economic Specialist.
- xii. Dr. Shama, Socio Economic Specialist.
- xiii. Fazal Noor, Housing & Urban Renewal Specialist
- xiv. Fasihuddin Pasha, Oceanographer
- xv. Tanveer Ahmed, Marine Specialist
- xvi. N.H. Burni, Power Engineer
- xvii. Saadat Yar Khan, Legal / Legislative Specialist
- xviii. Abdur Rahim, Solid Waste Management Expert
- xix. Dr. Shimail Daud Public Health Specialist
- xx. Zafar Ismail, Economist
- xxi. T.A. Jafri , Town Planner
- xxii. Safiullah, Urban Designer
- xxiii. Qamar-un-Nisa, Assistant Town Planner
- xxiv. Saima Shaikh, Assistant Town Planner
- xxv. Jamil Sabri, Statistician

Selected ECIL Support

- i. Rizwan Ghori, GIS
- ii. Sharjeel Ahmed Khan, GIS
- iii. Sohaib Bin Farhan, GIS
- iv. Ameer Azam, GIS
- v. Kamran Khan, GIS
- vi. Saima Waheed, GIS
- vii. Ruqia Rehman, GIS
- viii. Nimra Mujeeb, GIS
- ix. Adeela Muneer, GIS
- x. Syed Jawad Hussain, Transport Engineer
- xi. Ejaz Khokhar, Solid Waste Engineer
- xii. Rehan Iqbal, IT Specialist
- xiii. Kashif Amjadi, Logistics
- xiv. Tariq Ahmed Siddiqi, Type Setting

PADCO

- i. John Backmann, Director Planning,
- ii. Urban Development Specialist.
- iii. Jerry Erbach, Social Specialist.
- iv. Douglas Lucius, Transport Economist.
- v. Vitorio Pareto, Infrastructure Specialist.
- vi. Brain English, Town Planner.
- vii. Amit Prothi, Housing Specialist.

f. Authorities/Departments/Organizations

- i. Karachi Port Trust
- ii. Port Muhammad Bin Qasim Authority
- iii. Civil Aviation Authority
- iv. Pakistan Steel Mills
- v. Sindh Katchi Abadies Authority
- vi. Pakistan Defense Housing Authority
- vii. Pakistan Railways
- viii. Lyari Development Authority
- ix. Malir Development Authority
- x. Sindh Industrial Trade Estate
- xi. Pakistan Engineering Council
- xii. Pakistan Council of Architects & Planners
- xiii. Karachi Electric Supply Corporation
- xiv. Sui Southern Gas Company Ltd.
- xv. Pakistan Telecommunication Ltd
- xvi. Association of Builders And Developers
- xvii. Heritage Foundation of Pakistan
- xviii. Social Policy and Development Center
- xix. Asian Development Bank

g. Karachi Mega City Sustainable Development Project

- i. Mohammad Zakir, Ex-Project Director
- ii. Shoaib Siddiqui, Project Director
- iii. Roshan Ali Shaikh, Project Coordinator
- iv. Mohammad Naeem Waheed, Project Officer
- v. Royston A.C. Brockman
- vi. Babar Mumtaz
- vii. Mike Lingfield
- viii. Jamie Simpson

h. International Donor Agencies/Development Partners

- i. Shenaz Arshad, Senior Urban Specialist, World Bank, Islamabad
- ii. Peter L. Fedon, Country Director, Asian Development Bank, Islamabad
- iii. Mathew, Westfall, Director (Social Sector), ADB, Islamabad
- iv. John Walls, Resident Representative, ADB, Islamabad
- v. Shane Rosenthal, ADB
- vi. Jim Arthur, Asian Development Bank
- vii. Takehrio Okubo, Head (Economics & Dev), Japan Embassy Islamabad
- viii. Nanano, Counselor General, Consulate General of Japan, Islamabad
- ix. Dr. Hirashima, JICA
- x. Takashi, JICA
- xi. Fakazawa, JICA
- xii. Tamaki, JICA
- xiii. Jilani, JICA
- xiv. Talib Fateh, JICA
- xv. Memon, JETRO
- xvi. Ochi, Chief Representative, JBIC

i. Technical Committees

Committee on Health

- | | | |
|-------|--|------------------|
| i. | Prof. Dr. Irshad Waheed, Registrar College of Physicians & Surgeon Pakistan. | Chairman |
| ii. | Dr. F.U. Baqai | Member |
| iii. | Dr. Samad Shera | Member |
| iv. | Dr. Sher Shah Syed, Secretary General, PMA | Member |
| v. | Executive District Officer (Health), CDGK | Member/Secretary |
| vi. | Representative of JPMC | Member |
| vii. | Representative of Aga Khan University | Member |
| viii. | Javaid Sultan, Addl. DO. MPMGO, CDGK | Coordinator |

Committee on Housing and Katchi Abadis

i.	Tasneem Ahmed Siddiqui,	
ii.	Chairman, SAIBAN.	Chairman
iii.	Director General, Sindh Katchi Abadis Authority	Member
iv.	Chairman/Representative of HBFC.	Member
v.	Dr. Noman Ahmed,	Chairman
vi.	Department of Architecture and Planning NED University, Karachi	Member
vii.	Arif Hassan, Chairman URC	Member
viii.	Secretary Land Utilization Board of Revenue, Government of Sindh.	Member
ix.	Secretary/Representative of Cooperative Department GOS	Member
x.	Director Planning, MDA	Member
xi.	Director Planning, LDA	Member
xii.	Chairman/Representative of the Association of Builders and Developers (ABAD)	Member
xiii.	Javaid Sultan, Addl. District Officer, MPGO.	Member

Committee on Water Supply and Sanitation

i.	Managing Director, Karachi Water & Sewerage Board	Chairman
ii.	Dy. Managing Director (Planning) KW&SB	Member
iii.	Chief Engineer (I&PD), KW&SB	Member/Secretary
iv.	Ashraf Wasti, consultant, NEF, FD, GOS	Member
v.	Chief Engineer (S), KW&SB	Member
vi.	Chief Engineer, S.I.T.E.	Member
vii.	Parveen Rehman, OPP	Member
viii.	Representative of PCSIR	Member
ix.	Yousuf Siddiqui, Ex. Chief Engineer World Bank Project (Defunct KDA)	Member
x.	Representative of World Conservation Union (IUCN)	Member
xi.	Representatives of Association of Korangi	
xii.	Trade and Industry.	Member
xiii.	Representative of Association of Landhi Trade & Industry	Member
xiv.	Superintending Engineer, MDA.	Member
xv.	Superintending Engineer, LDA.	Member

Committee on Solid Waste Management

i.	Arif Hassan, Chairman URC	Chairman
ii.	Tasneem Ahmed Siddiqui, (Chairman Saiban)	Member
iii.	Representative of IUCN	Member
iv.	Anjum Pervaiz (Waste/Busters)	Member
v.	District Officer, Solid Waste Management (W&S)	Member/Secretary
vi.	Representative of EPA	Member
vii.	Representative of OPP	Member
viii.	Zahid Farooq, Urban Resource Center	Member

Committee on Environment

i.	Director General, Environment Protection Agency, Sindh	Chairman
ii.	Dr. Ashfaq, Ex-Pro vice Chancellor,	
iii.	Karachi University.	Member
iv.	Dr. Badar Ghauri (SUPARCO)	Member
v.	Chairman, Department of Environment Studies	
vi.	NED University.	Member
vii.	Representative of Port Qasim Authority	Member
viii.	Representative of Karachi Port Trust.	Member
ix.	Chief Engineer (I&PD) KW&SB	Member
x.	F.H. Mughal, District Officer, MPGO	Member/Secretary
xi.	Director Planning, LDA.	Member
xii.	Director Planning, MDA.	Member
xiii.	Representative of IUCN	Member
xiv.	Naved Zafar, Ex. Addl. District Officer, MPGO.	Member

Committee on Recreation and Community Facilities

i.	Executive District Officer (Community Development), CDGK	Chairperson
ii.	District Officer, Parks & Horticulture, CDGK	Member/Secretary
iii.	Director Planning, MDA.	Member
iv.	Director Planning, LDA.	Member
v.	Akhtar Ahsan, Ex-Director, MP&EC	Member
vi.	S.M. Shah, District Officer, MPGO	Coordinator
vii.	Curator, Zoological Garden	Member

Committee on Urban Planning, Land Use and Regulations

i.	Arch/Plnr Iftikhar Ali Kaimkhani, EDO, MPO	Chairman
ii.	Plnr. Aftab M. Khan	Member
iii.	Arch. Arif Hassan, Chairman URC	Member
iv.	Arch/Plnr Noman Ahmed, Chairman Architecture	
v.	Of CRP Deptt., NED University.	Member
vi.	Chief Controller of Buildings, KBCA	Member
vii.	Arch. M. Iqbal Mirza, Ex. Director, MP&ECD, KDA	Member
viii.	Plnr. Islamuddin Siddiqui, EX. EDO, MPO	Member
ix.	Chairman Master Planning Committee, City Council.	Member
x.	Vice Chairman (Planning), PCATP.	Member
xi.	Arch. Arshad Abdullah	Member
xii.	Masood Jafri, Town Planner	Member
xiii.	Representative of P.E.C.	Member
xiv.	Representative of ABAD.	Member
xv.	Director (Planning), MDA, CDGK.	Member
xvi.	Director (Planning), LDA, CDGK.	Member
xvii.	Executive District Officer, Law, CDGK	Member
xviii.	Plnr. Mumtaz Haider, District Officer, (H), MPO, CDGK.	Member/Secretary
xix.	Barrister Abdul Rahman	Member

Committee on Institutional and Legal Framework

i.	The City Nazim , CDGK.	Chairman
ii.	The District Coordination Officer, CDGK	Member
iii.	Justice (Rtd) Rasheed A. Rizvi.	Member
iv.	Chairman, Karachi Port Trust, Karachi.	Member
v.	Chairman, Pakistan Steel, Bin Qasim, Karachi.	Member
vi.	Chairman, Port Qasim Authority, Karachi	Member
vii.	Director General, Military Lands & Estates, Rawalpindi	Member
viii.	Brig. (Rtd) Abdul Haq	Member
ix.	Secretary, (LU), BOR, Sindh.	Member
x.	Senior Presiding Officer, City Council, Karachi.	Member
xi.	Director General, Lyari Development Authority, Karachi.	Member
xii.	Director General, Malir Development Authority, Karachi.	Member
xiii.	Divisional Superintendent, Pakistan Railways.	Member
xiv.	Director Military Lands & Estates, Karachi.	Member
xv.	Executive District Officer, Revenue, CDGK.	Member
xvi.	Executive District Officer, MPO, CDGK.	Member
xvii.	Executive District Officer, Law, CDGK.	Member/Secretary
xviii.	Zakir Ali, District Officer, City Council, Karachi.	Member
xix.	Barrister Abdul Rehman	Member
xx.	Hafiz Muhammad Javed, District Officer (MP), MPO, CDGK	Member

Committee on Urban Economics and Financial Management

i.	Ashraf Wasti, Consultant, NFC, FD Government of Sindh, Karachi.	Chairman
ii.	Dr. Mahmood Rafiq, Dean Dadabhoy Institute, Karachi.	Member
iii.	Director, Institute of Business Administration, Karachi.	Member
iv.	Head Economic Department, University of Karachi, Karachi.	Member
v.	Additional Secretary Finance, Government of Sindh, Karachi.	Member
vi.	Executive District Officer (Finance), CDGK	Member/Secretary
vii.	Muhammad Rafique Tumbi.	Member
viii.	President, KCCI, Karachi	Member
ix.	S.M. Muneer.	Member
x.	Shahid Hassan Siddiqui	Member
xi.	Director/Rep., KSE, Karachi.	Member

Committee on Educational Facilities

i.	Vice Chancellor, University of Karachi	Chairman
ii.	Sameer A Hoobhoy	Member
iii.	Executive District Officer, Education	Member
iv.	Registrar University of Karachi	Member
v.	Anita Ghulam Ali	Member
vi.	Dr. Ahsanullah, Ex-Principal, S.M College	Member
vii.	Mohammad Ali, Ex-Chairman, Board of Technical Education	Member
viii.	President, All Private Schools Management Association Sindh	Member
ix.	Representative of Beacon House School System	Member
x.	Chairman, FPCCI Education Committee	Member

Committee on Transport

i. Malik Zaheer-ul-Islam, DG, KMTS, CDGK	Chairman
ii. Executive District Officer, MPGO, CDGK.	Member
iii. Executive District Officer, (T&C), CDGK.	Member
iv. Arch. Arif Hassan.	Member
v. Divisional Superintendent, Pakistan Railways.	Member
vi. DIG (Traffic), Karachi.	Member
vii. Hafiz Muhammad Javed, District Officer, MPGO.	Member
viii. Chief (T&C) Department, GOS.	Member
ix. Secretary, District RTA, Karachi.	Member
x. Deputy Secretary, Transport Department, GOS.	Member
xi. Anwar Baig, DDO, KMTS, CDGK.	Member/Secretary
xii. President, Karachi Bus & Truck Owners Association	Member

Professionals/Individuals

1. Dr. Ahsanullah
1. Planner Aftab Muhammad Khan
2. Tasneem Ahmed Siddiqui, Saiban
3. Architect Arif Hasan, URC
4. Brig ® Abdul Haq
5. Sameer Hoodbhoy
6. Architect Arshad Abdullah
7. Dr. Noman Ahmed, NED, University
8. Roland De Soza
9. Planner Masood Jafri
10. Planner Islamuddin Siddiqui
11. Planner/Architect M. Iqbal Mirza
12. Architect Husnain Lotia
13. Barrister Abdur Rehman
14. Malik Zaheerul Islam, CDGK
15. Mohammad Athar, CDGK
16. Naila Wajid, CDGK
17. A.D.Sajnani, CDGK
18. Dr.Mohan Das, CDGK
19. Masood Alam, CDGK
20. Fakhar Karim, CDGK
21. Planner Muhammad Sarfraz Khan, LDA
22. Planner Hafiz Siddiqe Majid, MDA
23. Muhammad Shoaib Siddiqui, DDO, DCO Sectt, CDGK
24. Muhammad Zaman, DDO, ITGOO, CDGk

Annexure-VI

City Council Resolutions (Approving KSDP-2020)

شہری ضلع حکومت، کراچی

(کونسل سیکریٹریٹ)

شہری ضلع کونسل، شہری ضلع حکومت، کراچی کے باقوی شد عام اجلاس منعقد ہونے پر 15 دسمبر 2007ء میں منظور شدہ قرارداد

موضوع:- کراچی ترقیاتی منصوبہ - 2020 Karachi Strategic Development Plan کی منظوری۔

مونیٹرین - محترمہ نجمہ ابرار، جناب محمد ندیم یقین۔

مجوز - جناب سید ابصار الحسن۔

مورخہ 15 دسمبر 2007ء

قرارداد نمبر 312

”شہری ضلع کونسل، شہری ضلع حکومت، کراچی کا آج کا یہ اجلاس کراچی ترقیاتی منصوبہ Karachi Strategic Development Plan - 2020 کی انتظامی ضلع آفیسر ماسٹر پلان، گروپ آف آفیسر، شہری ضلع حکومت کراچی کی دفتری یادداشت نمبر CDGK/MPGO/EDO/6049/L مورخہ 28 نومبر 2007ء میں درج سفارشات کے مطابق منظوری عطا کرتا ہے۔“

قرارداد اتفاق رائے سے منظور کی گئی۔

(احسن احمد صدیقی)
پریزائیڈنگ آفیسر
شہری ضلع حکومت، کراچی

ماسٹر پلان، گروپ آف آفیسرز شہری ضلع حکومت، کراچی

بادداشت برائے شہری ضلع کونسل، کراچی

مورخہ۔ 28 نومبر 2007ء۔

CDGK/MPGO/EDO/6049/L نمبر

موضوع۔ کراچی تزویری ترقیاتی منصوبہ Karachi Strategic Development Plan - 2020 کی منظوری۔

- 1- کراچی دنیا کے دس بڑے شہروں میں سے ایک ہے آبادی میں روز بروز مزید اضافے کے باعث نہ صرف یہ کہ اس شہر کا بنیادی ڈھانچہ بری طرح متاثر ہو رہا ہے بلکہ شہریوں کی مشکلات میں بھی اضافہ ہو رہا ہے۔ اس صورتحال سے عہدہ براہ ہونے کے لئے نہ کوئی جامع منصوبہ بندی کی جا رہی تھی اور نہ ہی کسی خاص حکمت عملی پر عملدرآمد ہو رہا تھا۔ اس کے باوجود شہر اور اس کے باسیوں نے اپنی تمام تر صلاحیتوں کو بروئے کار لاتے ہوئے کراچی کی حیثیت بطور ملک کے سب سے بڑے کاروباری اور صنعتی شہر برقرار رکھی۔ سندھ لوکل گورنمنٹ آرڈیننس مجریہ 2001ء کے اجراء کے ساتھ ہی آرڈیننس کی دفعہ 40 کے تحت شہری ضلع کونسل، شہری حکومت، کراچی کو پلان کی منظوری کا اختیار حاصل ہو گیا۔ چونکہ اس بات کی شدت کے ساتھ ضرورت محسوس کی جا رہی تھی ایک ایسا جامع پلان مرتب کیا جائے جس سے شہر کی ترقی کے لئے ایک واضح لائحہ عمل اختیار کیا جاسکے۔ لہذا تعمیر کراچی پروگرام میں پلان کی تیاری کے منصوبے کو شامل کیا گیا۔ موجودہ شہری ضلع حکومت نے اپنے قیام کے فوری بعد اس منصوبے کی اہمیت کو سمجھا اور اسے اپنی ترجیحات میں شامل کیا۔ جناب سید مصطفیٰ کمال، شہری ضلع ناظم، کراچی نے ماسٹر پلان گروپ آف آفیسرز کو ہدایات جاری کیں کہ وہ اس شہر کی ترقی کے لئے کراچی تزویری ترقیاتی منصوبہ 2020 کو جلد از جلد پایہ تکمیل تک پہنچائے۔
- 2- اس ضمن میں ماسٹر پلان، گروپ آف آفیسرز، شہری ضلع حکومت، کراچی نے کراچی تزویری ترقیاتی منصوبہ Karachi Strategic Development Plan 2020 (KSDP) تشکیل دیا ہے جس میں آئندہ 13 سالوں کے دوران کراچی کے لئے مستقبل کے خدوخال واضح کرتے ہوئے اس کی مجموعی ترقی کی سمت تعیین کرنے کے لئے لائحہ عمل وضع کیا گیا ہے۔ انشاء اللہ کراچی نہ صرف ملک اور صوبے کی ترقی میں اپنا کردار ادا کرتا رہے گا بلکہ ایک اہم علاقائی کاروباری مرکز کے طور پر ابھرے گا۔
- 3- پلان کا نمبر شمار 16، اور 17 انگریزی کے ساتھ ساتھ اردو میں پیش خدمت ہے جبکہ پلان کے نمبر شمار 2 تا 5 میں مندرجہ ذیل موضوعات پر سیر حاصل گفتگو کی گئی ہے جو فائل کے ساتھ منسلک پلان میں دیکھی جاسکتی۔

- 2- Current Conditions and issues.
- 3- Strategic Framework for Development.
- 4- Karachi Strategic Development Plan Components.
- 5- Financing the Plan.

لہذا شہری ضلع کونسل، شہری حکومت، کراچی سے درخواست ہے کہ وہ کراچی تزویری ترقیاتی منصوبہ 2020 جس کی کاپی فائل کے ساتھ منسلک ہے کی منظوری مرحمت فرمائے۔



(افتخار علی قائم خانی)
انتظامی ضلع آفیسر

شہری ضلع کونسل، کراچی ترقیاتی منصوبہ Karachi Strategic Development Plan - 2020 کی منظوری سے متعلق شہری ضلع کونسل، شہری ضلع حکومت، کراچی کی قرارداد نمبر 312 مورخہ 15 ستمبر 2007ء، لی ۱۱۰۰ کا چپاں (بمقام فائل) برائے فوری و ضروری کارروائی انتظامی ضلع آفیسر (ماسٹر پلان) گروپ آف آفیسر، شہری ضلع حکومت، کراچی کو ارسال کی گئی اور ایک ایک کاپی برائے اطلاع و ضروری کارروائی مندرجہ ذیل افسران کو ارسال کی جارہی ہے۔

- 1- انتظامی ضلع آفیسر (فنانس و پلاننگ) شہری ضلع حکومت، کراچی۔
- 2- انتظامی ضلع آفیسر (ایگریکلچر) شہری ضلع حکومت، کراچی۔
- 3- انتظامی ضلع آفیسر (کیونٹی ڈیولپمنٹ) شہری ضلع حکومت، کراچی۔
- 4- انتظامی ضلع آفیسر (ہائیر ایجوکیشن) شہری ضلع حکومت، کراچی۔
- 5- انتظامی ضلع آفیسر (اسکولز ایجوکیشن) شہری ضلع حکومت، کراچی۔
- 6- انتظامی ضلع آفیسر (ہیلتھ) شہری ضلع حکومت، کراچی۔
- 7- انتظامی ضلع آفیسر (انفارمیشن ٹیکنالوجی) شہری ضلع حکومت، کراچی۔
- 8- انتظامی ضلع آفیسر (لیگل) شہری ضلع حکومت، کراچی۔
- 9- انتظامی ضلع آفیسر (لبریری) شہری ضلع حکومت، کراچی۔
- 10- انتظامی ضلع آفیسر (ریونیو) شہری ضلع حکومت، کراچی۔
- 11- انتظامی ضلع آفیسر (ورکس اینڈ سروس) شہری ضلع حکومت، کراچی۔
- 12- انتظامی ضلع آفیسر (ٹرانسپورٹ) شہری ضلع حکومت، کراچی۔
- 13- انتظامی ضلع آفیسر (انٹرپرائز و انویسٹمنٹ پروموشن) شہری ضلع حکومت، کراچی۔
- 14- انتظامی ضلع آفیسر (واٹر اینڈ سینٹیشن) شہری ضلع حکومت، کراچی۔
- 15- انتظامی ضلع آفیسر (میونسپل سروسز) شہری ضلع حکومت، کراچی۔
- 16- ضلع آفیسر کوآرڈینیشن (ضلع رابطہ آفیسر، سیکریٹریٹ) شہری ضلع حکومت، کراچی۔
- 17- چیف کنٹرولر (کراچی بلڈنگ کنٹرول اتھارٹی) شہری ضلع حکومت، کراچی۔
- 18- ضلع آفیسر (ہیومن ریسورسز مینجمنٹ) شہری ضلع حکومت، کراچی۔
- 19- ضلع آفیسر (اکاؤنٹ) شہری ضلع حکومت، کراچی۔
- 20- ضلع آفیسر (بجٹ) شہری ضلع حکومت، کراچی۔
- 21- ایگزیکٹو ضلع آفیسر (ڈیولپمنٹ مینٹیننس پارکس ریکریشن اینڈ انوائزمنٹ) شہری ضلع حکومت، کراچی۔
- 22- ضلع آفیسر (میڈیا مینجمنٹ) شہری ضلع حکومت، کراچی۔
- 23- ضلع آفیسر (سول ڈیفنس و فائر بریگیڈ) شہری ضلع حکومت، کراچی۔
- 24- سیکریٹری شہری ضلع ناظم شہری ضلع حکومت، کراچی۔
- 25- سیکریٹری شہری ضلع نائب ناظم شہری ضلع حکومت، کراچی۔
- 26- سیکریٹری ضلع رابطہ آفیسر شہری ضلع حکومت، کراچی۔
- 27- اے ڈی ایل ایف اے۔

محمد انور احمد
17/12/07
ضلع آفیسر (کونسل)

شہری ضلع حکومت، کراچی

(کونسل سیکریٹریٹ)

شہری ضلع کونسل، شہری ضلع حکومت، کراچی کے ملائی شدہ ماس اجلاس منعقدہ بروز ہفتہ مورخہ 15 دسمبر 2007ء میں منظور شدہ قرارداد

موضوع۔ کراچی ترویجی ترقیاتی منصوبہ Karachi Strategic Development Plan - 2020 کی تیاری پر جناب سید مصطفیٰ کمال، شہری ضلع ناظم، محترمہ نسرین جلیل، شہری ضلع نائب ناظم، اور جناب افتخار علی قائم خانی انتظامی ضلع آفیسر، ماسٹر پلان گروپ آف آفیسر، شہری ضلع حکومت، کراچی کو حکومت کی جانب سے ”سول ایوارڈ“ دیئے جانے سے متعلق قرارداد۔

مونسید۔ جناب سید خلیل احمد۔

مجوز۔ جناب عبدالجلیل۔

مورخہ 15 دسمبر 2007ء

قرارداد نمبر 313

”کراچی ترویجی ترقیاتی منصوبہ Karachi Strategic Development Plan-2020 کراچی کی تاریخ میں اپنی نوعیت کا پہلا ترقیاتی منصوبہ ہے جس کو شہری ضلع کونسل کی منظوری کے بعد قانونی حیثیت حاصل ہو گئی ہے۔ اس میں کراچی کے تمام مسائل کا احاطہ کرتے ہوئے ایک واضح پلان مرتب کیا گیا ہے۔ اس دستاویز پر عملدرآمد کی صورت میں شہر کراچی سے متعلق جملہ ترقیاتی کاموں پر اس کے گہرے اثرات پڑیں گے اور عوام اس سے فیضیاب ہونگے اس طرح یہ دستاویز ملک کے دیگر ضلع/شہری ضلع کے لئے مشعل راہ ثابت ہوگی۔

شہری ضلع کونسل، شہری ضلع حکومت کراچی کا آج کا یہ اجلاس ماسٹر پلان KSDP 2020 پیش کرنے پر جناب سید مصطفیٰ کمال، شہری ضلع ناظم، شہری ضلع حکومت کراچی، محترمہ نسرین جلیل، شہری ضلع نائب ناظم شہری ضلع حکومت کراچی، جناب افتخار علی قائم خانی انتظامی ضلع آفیسر و حافظ محمد جاوید ضلع آفیسر و متعلقہ افسران و عملہ ماسٹر پلان گروپ آف آفیسر، شہری ضلع کونسل کی ماسٹر پلان مانیٹرنگ کمیٹی کو KSDP 2020 کی تیاری پر دل کی گہرائیوں سے مبارکباد پیش کرتا ہے اور عملہ کی محنت اور کاوشوں کو سراہتا ہے۔

نیز شہری ضلع کونسل شہری ضلع حکومت، کراچی کا آج کا یہ اجلاس حکومت سے مطالبہ کرتا ہے کہ کراچی ترویجی ترقیاتی منصوبہ Karachi Strategic Development Plan-2020 کی تیاری پر جناب سید مصطفیٰ کمال، شہری ضلع ناظم، شہری ضلع حکومت، کراچی، محترمہ نسرین جلیل، شہری ضلع نائب ناظم، شہری ضلع حکومت، کراچی اور جناب افتخار علی قائم خانی انتظامی ضلع آفیسر، ماسٹر پلان گروپ آف آفیسر، شہری ضلع حکومت، کراچی کو ”سول ایوارڈ“ سے نوازا جائے۔“

قرارداد اتفاق رائے سے منظور کی گئی۔

(احسن احمد صدیقی)

پریزائیڈنگ آفیسر

شہری ضلع کونسل، کراچی تزویری ترقیاتی منصوبہ Karachi Strategic Development Plan - 2020 کی تیاری پر جناب سید مصطفیٰ کمال، شہری ضلع ناظم، محترمہ نسرین جلیل، شہری ضلع نائب ناظم، اور جناب افتخار علی قائم خانی انتظامی ضلع آفیسر، ماسٹر پلان گروپ آف آفیسر، شہری ضلع حکومت، کراچی کو حکومت کی جانب سے "سول ایوارڈ" دیئے جانے سے متعلق شہری ضلع کونسل، شہری ضلع حکومت، کراچی کی قرارداد نمبر 313 مورخہ 15 دسمبر 2007ء کی دودھ کا پیاں برائے فوری و ضروری کارروائی ضلع آفیسر (ہیومن ریسورسز مینجمنٹ)، شہری ضلع حکومت، کراچی کو ارسال کی گئی اور ایک ایک کاپی برائے اطلاع و ضروری کارروائی مندرجہ ذیل افسران کو ارسال کی جا رہی ہے۔

- 1- انتظامی ضلع آفیسر (ماسٹر پلان) گروپ آف آفیسر، شہری ضلع حکومت کراچی۔
- 2- انتظامی ضلع آفیسر (قانون)، شہری ضلع حکومت، کراچی۔
- 3- انتظامی ضلع آفیسر (انفارمیشن ٹیکنالوجی)، شہری ضلع حکومت، کراچی۔
- 4- ضلع آفیسر (کوآرڈینیشن)، شہری ضلع حکومت، کراچی۔
- 5- ضلع آفیسر (حسابات)، شہری ضلع حکومت، کراچی۔
- 6- ضلع آفیسر (بجٹ)، شہری ضلع حکومت، کراچی۔
- 7- ضلع آفیسر (میڈیا مینجمنٹ)، شہری ضلع حکومت، کراچی۔
- 8- سیکریٹری برائے شہری ضلع ناظم، شہری ضلع حکومت، کراچی۔
- 9- سیکریٹری برائے شہری ضلع نائب ناظم، شہری ضلع حکومت، کراچی۔
- 10- سیکریٹری برائے ضلع رابطہ آفیسر۔
- 11- اے ڈی ایل ایف اے۔

محفوظات احمد
17/12/07
ضلع آفیسر (کونسل)

محکمہ شہری ضلع حکومت (کونسل)
محکمہ شہری ضلع حکومت (کونسل)
محکمہ شہری ضلع حکومت (کونسل)

Annexure-VII

City Council Resolutions (Details of amendments)

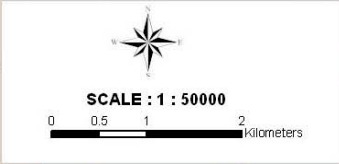
**CITY COUNCIL RESOLUTIONS
DETAILS OF AMENDMENTS**

Resolutions No. and Date	Subject	Chapter	Page No.
302 08.12.2007	Disaster Management	4.9 7.4.22	113 147
303 08.12.2007	Developing New Urban Centre	4.1.6 7.2.4	50 137
304 08.12.2007	Urban Agriculture	4.7 7.4.20	109 146
305 08.12.2007	Allocation of spaces for Graveyards	4.1.200 7.2.18	56 139
306 08.12.2007	Health Services	4.6.1 7.4.16	103 145
307 08.12.2007	Developing New Urban Centre	4.1.6 7.2.4	110 146
308 08.12.2007	Education Facilities	4.6.2 7.4.17	105 145
309 10.12.2007	Conservation of Heritage Sites	4.6.3 7.4.18	106 146
310 10.12.2007	Sports Culture and Recreations	4.6.4 7.4.19	108 146

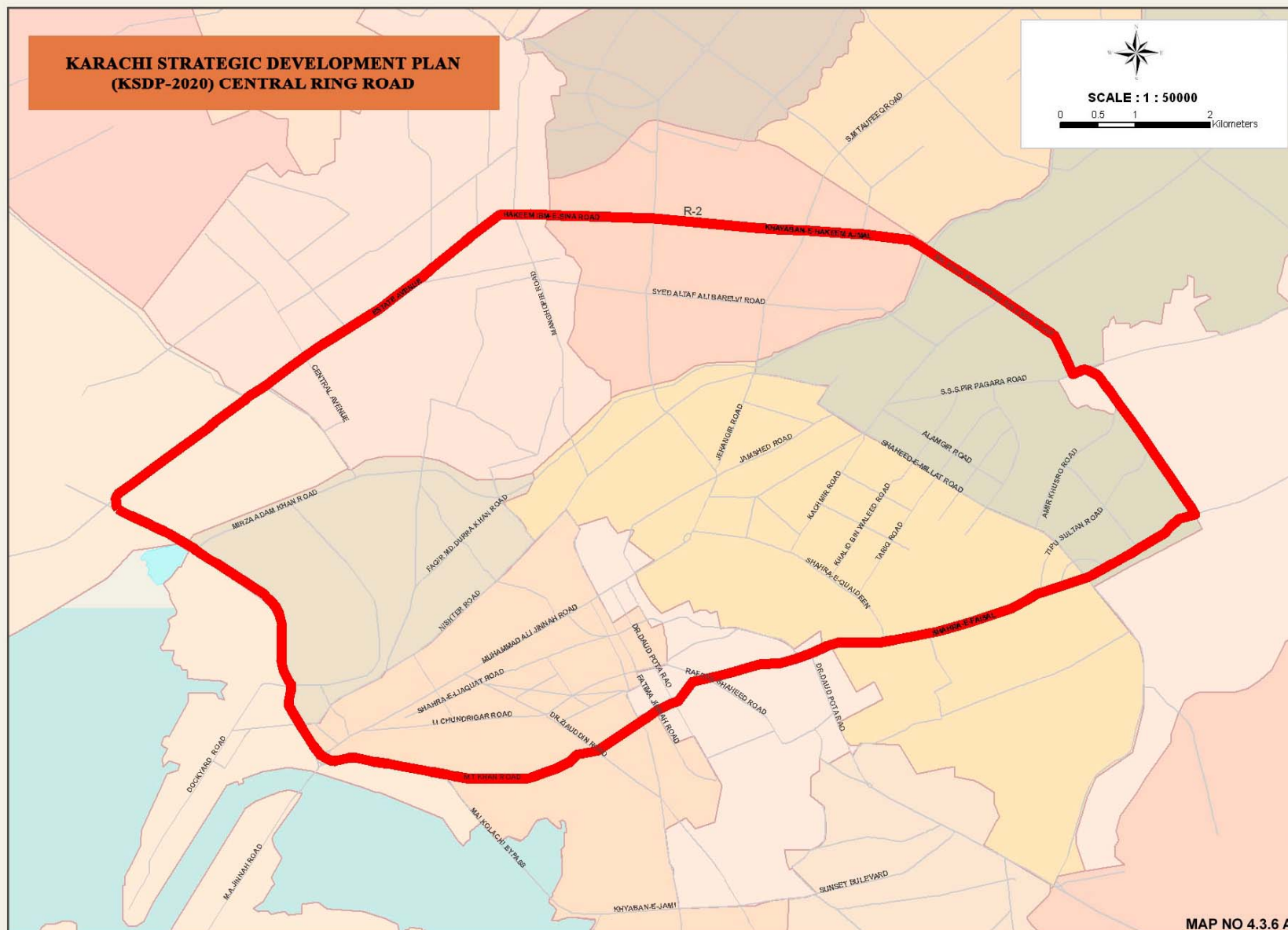
Annexure-VIII

Maps

**KARACHI STRATEGIC DEVELOPMENT PLAN
(KSDP-2020) CENTRAL RING ROAD**



SCALE : 1 : 50000



MAP NO 4.3.6 A

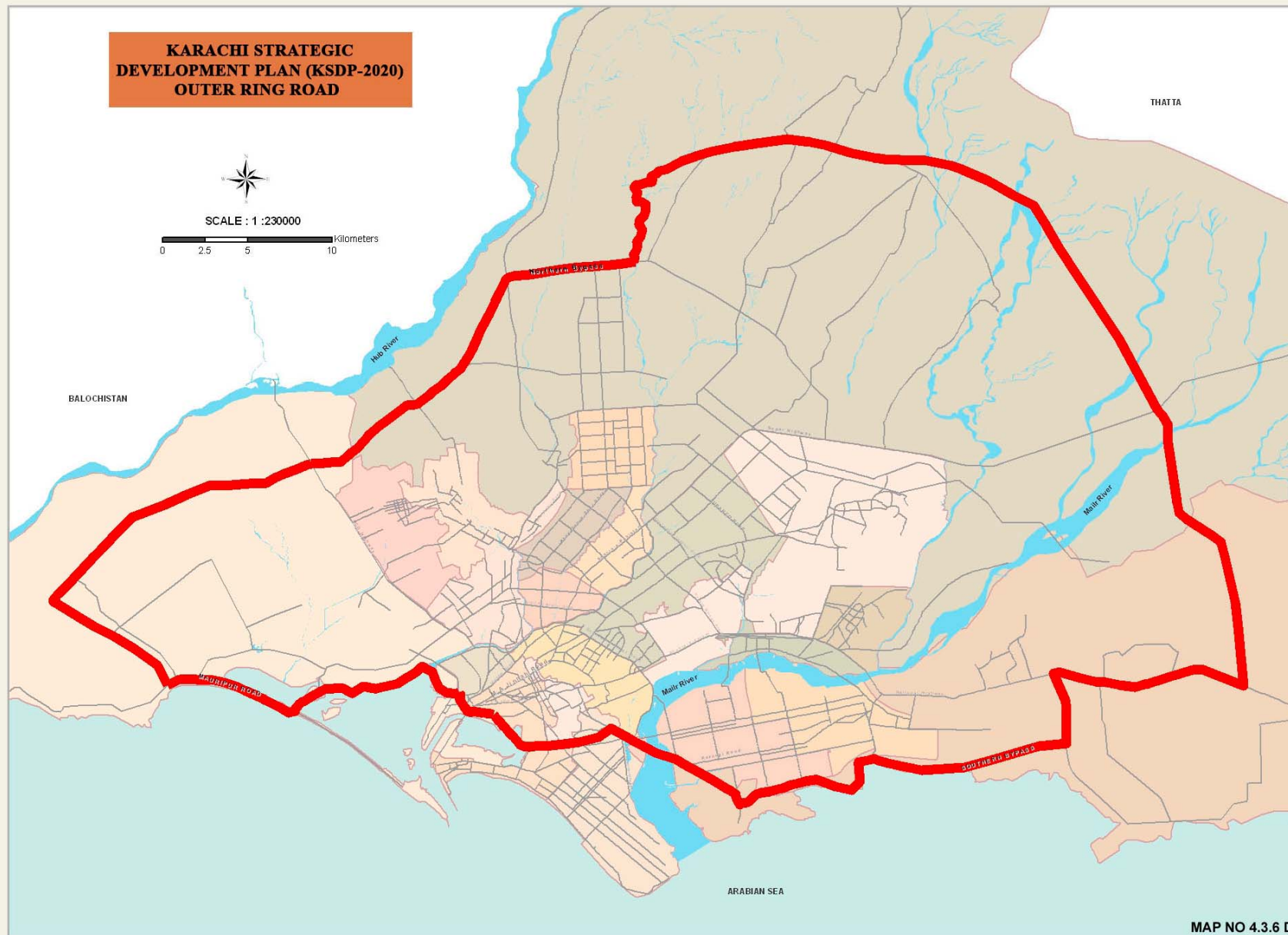
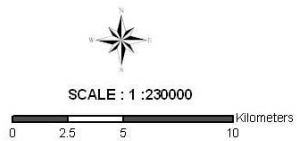
**KARACHI STRATEGIC
DEVELOPMENT PLAN (KSDP-2020)
INNER RING ROAD**



[illegible]

MAP NO 4.3.6 C

**KARACHI STRATEGIC
DEVELOPMENT PLAN (KSDP-2020)
OUTER RING ROAD**



MAP NO 4.3.6 D

