

A Quarterly Newsletter of ECIL

Signette



Volume IV, Issue 1, JAN - MAR-2009

Editorial Board

Chief Editor : *Wajahatullah Khan Lodi*

Members : *Khalid Mirza*
Naved Zaheer
Tahseen Ahmad
Ashraf Sulemany
Khalid W Shaikh
Syed Yawar Hussain

*Celebrating
50 years
of growth*



Message from the Chairman

On the Occasion of The New Year and the Golden Jubilee of ECIL



While we take this opportunity to extend our best wishes to you, your family and friends for a healthy, joyous and a peaceful 2009, it is also to inform you that 2009 marks the Golden Jubilee year of our Company.

The Golden Jubilee event is going to provide us with an opportunity to reflect on the role that we, as a company and each one of us as professional, have performed in developing our planet. The occasion will also enable us to revisit

our experiences spread over 50 years and set our vision for the next 50 years. This effort will require developing a shared vision, based on rich traditions and aspirations for an audaciously crafted strategy to develop a roadmap leading to successful future endeavors. This will obviously require blessings of the Almighty backed by spirited team efforts and patronage of our valued clients, friends and well-wishers. This occasion can not be fulfilled without honoring all those professionals and individuals who remained associated with the Company and contributed the best of their capabilities towards success of the company. We also passionately remember and ardently salute all those professionals and individuals who are not among us today; nevertheless, pearls of their wisdom and their ability to proliferate knowledge to their colleagues shall remain an

integral part of our memories and history of evolution of our Company. To achieve the desired objectives, it is necessary to seek inspiration from the past glories and aspire for a glowing future. The befitting theme, therefore, for this Golden Jubilee is "Glories of the Past; Inspirations for the Future". Our focus through 2009 will, therefore, evolve around the above-mentioned theme and all events, programs and documents will bear reflection of this paradigm.

While we keenly look forward to mutually beneficial interaction with our clients, well wishers and friends, through 2009 and beyond, we again wish them all, the very best. Let us seek the Almighty Allah's blessings in all our endeavors to build a better Pakistan. Ameen!

(ZAHEER MIRZA)
Founder Chairman

Editorial Notes

Here we are, as promised, bringing fresh news to our readers, of activities in ECIL in Pakistan and abroad. Having been honored with the "Special Achievement in GIS" Award in 2008, ECIL is going to celebrate its Golden Jubilee in 2009! Quite naturally, the occasion is going to be punctuated with special activities and festivities that would highlight the performance and achievements of EC/ECIL since 1959; when EC was established as one man professional firm. ECIL has come a long way since its inception and that is what we

will be focusing on, during this year. The occasion will be celebrated by organizing lectures and seminars, sponsoring exhibitions and competitions, publishing a special issue in engineering magazine, honoring professionals whose contributions remained "building-blocks" in development and evolution of the Company. Souvenirs and mementos will be presented to celebrate the occasion. No celebration is complete without festivity, and hence, get-togethers will be organized in major cities of Pakistan and UAE

to mark the culmination of the celebrations. Throughout the year, it would be our prime focus to thank the Almighty for rewarding our dedicated work and efforts for achieving our collective goals and objectives. We will take this opportunity to examine what we have achieved and what we could have achieved had we treaded a different path. A review is an essential part of success, progress and continued evolution, which we will share with our readers in the coming issues of Vignette.

Aftermath of

EARTHQUAKE

and the role of ECIL in Reconstruction of Schools and Health Infrastructure in the Affected Areas

Engr. Ruidar Ali, Chief Resident Engineer

The 2005 Earthquake (also known as the South Asian earthquake or the Great Pakistan earthquake) was a major physical phenomenon centred in Azad Kashmir (Pakistan-administered Kashmir) and in North West Frontier Province (NWFP). It

affected areas to help their countrymen. Commendable help was also provided by the international agencies and countries as such.

For engineers and related professionals the realities of earthquake got beyond the text books and

of help where needed. ECIL has acquired the requisite experience of design, supervision and the advantage of knowing the landscape and culture of the far flung areas, the logistics involved and the limitations of technology and ability of



Reconstruction of a Primary School at Kandi in progress

occurred on 8th of October 2005 at about 9 O'clock in the morning, Northern areas of Pakistan were shaken by one of the severest upheaval in history, in which nearly 80,000 people lost their lives.

The intensity of the shocks on Richter scale was recorded as 7.6. An estimated 3.3 million people living in the quake hit regions, lost their hearths and homes and were displaced. The severity of damage was attributed to severe up thrust and poor quality of construction. Pakistan was challenged with a daunting task of getting people back on their feet and rebuilding the infrastructure.

The immediate response from the nation was not only in shape of monetary help but huge quantities of food, clothing, medicines and tents were on their way to the affected areas. Unprecedented number of people, particularly the doctors and engineers responded to the call of the nation and moved to the

codes. It was devastation and disaster of a unique character. It was heartrending to see the effects of a mega earthquake and the behavior of structures that the residents had built under peculiar geographical conditions.

Unfortunately for many, most of the structures that were built there, were not designed by professionals and were based on the traditional building techniques that succumbed to the intensity of this devastating earthquake.

After the havoc, along with other organizations ECIL joined the relief work on humanitarian as well as professional fronts. On humanitarian level, apart from mobilizing the effort to help on organizational level, ECIL along with PRDS helped by cooperating with Federal Relief Commission and provided them a software application, based on GIS technology, deployed over internet. This proved a great help in organizing logistics and timely provision

contractors. These are the factors that make ECIL stand out among its competitors in the field. UNICEF, after going through a long and detailed procurement process for selecting consultants, has entrusted to ECIL, the task of designing and supervising the construction of 125 schools and 55 health facilities in four districts of AJK and three districts of NWFP.

ECIL has the experience of designing and managing primary schools construction under several programs and under various funding agencies such as USAID, KfW and WB etc. Our readers may be surprised to know that 10940 schools and fourteen hospitals in Balochistan, Sindh and NWFP have been designed and their construction supervised by the company. This has made ECIL an obvious choice for any agency interested in developing school infrastructure, particularly in earthquake prone area.

ECIL has acquired the requisite ex-

perience of design, supervision and the advantage of knowing the landscape and culture of the far flung areas, the logistics involved and the limitations of technology and ability of contractors. These are the factors that make ECIL stand out among its competitors in the field. UNICEF, after going through a long

ERRA, the Earthquake Rehabilitation and Reconstruction Authority have adopted the motto of "Build Back Better". This has been translated by ECIL in design and subsequently into reality. The schools and health facilities that are being constructed have been designed on revised earthquake codes and are

management and administration of the project.

It would be seen that the aim of "Building Back Better" is being pursued with full vigor and bringing into play the technology needed to make the schools and health infrastructure safe and durable for a long time to come.



At the same time, on the technical level, ECIL took stock of the works that were designed and constructed under its supervision, in the effected areas. It was noted with great satisfaction and relief that by the grace of Allah the Almighty, the valuable and honest work done by ECIL's professionals had paid off and almost 1842 primary schools designed and constructed under its top supervision, withstood the shocks and are still the manifestation of the skill and diligence of its professionals and management.

and detailed procurement process for selecting consultants, has entrusted to ECIL, the task of designing and supervising the construction of 125 schools and 55 health facilities in four districts of AJK and three districts of NWFP.

Among many challenges, the factor of logistics caused much hindrance in work. Most of the infrastructure had been destroyed, lack of office space, transportation, communication and suitable materials for reconstruction, all added to the difficulties of agencies trying to help in their own ways and means. All record of ownership was lost and it was impossible to identify who owned what and where? The situation made it difficult and even the UNICEF had to obtain the clearance from ERRA, the education department and the land department before it could clear a site and commence development activity.

architecturally in conformity with its environment and their intended use. The work spread out far and wide has been organized in a way to ensure effective quality control and adherence to work schedules.

Each junior site engineer is responsible for 6 to 10 work sites, depending upon the topography of the area. On the same basis, each senior site engineer is responsible for 20 to 30 sites.

The overall in charge of the project is the Resident Engineer. The junior engineers are responsible for day to day supervision, visiting each site say two to three times a week, depending up on his ability to move around. The senior engineer is supposed to visit each site at each important stage of construction.

The project in charge, the Resident engineer is responsible for overall control of supervision activity, the

MAZE OF LIFE

*Life is no straight
and easy corridor,
Along which we travel free
and unobstructed,
But a maze of passages,
Through which
we must seek our way,
Lost and confused, now and
again, Checked
in a blind alley,
But always, if we have faith,
A door will open for us,
Not perhaps
one that we ourselves,
Would ever have thought of,
But one that will ultimately,
Prove good for us and,
Open up a brilliant way.*

Karachi Strategic Development Plan

Afzal Ahmed Khan, Principal Town Planner

Karachi, a city comprising 1600 sq km of built up area, 18 towns, 178 union councils, and ever increasing population of 16 million, is one of the ten largest and fastest growing cities of the world. To design a strategy for such a mega city, with cross cutting issues, ECIL had been entrusted to develop a Strategic Plan 2020. This plan has to be integrated in the micro and macro environment and is in conformity with the Federal Government Vision of 2030.

Ever since the time of independence the city of Karachi has been spreading and growing in a disorderly fashion. Several development schemes were introduced by the erstwhile Karachi Development Authority without any effective control. Due to lack of legislative cover, none of the previous master plans could be materialized and thus Karachi kept expanding in all directions. Now after a lapse of six decades the situation demanded that the city's growth be brought under control.

The City District Government Karachi (CDGK) took the initiative and appointed a committee to draw up a strategy to harness the city's forces to work according to a plan based on scientific lines. ECIL was entrusted to prepare the plan in association of PADCO of USA. Thus a plan called the Karachi Strategic Development Plan (KSDP-2020) was drawn up and approved by the City Government in December 2007.

The Plan

It needs no emphasis that the population of Karachi, the 7th largest city in the world, is expected to grow to a formidable 27 million by 2020. The Master Plan KSDP-2020 sets out a strategic framework and directions of future development of the city over the next 12 years. ECIL shared vision of CDGK to

transform Karachi into a "World-class city, an attractive centre for economic growth, with a decent life for its citizens". To achieve this aim appropriate strategies have been evolved to ensure the growth of high class amenities, in the way of competitive activities, regulatory environment and well-functioning infrastructure, serving all fields of public life.

The KSDP-2020 identifies the issues and the challenges of population growth. Uncontrolled urban sprawl ends up with land speculation, on the other hand housing back log is generated because of lack of affordability on the part of the target population. Scarcity of public education facilities, health services, transport, potable water supply, Sewage disposal and above all shortage of electric energy were adversely affecting public life and needed upgrading. While taking care of all these, the Master Plan conforms to and improves the existing demographic and landscape character. Karachi, like all other major cities, is growing in the context of a change driven by global economic, social and political forces.

These comprise the economics the integration, liberalization and new competitive dynamics playing their respective roles in development activities. Being the largest driver of national economy, development of Pakistan rests on the economic health of Karachi. The city is facing problems of overcrowding, concentration of economic activities in the city centre and in fifteen other townships. Influx of migrant workers and emergence of the city of Katchi Abadis has become a norm of the city life, overloading the existing public services and aggravating the difficulties of human living. These issues have been addressed through scientific planning, and discovering

ground realities, with out-of-the-box thinking and public participation. To start with, the infrastructure of inner towns needs to be redesigned and updated for functional efficiently.

Regeneration and Revitalization

The Karachi Strategic Development Plan (KSDP 2020) lays emphasis on regeneration and revitalization of the inner city and the Central Business District (CBD), relying on mixed use development wherever required in the plan. The aim is to establish new economic and civic centers in different towns, astride the Northern Bypass and other axes of transportation and communication. This would lead to up-gradation of existing civic centers in inner town, new financial districts, education city, health city and additional industrial zones. The plan also recommends integrated and comprehensive land use plans for other land holding agencies like cantonments, DHA, PQA, Pakistan Steel Mills, Pakistan Railways and Karachi Port Trust.

Further more the plan also conforms to Karachi's physical landscape and its social and demographic character by accommodating existing authorized Goths and old villages by upgrading their infrastructure and amenities. Efforts will be made to accelerate the complete the notified schemes, develop the water front with high rise condominiums, new economic centers and above all up-gradation and regularization of Katchi Abadis.

Execution of the Plan

Implementation of the Strategic Development Plan will be the responsibility of the CDGK. A Steering Committee and a Development Control Committee will exercise powers of overseeing, coordinating and selective implementation functions. Master Plan Group of

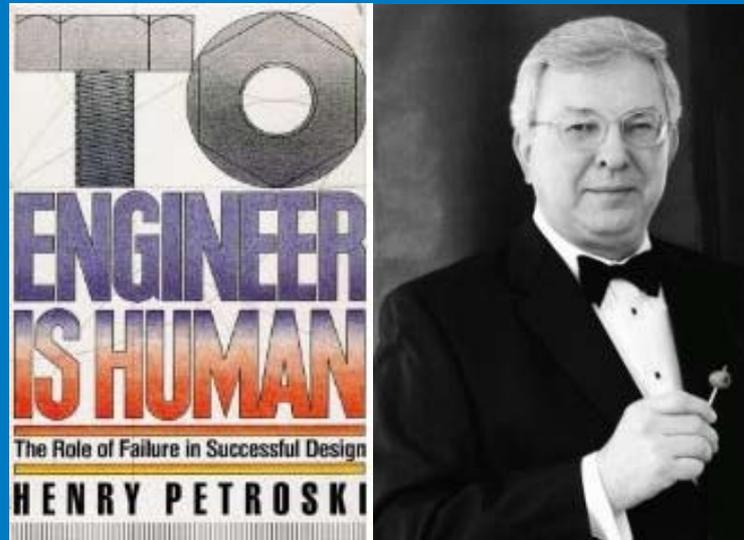
Officers will also be made an effective agency to ensure that planning and development decisions are taken in conformity with KSDP-2020. The implementation of the master plan will be based on a large number of activities, to take place at appropriate locations and timings. However some of the critical aspects of the plan are reflected in the following details.

- Appropriate use of land covered by the Master Plan.
- Enabling densification and vertical development of existing residential areas.
- Policy of urban renewal by regenerating the inner city.
- Incorporation of existing Goths into urban fabric.
- Development of city entry points.
- Decentralization of financial districts.
- An additional site for Karachi international airport.
- Education city.
- Mass Transit improvement.
- Roads and Highways improvement by creating signal free corridors and ring roads.
- Water Supply and Sewerage improvement.
- Solid Waste management.
- Improvement of Health Services.
- Improvement in generation and distribution of electrical power.
- Conservation of heritage site.
- Development of urban agriculture.
- Water front development and recreation centers.
- Disaster management.

BOOK REVIEW TO ENGINEER IS HUMAN

The Role of Failure in Successful Design

Reviewed by: Wajahatullah Khan Lodi



Reviewers at *Houston Chronicle* stated that "Reading Petroski's fine books is not only a delight, it is a necessity". And indeed it is. The book that we present in this issue of Vignette is one of the best selling books by Henry Petroski titled "To Engineer is Human". Petroski is an engineer with passion for perfection. He has made it his hobby to investigate structures and structural failures. What he writes is serious, probing and occasionally inducing fear among the readers. He takes the reader deep into the labyrinth of the causes of failure, in language that is captivating and almost delectable to read. He has an intrinsic skill to paint realistic pictures of how and what went wrong and where. In short, through his masterly style he proves that failure is the foundation of success, no matter what the undertaking is.

The book presents a novel idea, how to succeed through failure. The author has taken great pains in describing serious and fatal failures in structures designed by engineers of professional competence. His accounts of true happenings of structural failures, give an insight and access to hidden clues discovering faults that caused failures. The author excels in his approach to make a point that failure is the foundation of success. It teaches the engineer what can go wrong in an apparently accurate and pragmatic design.

According to a Professional Forensic Analyst, "... this book is a great read if you want to find out what the business of failure analysis is. It is perfect for our young engineers and for those who have an interest in the forensics of hardware like aircraft, bridges, and other structures." The book, therefore, is a must read for all engineers, particularly those concerned with design. Anyone reading "To Engineer is Human" is bound to look for the other titles and discover the role of failure leading to successful design. Go ahead and enjoy serious, amusing, incisive and occasionally frightening but fascinating scenarios. Henry Petroski has written several books in his inimitable style, which includes;

The Evolution of Useful Things: How Everyday Artifacts-From Forks and Pins to Paper Clips and Zippers-Came to be as They are
Invention by Design; How Engineers Get from Thought to Thing
Success through Failure: The Paradox of Design
The Toothpick: Technology and Culture
Book on the Bookshelf
The Pencil: A History of Design and Circumstances
Remaking the World: Adventures in Engineering
Engineers of Dreams: Great Bridge Builders and the Spanning of America
Small Things Considered: Why There is No Perfect Design
Design Paradigms: Case Histories of Error of Judgment in Engineering
Pushing the Limits: New Adventures in Engineering

We wish you several engrossing and learning reading sessions!

DEVELOPMENT OF INFRASTRUCTURE FACILITIES AT GWADAR SEAPORT

Col (R) Muhammad Siddique - General manager (C&CM)

The Third deep water sea port of Pakistan at Gwadar, is situated on Makran coast in Balochistan province, at a distance of 460 km west of Karachi, 120 km east of Pak-Iran border. The port situated at the entrance of Persian Gulf, just outside the Strait of Hormoz, enjoys a high strategic and commercial importance. The Government's decision to develop this port was aimed at increasing the economic development of Balochistan province and creating an access to warm waters of Arabian Sea, for Afghanistan and the Central Asian Republics. A secondary objective was to reduce the load at sea ports of Karachi and Bin Qasim, particularly foreseeing the future increase in commercial and trading activities.

Although the idea of building a port was pretty old but practical steps started taking shape in mid nineties and construction activities commenced in 2002. Gwadar Port project was planned to be executed in two phases. Phase – I has been completed in 2008. Phase – II of the port complex is yet to be planned. Phase-1 comprised the following works:

- Three berths of 200 meters length each for roll on and roll off vessels.
- A 100 meter long service berth.
- A 4.5 meter wide and 12.5 meter deep approach channel demarcated with buoys and leading lights and turning circle berth area.
- Cargo handling and other operational facilities.
- A five storey Gwadar Port Authority building and other ancillary structures.

ECIL were awarded the contract for supervision of construction of the following works of Phase-I that have been completed and handed over. Utility Services and Ancillary Buildings include the following:

- * Control Tower building
- * Electric Substation
- * Maintenance Workshop
- * 2.2 Km long access road,
- * Vehicle wash bay
- * Sewage Treatment Facility



Gwadar Port Authority Head Office Building

- * Vehicle Service Garage
- * Security fence.
- * Security Building
- * Sea water tank
- * Operational building
- * Oil depot
- * Fire House
- * Waste water treatment plant.
- * Mosque
- * Vehicle washing bay, water tank & pump house
- * Guard House
- * Fuelling Station
- * Covered pathway

ing consists of ground plus two floors.



Control Tower Building

A RCC framed structure, supported on 92 pre-cast piles Foundation, with a covered area of 565 square meters. The building consists of ground plus five floors. A 35 meters high VHF/VTS Radio Antenna Tower is installed on roof top. The construction meets the requirement of Uniform Building Code of US, Applicable AASHTO Specification, ASTM, BSS and Pakistan Building Code. All facilities like air conditioning, passenger lift and stair case etc have been provided. Building specifications cater for comfortable working conditions in harsh local climate.

Gwadar Port Authority Head Office Building is RCC framed structure constructed on 128 cast in situ piles foundation, having a covered area 5076 square meters. It is five storey building equipped with all facilities needed for comfortable working environment. Building specifications conform to the requirement of Uniform Building Code of US, Applicable AASHTO Specification, ASTM, BSS and Pakistan Building Code to ensure a long lasting building life and beautiful appearance.



Operations office and Canteen Building

This is a RCC framed structure supported on 56 pre-cast concrete and 57 cast in situ RCC piles foundation. The building has a covered area of 565 square meters. It is three storey build-

Construction work is based on Uniform Building Code of US, Applicable AASHTO Specification, ASTM, BSS and Pakistan Building Code that ensure comfortable working conditions.

news items

Golden Jubilee of ECIL

ECIL is celebrating the Golden Jubilee in 2009, the Fiftieth year of its emergence in the field of Engineering Consultancy in Pakistan. The occasion will be highlighted by holding of various events in the shape of seminars, lectures, instituting Golden Jubilee Scholarship and issuance of a Special Issue of a newspaper, culminating in holding of grand dinner parties at suitable venues, in November & December 2009. The theme of all the events will be to highlight the importance and benefits of consulting profession as well as the achievements of ECIL during the last fifty years. The experience gained over the past fifty years will be the harbinger of a bright future of ECIL for the company's greater participation in meeting new challenges bound to appear in nation building activities.

Construction of a new Airport at Bukhara – Uzbekistan

An airport is to be constructed at Bukhara, to be financed by the Sheikh of Dubai. It is likely to be a joint venture between ECIL and Ashfaq Associates and planning work is to commence in near future. The new airport will cover an area of 25000 Sq Meters, costing 25 Million Dollars.

Airport in Thar Area

A new airport is also coming up at Islamkot in Thal Area of Sindh province. The project has been approved by Government of Sindh, to facilitate communication for future development of coal fired power generating Plants. Work is likely to begin in the immediate future and the project cost is estimated at Rs. 1 billion. Completion time reflected in the work schedule is 18 months.

Smile

A young man visiting a library enquired from the lady on the counter saying "Where can I find the SELF HELP section" the lady responded " If I told you that, it would defeat the very purpose

QUOTABLE QUOTES

- Opportunity is swift of flight but slow to return
- Lead alive so that people long for your company and mournfully remember you when you are no more.
- Courtesy costs nothing but buys everything.
- Honour your parents and your children will honour you.
Hazrat Ali (RA)
- Destiny is not a matter of chance, it is a matter of choice; it is not a thing to be waited for; it is something to be achieved.
William Bryant
- Enjoy your own life without comparing it with others.
C. C. Colton
- Age is matter of feeling; not of years.
George W. Curtis



Professor Saeed. A Khan of Karachi University delivered a lecture to ECIL professionals, in October 2008. The topic was "Application of Environment In Engineering Design"

Overview of Workload

SOME OF INTERNATIONAL PROJECTS IN HAND



Feasibility Study And Detailed Design For The Rehabilitation And Reinstatement Of Ruwais Housing Complex Au Dhabi UAE:

Abu Dhabi National Oil Company (ADNOC) initiated a feasibility study followed by detailed engineering design for the reinstatement of old Ruwais Housing Complex which was commissioned in 1979. Project comprises the rehabilitation of all components i.e. Structures, Roads and all services. The project area is spread over an area of 2 Sq. Km (Abu Dhabi National Oil Company, ADNOC, Dorsch Gruppe GmbH)

Meydan Development Project:

Design of Infrastructure including roads and services, over area of 160 Hectares, mixed used development comprising of Horse Training Tracks, Residential and Commercial Buildings (Theo A. King Design Consultant TAK, Meydan Development)

Ras Trompy Development Project, Marsa Alam Egypt:

Preparation of Feasibility Study and Infrastructure Design in order to draw up a Master Plan for a mixed use development over an area of 3500 hectares, intended to be built in Egypt. (Parsons, Brinckerhoff and Bovis Land Lease)

Meydan City Development, Dubai, UAE

Design of 15 Km of roads and street lighting, for a 150 Hectare, mixed used development comprising Residential and Commercial Buildings (Theo A. King Design Consultant TAK, Meydan Development)

South Shamkha Development Abu Dhabi, UAE:

Design of Complete infrastructure including 175 Km of road network and services for a mixed used facility comprising residential and commercial buildings. Area of the proposed development assigned to ECIL is 17.5 Sq. Km. (UPC, Government of Abu Dhabi)

Al Dhafrah Development Abu Dhabi, UAE:

Design of complete infrastructure including roads and services. The proposed development covers an area of about 350,000 Sq.Meters. ECIL's scope of services also includes the Environmental Impact Assessment and Traffic Impact Study. (UPC, Government of Abu Dhabi)

SOME ON GOING PROJECTS IN PAKISTAN



Karachi University Master Plan 2050:

Karachi University Master Plan is being prepared to meet the requirements upto 2050. It covers an area of about 1350 acres. The project includes topographic survey of entire area, preparation of concept / land use plan, detailed planning / re-planning of entire area. Preparation of cost estimates and tender documents to meet the project requirements up-to year 2050, form part of the project.

PQA Main Access Road:

ECIL has been awarded the detail design of dualization of Main Access Road to the Pakistan's second largest Port in Pakistan at Bin Qasim. An interchange linking it to the National Highway is also part of the project.

SURVEY, PLANNING, DESIGN & SUPERVISION MANAGEMENT OF TAISER TOWN (20570 ACRES), FOR MDA:

The Taiser Town happens to be the second largest housing scheme of Pakistan that provides housing to 2500,000 people. The Project involves Topographic survey, Environmental Study, Soil Investigation, Hydrological Study, master Planning including consolidation up to neighborhood Plans. Tender Documentation and Construction Management of Infrastructure Development Works are also to be provided.

Project Management & Construction Supervision Of Schools & Health Facilities In Earthquake Affected Areas:

In the wake of devastating Earthquake of October 2005, like some other donor agencies, UNICEF also came forward with a programme for construction of 125 Schools & 55 Health Facilities in AJK & NWFP. The Project involves Feasibility Study & Technical Assessment Survey of the Facilities, Planning & Design, Tender Documentation, Tendering & Award of the Works and Construction Management of Works Executed.

Deepening And Widening Of Port Qasim Navigation Channel:

Design vetting and supervision of dredging work of 30 million m3 for deepening and widening of Port Qasim Navigation Channel. The work is progressing in association with Louis Berger USA.

