

**MAJOR WORK DURING LAST TEN YEARS WHICH BEST
ILLUSTRATES QUALIFICATIONS**

Project Data Sheet No.38

Page 1 of 2

Assignment Name: Construction Supervision Services for Contract Package I (35 Km) of Khuzdar Shahdadkot Section of Gwadar Ratodero Motorway.		Country: Pakistan
Location within Country: Province of Balochistan		Number of person-months of the entire project: 1050
Name of Client: National Highways Authority, Government of Pakistan - # 28, Mauve Area, G-9/1, Islamabad		Total value of full project (in million US\$): US \$ 12.20 million
No. of Staff: 15		No. of persons-months: 990
Start Date (Month/Year): September 1994	Completion Date (Month/Year): January 2001	Approx. Value of Services (in million US\$): US \$ 1,085,000/-
Name of Associated Firm (s), If Any: M/s Irshad Nabi & Associates, Pakistan		No. of Months of Professional Staff Provided by Associated Firm (s): 60
Names of Key Experts of the firm (Project Director/Coordinator, Team Leader) Involved and Functions Performed: Resident Engineer, Assistant Resident Engineers, Material Engineers, Site Engineers, Laboratory Technicians, Surveyors, Quantity Surveyors. All staff was deployed to provide fulltime supervision, contract administration, quality control and assurance on behalf of the Client.		
Brief Narrative Description of Project: Construction supervision of the first 35 kilometers section of the Gwadar Ratodero Motorway between Khuzdar and Shahdadkot (208 kms) designed by ACC (Pvt) Ltd. This project is of great regional and international importance as it is a part of the proposed Gwadar Ratodero Motorway linking the new Gwadar Port to the main highway networks of Pakistan. Section traverses hilly to mountainous terrain and includes large cut sections and two major bridges. In this Contracts, ACC was the Engineer for the Project, and the interpretation, and implementation of the COCs was the responsibility of the Engineer on behalf of the Client. The COCs and bidding documents are based on FIDIC sample documents.		
Description of Actual Services Provided: The following supervision tasks were carried out during the course of the project as designated Engineer: <ul style="list-style-type: none"> • Staking out, verification of PRM and permanent benchmarks. • Soil investigations and approval of borrow areas including particle size analysis, CBR, atterberg limits, salt contents, water table determination and other standard tests, approval of quarries and related analyses of materials. • Assist client in land acquisition proceedings. • Testing of materials brought on site like steel, cement, asphalt, aggregates etc. • Insitu testing of densities and compaction using AASHTO standards. • Preparation and approval of Concrete Mix Designs and testing of Concrete. 		

**MAJOR WORK DURING LAST TEN YEARS WHICH BEST
ILLUSTRATES QUALIFICATIONS**

Project Data Sheet No.38

Page 2 of 2

- Preparation and approval of Job Mix Formulae for Asphalt.
 - Quality Control/Quality Assurance
 - Review and adjustments to geometric design and design of structures as per site requirements.
 - Liaison with the client and keeping him abreast of day to day problems and progress of works. Informing him ahead of time regarding contractual problems, delays and anticipated bottlenecks. Assisting the contractor in improving his logistics and methodology.
 - Checking of Shop Drawings and approval of plans/programmes.
 - Maintenance planning and supervision of execution after completion of project.
 - Evaluation of Contractors Claims
- Checking and verifying IPCs and overall contract administration.

Type of Services provided:

Soil Surveys, Topographic Surveys, Technical Studies, Design – Architectural / Engineering / Industrial etc., Soil Mechanics and Foundation Engineering, Hydraulics Studies and Engineering, Quantity Surveying / Cost Estimating, Estimation / Preparation of Contract Documents and Bid Evaluation, Structural Engineering, Supervision/Inspection of Construction, Project Management / Administration (on behalf of owner), Material Testing, Quality Control, Maintenance Planning, Project Monitoring and Evaluation.

Fields of Specialization:

Agriculture & Rural Development Sector:

Flood/River Control Works

Construction Industry Development Sector:

Construction Management

Transportation Sector:

Highway Planning & Programming, Highways, New Highways/Improvements & Reconstruction, Primary Roads, New Structures/Reconstruction, Bridges (Road Transportation Facilities), Maintenance of Highways, Highways Safety.

**MAJOR WORK DURING LAST TEN YEARS WHICH BEST
ILLUSTRATES QUALIFICATIONS**

Project Data Sheet No.37

Page 1 of 2

Assignment Name: Design Vetting & Supervision Services for Overlay on National Highway N-5 between Lahore to Okara (40) kms, including Rehabilitation / widening of Structures & improvement of Urban Areas - Pavital Sections, Phase III.		Country: Pakistan
Location within Country: Province of Punjab		Number of person-months of the entire project: 290
Name of Client: National Highways Authority, Government of Pakistan - # 28, Mauve Area, G-9/1, Islamabad		Total value of full project (in million US\$): US \$ 9.60 million
No. of Staff: 7		No. of persons-months: 260
Start Date (Month/Year): February 1996	Completion Date (Month/Year): December 2000	Approx. Value of Services (in million US\$): US \$ 290,000/-
Name of Associated Firm (s), If Any: None		No. of Months of Professional Staff Provided by Associated Firm (s): Nil
Names of Key Experts of the firm (Project Director/Coordinator, Team Leader) Involved and Functions Performed: For design vetting: Sr. Design Engineer, Pavement Design Engineer, Quantity Surveyor, Surveyors, Material Engineer and other support staff were deployed. For Supervision One Senior Resident Engineer, Laboratory Technician, Quantity Surveyor, Site Engineer and a Senior Surveyor were deployed to provide Quality Assurance/Quality Control and Contract Monitoring on behalf of the Client.		
Brief Narrative Description of Project: Design and Construction Monitoring of Improvement of a 40 km section of National Highway N-5 between Lahore and Okara. The design vetting of this road was also carried out by ACC (Pvt) Ltd. The project is unique in Pakistan as it is based on stabilized catalyzed base product which is a patented material developed by M/s Pavital SpA (Italy). The pavement structure has been provided a full guarantee of five years by the contractor. Phase III of the project consisted of rehabilitation by direct overlay of 7.3 meters wide pavement with 3 meter shoulders and improvement of drainage and urban areas over a length of 40 kms on N-5 maintenance / rehabilitation priority sections. ACC was the nominated Engineer for the project, and responsible for the interpretation and implementation of the COCs on behalf of the client. The COCs and bidding documents were based on FIDIC sample documents.		
Description of Actual Services Provided: In design ACC provided surveying, field testing, soil studies, NDT/FWD testing and evaluation, traffic studies and forecasting, axle load studies and design EASLs analysis, cross drainage requirements and design of structures, vetting of pavement design and drawings prepared by the Contractor. Detailed analysis and design of Urban Areas, design of storm water drainage in urban areas, design of intersections, signs, channelization, bus bays, lighting etc., and design of other improvements for better traffic flow in highly congested areas was carried out by ACC.		

**MAJOR WORK DURING LAST TEN YEARS WHICH BEST
ILLUSTRATES QUALIFICATIONS**

Project Data Sheet No.37

Page 2 of 2

The following supervision monitoring tasks were carried out:

- Staking out, verification of PRM and permanent benchmarks.
- Soil investigations and approval of borrow areas including particle size analysis, CBR, atterberg limits, salt contents, water table determination and other standard tests, approval of quarries and related analyses of materials.
- Testing of materials brought on site like steel, cement, asphalt, aggregates etc.
- Insitu testing of densities and compaction using AASHTO standards.
- Preparation and approval of Concrete Mix Designs and testing of Concrete.
- Preparation and approval of Job Mix Formulae for Asphalt.
- Review and adjustments to geometric design as per site requirements.
- Liaison with the client and keeping him abreast of day to day problems and progress of works. Informing him ahead of time regarding contractual problems, delays and anticipated bottlenecks.
- Evaluation of Claims
- Project Monitoring
- Maintenance Planning and programming after completion
- Supervision of Maintenance works execution
- Checking and verifying IPCs and overall contract administration.

Type of Services provided:

Hydrological Surveys, Soil Surveys, Topographic Surveys, Planning Studies, Technical Studies, Design – Architectural / Engineering / Industrial etc., Soil Mechanics and Foundation Engineering, Hydraulics Studies and Engineering, Quantity Surveying / Cost Estimating, Estimation / Preparation of Contract Documents and Bid Evaluation, Structural Engineering, Supervision/Inspection of Construction, Project Management / Administration (on behalf of owner), Material Testing, Quality Control, Project Monitoring and Evaluation.

Fields of Specialization:

Construction Industry Development Sector:
Construction Management

Transportation Sector:

National/Regional/Multimodal Transportation Planning, Traffic/Origin-Destination Surveys, Demand forecasting, Highway Planning & Programming, Highways, New Highways/Improvements & Reconstruction, Primary Roads, New Structures/Reconstruction, Bridges (Road Transportation Facilities), Maintenance of Highways, Organization/Funding & Programming, Highways Safety.

Urban Development Sector:

Traffic Management, Signs & Signalization, Channelization, Traffic Flow Regulation Measures, Area Traffic Control Schemes.

**MAJOR WORK DURING LAST TEN YEARS WHICH BEST
ILLUSTRATES QUALIFICATIONS**

Project Data Sheet No.36

Page 1 of 2

Assignment Name: Supervision Services for the Construction of National Highway N-40 between Dalbandin and Nokkundi, 88 Kilometers, Section III-B		Country: Pakistan	
Location within Country: Province of Balochistan		Number of person-months of the entire project: 1040	
Name of Client: National Highways Authority, Government of Pakistan - # 28, Mauve Area, G-9/1, Islamabad		Total value of full project (in million US\$): US \$ 37.00 million	
No. of Staff: 52		No. of persons-months: 1040	
Start Date (Month/Year): February 1994	Completion Date (Month/Year): September 2000	Approx. Value of Services (in million US\$): US \$ 1,440,000/-	
Name of Associated Firm (s), If Any: None		No. of Months of Professional Staff Provided by Associated Firm (s): Nil	
Names of Key Experts of the firm (Project Director/Coordinator, Team Leader) Involved and Functions Performed: The senior staff includes Resident Engineers, Assistant Resident Engineers, Material Engineers and Quantity Surveyors. All staff was deployed to provide contract administration and quality control and assurance on behalf of the client.			
Brief Narrative Description of Project: Construction of Section III-B (88 Kms) was a part of improvement of National Highway N-40 from Lakhpass to Nokkundi. The design of this highway was also carried out by ACC (Pvt) Ltd., This project was of great regional and international importance as it was a part of the National Highway N-40 and also of the RCD Highway which constitutes the countries only land link with Iran, Turkey and onwards to Europe. The project was located in a very remote area of Pakistan with logistics support being provided over a distance of 1600 kilometers. Highway consists of 7.3 meters wide asphaltic pavement with 3meter shoulders on both sides. In this Contract, ACC was the nominated Engineer for the Project, and the interpretation and implementation of the COCs was the responsibility of the Engineer on behalf of the Client. The COCs and bidding documents are based on FIDIC sample documents. The works were awarded to M/s Stratus IRDO J.V. Iran.			
Description of Actual Services Provided: The following supervision tasks were carried out during the course of the project: <ul style="list-style-type: none"> • Staking out, verification of PRM and permanent benchmarks. • Soil investigations and approval of borrow areas including particle size analysis, CBR, atterberg limits, salt contents, water table determination and other standard tests, approval of quarries and related analyses of materials. • Assist the client in land acquisition proceedings. • Testing of materials brought on site like steel, cement, asphalt, aggregates etc. • Insitu testing of densities and compaction using AASHTO standards. • Preparation of Concrete Mix Designs and testing of Concrete. • Preparation of Job Mix Formulae for Asphalt. • Review and adjustments to geometric design and design of structures as per site requirements. • Liaison with the client and keeping him abreast of day to day problems and progress of works. Informing him ahead of time regarding contractual problems, delays and anticipated bottlenecks. Assisting the contractor in improving his logistics and methodology. • Evaluation of Contractor's Claims • Checking and verifying IPCs and overall contract administration. 			

**MAJOR WORK DURING LAST TEN YEARS WHICH BEST
ILLUSTRATES QUALIFICATIONS**

Project Data Sheet No.36

Page 2 of 2

Type of Services provided:

Design – Architectural / Engineering / Industrial etc., Soil Mechanics and Foundation Engineering, Hydraulics Studies and Engineering, Quantity Surveying / Cost Estimating, Estimation / Preparation of Contract Documents and Bid Evaluation, Structural Engineering, Supervision/Inspection of Construction, Project Management / Administration (on behalf of owner), Material Testing, Quality Control, Project Monitoring and Evaluation.

Fields of Specialization:

Agriculture & Rural Development Sector

Flood/River Control Works

Construction Industry Development Sector:

Construction Management

Transportation Sector:

Highway Planning & Programming, Highways, New Highways/Improvements & Reconstruction, Primary Roads, New Structures/Reconstruction, - Bridges (Road Transportation Facilities), Maintenance of Highways, - Execution (Highways), Highways Safety.

**MAJOR WORK DURING LAST TEN YEARS WHICH BEST
ILLUSTRATES QUALIFICATIONS**

Project Data Sheet No.35

Page 1 of 2

Assignment Name: Highway Rehabilitation and Maintenance Project – Medium Term Highway Sector Investment Plan, World Bank (PK-PE-10539)		Country: Pakistan	
Location within Country: Islamabad		Number of person-months of the entire project: 2	
Name of Client: The World Bank - 20-A Shaharah-e-Jamhuriat, G-5/1, Islamabad, Pakistan / National Highway Authority, # 28 Mauve Area, G-9/1, Islamabad		Total value of full project (in million US\$): US \$ 1000.00 million	
No. of Staff: 2		No. of persons-months: 2	
Start Date (Month/Year): November 1999	Completion Date (Month/Year): January 2000	Approx. Value of Services (in million US\$): US \$ 10,000/-	
Name of Associated Firm (s), If Any: None		No. of Months of Professional Staff Provided by Associated Firm (s): Nil	
Names of Key Experts of the firm (Project Director/Coordinator, Team Leader) Involved and Functions Performed: Team Leader/Contracts Specialist and Transport Economist were provided to carry out an in depth portfolio analysis of all projects being undertaken/planned by National Highways Authority and to develop a medium term highway sector investment plan.			
Brief Narrative Description of Project: Carried out a World Bank funded study for the rationalization and prioritization of the National Highway Authority, Government of Pakistan on going and planned projects. This study included a complete economic analysis of over 100 ongoing and planned projects of NHA including review of Procurement Contract Documents, Special Conditions of Contract and BOT/Concession Agreement. Prioritization and rationalization of the projects planned was done for a 5 years horizon. A detailed study of the internal and external debts for NHA projects was also carried out.			
Description of Actual Services Provided: Review of a USD \$ 6 billion development portfolio of National Highway Authority, Government of Pakistan. Assignment focused on critical review and analysis of over 54 FIDIC based existing contracts, five O&M concession agreement pertaining to infrastructure assets and over 52 new projects already in the pipeline. Carried out detailed capacity analysis, determined demand, allocation & releases of NHA's PSDP (Public Sector Development Program) & future projections. Analyzed and forecast Revenue Streams, prepared Amortization Schedules for Funded/Aided Projects. Carried out detailed economic/financial analysis, cost benefit analysis, determined NPV/\$ invested of all projects and developed a Rationalized and Prioritized Medium Term Program for the National Highways. Specifically:- <ul style="list-style-type: none"> ▪ Reviewed NHA development and maintenance plans, progress on projects ▪ Reviewed budgetary and constraints/financing plans ▪ Analyzed contractual obligations for each project – with focus on liabilities, claims, and issues related to curtailment, phasing or deletion of each project. ▪ Identification and listed criteria for inclusion of schemes in the core investment and maintenance program (CIMP) for NHA. ▪ Incorporated priority maintenance needs as identified by existing studies. ▪ Prepared 5 year revenue projections for NHA based on likely PSDP allocations (linked to GDP growth), toll revenues, road maintenance fund levies, private sector funding and other possible sources. 			

**MAJOR WORK DURING LAST TEN YEARS WHICH BEST
ILLUSTRATES QUALIFICATIONS**

Project Data Sheet No.35

Page 2 of 2

- | |
|----------------------------------------------------------------------------------------------------------------------------|
| ▪ Provided summary recommendations for a medium term (5 year) highway sector investment program with clearly defined CIMP. |
|----------------------------------------------------------------------------------------------------------------------------|

Type of Services provided:

Sector Studies, Policies Studies, Regional Development Plans, Project Identification Studies, Planning Studies, Feasibility Studies, Economic Studies, Financial Studies, Technical Studies, Technical Assistance and Advisory Services.

Fields of Specialization:

Transportation Sector:

National/Regional/Multimodal Transportation Planning, Policies & Investment Programs, Highway Planning & Programming, Highways, New Highways/Improvements & Reconstruction, Toll Roads, Primary Roads, Maintenance of Highways, Organization/Funding & Programming, Road Transport Economics, Road User Charges, Financial Analysis/Costing & Tariffs (Road Transportation Industry).

**MAJOR WORK DURING LAST TEN YEARS WHICH BEST
ILLUSTRATES QUALIFICATIONS**

Project Data Sheet No.34

Page 1 of 3

Assignment Name: Institutional Strengthening of National Housing Authority – CR 2829 Pak.		Country: Pakistan
Location within Country: Islamabad, Pakistan		Number of person-months of the entire project: 182
Name of Client: National Housing Authority, Government of Pakistan, B-Block, Pakistan Secretariat, Red Zone Islamabad		Total value of full project (in million US\$): US \$ 1.157 million
No. of Staff: 12		No. of persons-months: 165
Start Date (Month/Year): October 1996	Completion Date (Month/Year): December 1999	Approx. Value of Services (in million US\$): US \$ 297,000/-
Name of Lead Firm (s), If Any: M/s Overseas Projects Corporation of Victoria, Australia.		No. of Months of Professional Staff Provided by Associated Firm (s): 16.5
Names of Key Experts of the firm (Project Director/Coordinator, Team Leader) Involved and Functions Performed: Senior Housing Specialist, Building Technologist, Computer Trainer, Financial Analyst, Communications Specialist, Statistician, Technical Advisor, Engineering Advisor, Community Development Specialist, Programme Planner		
Brief Narrative Description of Project: The project was funded by the World Bank and the SDC, to provide institutional strengthening to the National Housing Authority in undertaking a critical role in providing leadership in the housing sector for Pakistan. The Project specifically focused on capacity building of the NHA's management and an evaluation of appropriate building technology and methods of delivery of the NHA's services nationally in collaboration with the Provinces. The end result to be achieved is strengthening of NHA to enable it to fulfil the charter laid down for it under the National Housing Policy finalized in 1994. The role of NHA is to be a catalyst and facilitator for all Housing Sector activities in line with National Housing Policy.		
Description of Actual Services Provided: The technical assistance programme for which consultancy services were rendered, was planned for an initial three year assignment to develop NHA's capability in specific key areas including: <ul style="list-style-type: none"> ✓ institutional strengthening ✓ management assistance ✓ building technology evaluation and dissemination. Assistance in raising awareness of the need for housing action by Provincial Governments and ensuring that effective action is taken were primary tasks of the technical assistance being provided to NHA. Thus training followed by dissemination of information and monitoring are key activities.		

MAJOR WORK DURING LAST TEN YEARS WHICH BEST ILLUSTRATES QUALIFICATIONS

The areas in which Consultants assisted NHA and provided advice and guidance, assembled data, prepared reports etc., are:

- Assisted NHA on development of policies on housing and related issues for onward dissemination.
- Encouraged provincial governments to finalize their plans and programmes to implement provincial housing policies through establishment of milestones, regular follow up meetings, preparation of working papers and other coordination and monitoring/ evaluation activities within the framework of the National Housing Policy/ National Action Plan.
- Proposed refinement and updating of specific components of the National Housing Policy.
- Improved capability to prepare and implement long and short range plans.
- Activities included assistance with preparation of technical and economic evaluation, financial and human resources identification scheduling, and arranging for increasing implementation capacity of executing.
- Improvement of information on status of public sector and private sector housing construction activity.
- A data information base at district and provincial level was to be reviewed based on initially a prototype exercise in one division in each province. This work was coordinated with Planning and Development Division and Provincial P&D Department, PP&H / Division/District/Local Authorities and be reviewed annually.
- Demonstration of housing investment needs through greater contact and cooperation with the donor community (including international NGO's). Tasks included, the provision of information on housing needs, relevant data, geographic opportunities, general programme identification assistance, coordination with provincial agencies.
- Enhancement of awareness of housing sector contribution to national economic and social development through a formalized panel of advisers and specialists.

The specific tasks for institutional strengthening are given below, with the training element being common in these tasks:

- Develop a Plan of Action for the Technical Assistance, concentrating on the first years activities followed by a more general approach for the second and third year.
- Assist in the preparation of a Corporate Plan for NHA activities to deal with the deep rooted problems of the shelter sector. The Corporate Plan requires ongoing monitoring and adjustment to ensure that, at all times, it reflects NHA's requirements and objectives.
- Assist and train in Data Analysis/Sector Monitoring. Activities include specification and procurement of key information on housing related industries, compilation, analysis and assessment of, and where necessary assistance in conducting, shelter related surveys, in order to provide basic tools for better informed investment planning and budgeting.
- As a part of the corporate plan, design computer based models, obtain the required base data, process and analyze such data, make initial interpretations, prepare recommendations and produce suitable reports for NHA review. In parallel, train NHA counterpart staff on the use of the models, processing of data, interpretation techniques and reports preparation.
- Provide Sector monitoring which includes compilation of survey data in fields related to the shelter project, for example income/expenditure, health, construction, agriculture, environmental etc.
- Programme Monitoring and Evaluation and Dissemination of Results.

**MAJOR WORK DURING LAST TEN YEARS WHICH BEST
ILLUSTRATES QUALIFICATIONS**

Project Data Sheet No.34

Page 3 of 3

- Building Technology Evaluation and Dissemination is another key task. This included data search, identification of viable ideas and assessment of their technical merit and economic feasibility.
- Information Exchange - was a key task was to broaden NHA staff's knowledge of shelter sector activities through attendance at conferences and on study tours and visits in the Asia region, local training initiatives, internal seminars, lectures and training courses etc.

The project was however curtailed midway due to subsequent policy and administrative changes in the Govt. of Pakistan.

Type of Services provided:

Planning Studies, Feasibility Studies, Market Studies, Economic Studies, Financial Studies, Technical Studies, Design – Architectural/ Engineering / Industrial etc., Soil Mechanics and Foundation Engineering, Quantity Surveying/Cost Estimating, Structural Engineering, Technical Assistance and Advisory Services, Institutional Strengthening/Restructuring, Management Advisory Services, Organizational Development Studies, Training and Transfer of Technology.

Fields of Specialization:

Construction Industry Development Sector:

Institution Building, Tech./Equipment/Materials & Training, Development of Appropriate Construction Tech., - Labor-Based Construction & Maintenance Methods, Low Cost Construction Techniques, Use of Domestic Materials.

Urban Development Sector:

Urban Development Planning, Urban Area Survey/Analysis & Monitoring, Strategic Development Planning, (incl. Master Planning), National Urban Policies, Shelter/Housing Planning/Design/Engineering & Implementation, Shelter/Housing Sector Survey & Analysis, Construction Methods and Materials, Buildings Standards & Regulations, Community Participation, Self-Help Programs.

**MAJOR WORK DURING LAST TEN YEARS WHICH BEST
ILLUSTRATES QUALIFICATIONS**

Project Data Sheet No.33

Page 1 of 2

Assignment Name: North West Frontier Province - Urban Development Project ADB TA-2940-Pak.		Country: Pakistan
Location within Country: Province of NWFP		Number of person-months of the entire project: 55
Name of Client: Asian Development Bank # 6 ADB Avenue, Mandaluyong City, 0401 Metro Manila, Philippines & Government of NWFP.		Total value of full project (in million US\$): US \$ 0.945 million
No. of Staff: 5		No. of persons-months: 19
Start Date (Month/Year): July 1998	Completion Date (Month/Year): December 1999	Approx. Value of Services (in million US\$): US \$ 106,000/-
Name of Lead/Associated Firm (s), If Any: M/s Carlbros International, Denmark (Lead Firm) M/s COWI Consulting Engrs, Denmark (Associated Firm) M/s Associates in Development Pakistan (Associated Firm)		No. of Months of Professional Staff Provided by Lead/Associated Firm (s): 15 Carlbros International 21 M/s COWI & AID
Names of Key Experts of the firm (Project Director/Coordinator, Team Leader) Involved and Functions Performed: Deputy Team Leader/Urban Planner, Roads/Drainage Design Engineer, Water and Sanitation Engineer, Financial Analyst, Accounting Specialist. They were supported by Community Development Specialist inputs. The personnel provided services focused on urban planning, design of infrastructure, institutional strengthening, capacity building, and participatory urban development and infrastructure services, mapping/ surveys of urban areas.		
Brief Narrative Description of Project: The TA for NWFP urban development project covered seven urban towns in NWFP and was in three parts: Part-A focused on sector reforms, and prepared an urban sector development strategy for the NWFP government that included a sector policy statement, a time-bound action plan for institutional reforms, a prioritized investment plan, and a financing plan. Part-B provided assistance in institutional capacity building for provincial and local government agencies. For local governments, a pilot town was selected for an in-depth study to identify the steps needed to strengthen its institutional capacity for performing urban development functions, with a view to replicating these steps in other towns. For the provincial government, the capacity building focused on the development of land use and zoning policies, building controls, regulation enforcement, and assessment of the need for an urban database center. Part-C prepared an integrated urban development project followed the Bank's sector lending modality, covered roads, solid waste management, water supply and sanitation, drainage and sewerage, guided land development and housing, slums upgrading, market and commercial facilities, and civil and municipal facilities. Criteria for selecting and appraising sub projects was developed, and a feasibility study for sample sub projects, selected from 6-7 towns, was prepared in Charsada, Swabi, Mansehra, Takht Bhai, Haripur, Timargara and Hangu.		

**MAJOR WORK DURING LAST TEN YEARS WHICH BEST
ILLUSTRATES QUALIFICATIONS**

Project Data Sheet No.33

Page 2 of 2

Description of Actual Services Provided:

Services provided by the staff were in the areas of Infrastructure (Water, Sewerage & Roads), Sector Reforms, Urban Planning, Institutional Studies, Community Development, Accounting/Economic/ Financial Studies and Evaluation, mapping/surveys of urban towns.

In addition to the above areas of expertise, services provided included socio-economic surveys of 7 major towns in NWFP and development of sub projects within the towns through community participation of infrastructure development with the government agencies and NGOs.

Type of Services provided:

Topographic Surveys, Sector Studies, Policy Studies, Regional Development Plans, Project Identification Studies, Planning Studies, Feasibility Studies, Economic Studies, Financial Studies, Technical Studies, Sociological Studies, Design – Architectural/ Engineering / Industrial etc., Soil Mechanics and Foundation Engineering, Hydraulics Studies and Engineering, Quantity Surveying / Cost Estimating, Estimation / Preparation of Contract Documents and Bid Evaluation, Structural Engineering, Technical Assistance and Advisory Services, Organizational Development Studies.

Fields of Specialization:

Construction Industry Development Sector:

Institution Buildings, Development of Construction Capacity of Community Organizations.

Urban Development Sector:

Urban Development Planning, Urban Area Survey/Analysis & Monitoring, Socio-Economic Surveys, Land Use Surveys, Urban Development Models, Strategic Development Planning (incl. Master Planning), Urban Investment Programming, Shelter/Housing Planning/Design/Engineering & Implementation, Construction Methods & Materials, Urban Services, Municipal Services, Urban Road Construction & Maintenance, Street Lighting, Solid Waste (Refuse) Collection/Disposal, Community Facilities/Planning & Design, Community Participation, Self-Help Programs.

Water Supply and Sanitation Sector:

Water Supply, Low-Cost Urban Sanitation, Storm Drainage, Solid Waste.

**MAJOR WORK DURING LAST TEN YEARS WHICH BEST
ILLUSTRATES QUALIFICATIONS**

Project Data Sheet No.32

Page 1 of 1

Assignment Name: Design for Widening and Rehabilitation of Ahmed Pur East to Yazman Road, length (60 Kms).		Country: Pakistan	
Location within Country: Province of Punjab		Number of person-months of the entire project: 16	
Name of Client: Bahawalpur Rural Development Project, Planning & Development Department, GOP		Total value of full project (in million US\$): US \$ 8.50 million	
No. of Staff: 8		No. of Persons-Months: 14	
Start Date (Month/Year): May 1999	Completion Date (Month/Year): December 1999	Approx. Value of Services (in million US\$): US \$ 20,000/-	
Name of Associated Firm(s), If Any: None		No. of Months of Professional Staff Provided by Associated Firm(s): Nil	
Name of Key Experts of the firm (Project Director/Coordinator, Team Leader) Involved and Functions Performed: One Sr. Design Engineer, One Structural Engineer, One Highway Design Engineer, Hydrologist, Two Staff Engineers, Material Engineer, Chief Surveyor and other supporting staff were employed to carry out detailed survey, design, technical feasibility and tender documents preparation.			
Brief Narrative Description of Project: The project consisted of Preparation of Detailed Design, Preparation of Construction Drawings and Tender Documents for Widening and Rehabilitation of Ahmad Pur East to Yazman Road, length 60 Kms and cross drainage structures of various types and sizes. Project was funded by the ADB and the Islamic Development Bank.			
Description of Actual Services Provided: The work entailed detailed topographic survey, fixing of permanent reference monuments and establishing permanent benchmarks. Soil and sub soil investigations, study of borrow sources and their analyses, traffic counts and surveys, design of major intersections and traffic flow analyses, axle loads study and related analyses, Structural Design, Preparation of Construction Drawings, Bill of Quantities, preparation of Mass Haul Diagram, preparation of specifications, tender documents as per FIDIC model documents.			
Fields of Specialization: Transportation Sector: National/Regional/Multimodal Transportation Planning, Traffic/Origin-Destination Surveys, Demand forecasting, Highway Planning & Programming, Highways, New Highways/Improvements & Reconstruction, Primary Roads, New Structures/Reconstruction, - Bridges (Road Transportation Facilities), Highways Safety.			

**MAJOR WORK DURING LAST TEN YEARS WHICH BEST
ILLUSTRATES QUALIFICATIONS**

Project Data Sheet No.31

Page 1 of 2

Assignment Name: Feasibility Study & Design for the Improvement and Rehabilitation of Bela to Kararo Section N-25 between Km 182 to Km 222 (40 Kms).		Country: Pakistan
Location within Country: Province of Balochistan		Number of person-months of the entire project: 18
Name of Client: National Highways Authority, Government of Pakistan - # 28, Mauve Area, G-9/1, Islamabad		Total value of full project (in million US\$): US \$ 8.30 million
No. of Staff: 10		No. of persons-months: 18
Start Date (Month/Year): April 1999	Completion Date (Month/Year): June 1999	Approx. Value of Services (in million US\$): US \$ 17,000/-
Name of Associated Firm (s), If Any: None		No. of Months of Professional Staff Provided by Associated Firm (s): Nil
Names of Key Experts of the firm (Project Director/Coordinator, Team Leader) Involved and Functions Performed: One Sr. Design Engineer, One Structural Engineer, One Hydrologist, One Highway Design Engineer, One Transport Economist, Measurement Engineer, Material Engineers, Two Staff Engineers, Hydrologist, CAD Draftsmen, Laboratory Technician and other supporting staff were employed to carry out detailed survey, design, technical and economic feasibility and tender documents preparation.		
Brief Narrative Description of Project: Fesibility Study and Design for the Improvement and Rehabilitation of Bela to Kararo Section N-25 between Km 182 to Km 222 (40 Kms) including improvement of alignment, highway geometrics and design of cross drainage structures.		
Description of Actual Services Provided: The work entailed detailed topographic survey, study on alternate alignments, fixing of permanent reference monuments and establishing permanent benchmarks. <ul style="list-style-type: none"> • Soil and sub soil investigations, study of borrow sources and their analyses, traffic counts and surveys, design of major intersections and traffic flow analyses, axle loads study and related analyses, Origin Destination Surveys. • Hydrological studies, Structural design of bridges and cross drainage structures. • Existing pavement evaluation using Benkleman Beam Deflection Method, Present Serviceability Ratings, Effective Thickness Method, Capacity Analysis • Study on Land Acquisition and Right of Way, Reports on Relocation Requirements for Utilities • Pavement Design • Preparation of Construction Drawings, Bill of Quantities, preparation of Mass Haul Diagram, preparation of specifications, tender documents. • Determination of VOCs and preparation of economic feasibility report. 		

**MAJOR WORK DURING LAST TEN YEARS WHICH BEST
ILLUSTRATES QUALIFICATIONS**

Project Data Sheet No.31

Page 2 of 2

Type of Services provided:

Hydrological Surveys, Soil Surveys, Topographic Surveys, Planning Studies, Feasibility Studies, Market Studies, Economic Studies, Technical Studies, Design – Architectural / Engineering / Industrial etc., Soil Mechanics and Foundation Engineering, Hydraulics Studies and Engineering, Quantity Surveying / Cost Estimating, Estimation / Preparation of Contract Documents and Bid Evaluation, Structural Engineering, Material Testing.

Fields of Specialization:

Transportation Sector:

National/Regional/Multimodal Transportation Planning, Traffic/Origin-Destination Surveys, Demand forecasting, Highway Planning & Programming, Highways, New Highways/Improvements & Reconstruction, Primary Roads, New Structures/Reconstruction, Bridges (Road Transportation Facilities), Highways Safety, Road Transport Economics.

**MAJOR WORK DURING LAST TEN YEARS WHICH BEST
ILLUSTRATES QUALIFICATIONS**

Project Data Sheet No.30

Page 1 of 2

Assignment Name: Feasibility Study & Detailed Design for the Improvement and Rehabilitation of N-65 Km 90 to Km 155 (from Dera Allahyar to Nuttal).		Country: Pakistan
Location within Country: Province of Balochistan		Number of person-months of the entire project: 40
Name of Client: National Highways Authority, Government of Pakistan - # 28, Mauve Area, G-9/1, Islamabad		Total value of full project (in million US\$): US \$ 11.91 million
No. of Staff: 18		No. of persons-months: 40
Start Date (Month/Year): November 1998	Completion Date (Month/Year): February 1999	Approx. Value of Services (in million US\$): US \$ 37,000/-
Name of Associated Firm (s), If Any: None		No. of Months of Professional Staff Provided by Associated Firm (s): Nil
Names of Key Experts of the firm (Project Director/Coordinator, Team Leader) Involved and Functions Performed: Senior staff included the Technical Manager responsible for coordinating the teamwork both in the field and the design office. The senior technical staff deputed, were a Technical Manager, two Highway Engineers, one Structural Engineer, Material Engineer, Measurement Engineer, a Transportation Economist and a Contract Specialist. This team was supported by surveyors, CAD engineers and laboratory staff.		
Brief Narrative Description of Project: Carried out the feasibility study and detailed design for the improvement of National Highway N-65 from Km 90 (Dera Allahyar) to Km 155 (Nuttal) - excluding the 5 km between Km 105 to Km 110 near Dear Murad Jamali. N-65 is the main highway linking the two provincial capitals Quetta and Karachi. The project length designed is 60 km and traverses area with very poor drainage and soil conditions (A6-A7). The existing pavement conditions were very poor, therefore NHA took up the project rehabilitation/reconstruction on an emergency/ priority basis. The project included design of urban areas in DM Jamali and Dera Allahyar.		
Description of Actual Services Provided: Services provided included: <ul style="list-style-type: none"> • Detailed topographic, traffic and soil surveys/investigations. Evaluation of Borrow sources and quarries. • The detailed design of pavement, studies for pavement evaluation and rehabilitation of the road including existing condition surveys, NDT/FWD and Back Calculations were carried out. • Prepared Traffic Management Plans • Prepared detailed geometric design and drawings, tender documents, specifications, BOQ etc. • Prepared Economic Feasibility Studies using HDM-3. • Prepared design of urban areas and storm water drainage. • Assisted the Employer in bid negotiations. 		

**MAJOR WORK DURING LAST TEN YEARS WHICH BEST
ILLUSTRATES QUALIFICATIONS**

Project Data Sheet No.30

Page 2 of 2

Type of Services provided:

Hydrological Surveys, Soil Surveys, Topographic Surveys, Planning Studies, Feasibility Studies, Economic Studies, Technical Studies, Design – Architectural / Engineering / Industrial etc., Soil Mechanics and Foundation Engineering, Hydraulics Studies and Engineering, Quantity Surveying / Cost Estimating, Estimation / Preparation of Contract Documents and Bid Evaluation, Structural Engineering, Material Testing, Maintenance Planning.

Fields of Specialization:

Transportation Sector:

National/Regional/Multimodal Transportation Planning, Traffic/Origin-Destination Surveys, Demand forecasting, Policies & Investment Programs, Highway Planning & Programming, Highways, New Highways/Improvements & Reconstruction, Primary Roads, New Structures/Reconstruction, Bridges (Road Transportation Facilities), Maintenance of Highways, Organization/Funding & Programming, Highways Safety, Road Transport Economics.

Urban Development Sector:

Traffic Management, Signs & Signalization, Channelization, Traffic Flow Regulation Measures, Area Traffic Control Schemes.

Water Supply and Sanitation Sector:

Storm Drainage

**MAJOR WORK DURING LAST TEN YEARS WHICH BEST
ILLUSTRATES QUALIFICATIONS**

Project Data Sheet No.29

Page 1 of 2

Assignment Name: Consultancy Services for Support During Planning and Implementation of NWFP Community Infrastructure Project – CR – 2829 Pak.		Country: Pakistan
Location within Country: Province of NWFP		Number of person-months of the entire project: 716
Name of Client: Communication & Works Department, Government of NWFP.		Total value of full project (in million US\$): US \$ 2.020 million
No. of Staff: 16		No. of persons-months: 372
Start Date (Month/Year): July 1996	Completion Date (Month/Year): December 1998	Approx. Value of Services (in million US\$): US \$ 300,000/-
Name of Lead/Associated Firm (s), If Any: M/s OPCV, Australia (Lead Firm) M/s EDC, Pakistan (Associated Firm)		No. of Months of Professional Staff Provided by Associated Firm (s): 35 OPCV 309 EDC
Names of Key Experts of the firm (Project Director/Coordinator, Team Leader) Involved and Functions Performed: Design Engineer, Planner, Cost Estimator, Social Organizers, CAD draftsmen, Systems Analyst, Surveyors. Functions performed were rural/urban development planning, detailed design of rural infrastructure for the communities, cost estimating for infrastructure, formation of community based organizations for development, socio-economic surveys, computer drafting work for generating construction drawings, detailed community surveys and mapping.		
Brief Narrative Description of Project: The project was funded by the IDA/SDC. The personnel provided are part of a larger team working within a Project Management Unit (PMU) set up by the Client. The project focuses on upgrading infrastructure systems and on mobilizing and strengthening community development efforts in approximately 55 communities in NWFP through coordinated activities, which engage the active participation of the concerned communities as well as provincial and local government authorities. The project therefore comprises two main components: Management and Technical requirements and Physical Components. The main objectives were to increase the productivity and well being of low income groups in NWFP. Project focused on improving low income living conditions through the provision of basic infrastructure, promotion of community development, applying demand driven participatory design procedures for affordable standards of infrastructure, and strengthening the ability of provincial and local governments to collaborate with the communities.		
Description of Actual Services Provided: The services focused on the components: Community development, awareness, health, hygiene, sanitation, and support to women and children, street pavement/roads design, drainage design, water supply and distribution, sanitation, sewer and sewerage design, street lighting design, solid waste management and others). These components cover Community Development and Mobilization, Training, Conceptual Planning, Detailed Engineering, and Institutional Strengthening.		

**MAJOR WORK DURING LAST TEN YEARS WHICH BEST
ILLUSTRATES QUALIFICATIONS**

Project Data Sheet No.29

Page 2 of 2

The services provided were:-

- Developed communities capacity to mobilize resources and skills towards the self managed development and operation and maintenance of local infrastructure facilities.
- Training Community Based Organizations
- Developed the capacity of relevant GONWFP agencies to facilitate and support community level infrastructure improvement through the provision of technical advice, management experience, assistance in design, supervision, operation and maintenance and relevant training.
- Set up a management information system and the computerized monitoring of project progress and disbursements including the monitoring of all financial covenants of the credit and/or grant agreements.
- Provided affordable and functional infrastructure facilities and to ensure their effective operation and maintainability through direct community participation.
- Detailed engineering designs were prepared in close coordination with the communities through social organizers. Infrastructure components involved designing of roads, water supply schemes, sewerage, storm water drains, housing facilities and other infrastructure.
- Carried out surveys and technical studies as required in each community to firmly establish scope and scale of projects.
- Ensured completion of all detailed designs, bidding and award procedures in a timely manner and in accordance with the World Banks procedure and guidelines involving PMU counterpart staff in such processes. Procurement Documents were prepared considering the community participatory nature of the projects.
- Provided assistance in designing and implementing a monitoring and evaluation program for the project

Trained and strengthened LGE&RRD, PMU and local councils, CBOs to a level where each can undertake, by their own resources and expertise, on a sustainable basis, development projects of a similar nature to CIP (IC).

Type of Services provided:

Soil Surveys, Topographic Surveys, Regional Development Plans, Project Identification Studies, Planning Studies, Economic Studies, Financial Studies, Technical Studies, Sociological Studies, Design – Architectural/ Engineering / Industrial etc., Soil Mechanics and Foundation Engineering, Hydraulics Studies and Engineering, Quantity Surveying / Cost Estimating, Estimation / Preparation of Contract Documents and Bid Evaluation, Structural Engineering.

Fields of Specialization:

Construction Industry Development Sector:

Development of Appropriate Construction Tech., - Labor-Based Construction & Maintenance Methods, Low Cost Construction Techniques.

Transportation Sector:

New Highways/Improvements & Reconstruction, Access Tracks, New Structures/Reconstruction.

Urban Development Sector:

Urban Development Planning, Urban Area Survey/Analysis & Monitoring, Socio-Economic Surveys, Land Use Surveys, Urban Development Models, Shelter/Housing Planning/Design/Engineering & Implementation, Sites & Services-Planning/Design & Engineering, Construction Methods & Materials, Solid Waste (Refuse) Collection/Disposal, Community Facilities/Planning & Design, Community Participation, Self-Help Programs.

Water Supply and Sanitation Sector:

Water Supply, Water Resources Development, Storm Drainage, Rural Sanitation, Rural Water Supply & Sanitation Management.

**MAJOR WORK DURING LAST TEN YEARS WHICH BEST
ILLUSTRATES QUALIFICATIONS**

Project Data Sheet No.28

Page 1 of 1

Assignment Name: Interior Design and Construction of Askari Information Systems Corporate Offices – Turnkey Basis		Country: Pakistan	
Location within Country: Islamabad, Pakistan		Number of person-months of the entire project: 8	
Name of Client: M/s Askari Information Systems/AWT		Total value of full project (in million US\$): US \$ 1.00 million	
No. of Staff: 4		No. of persons-months: 8	
Start Date (Month/Year): August 1998	Completion Date (Month/Year): November 1998	Approx. Value of Services (in million US\$): US \$ 75,00/-	
Name of Associated Firm (s), If Any: None		No. of Months of Professional Staff Provided by Associated Firm (s): Nil	
Names of Key Experts of the firm (Project Director/Coordinator, Team Leader) Involved and Functions Performed: The senior technical staff comprised of a structural engineer, architect, interior designer and cad engineers for detailed interior and architectural design.			
Brief Narrative Description of Project: This was a turnkey interior design and furnishing project for the corporate head quarters of the newly established Askari Information Systems (Pvt) Ltd., Approximately 8,000 sq.ft of floor space was planned and designed for this ultra high tech software development company. All furniture was designed and produced by ACC. The work included design of all concealed ducting for computer cabling and communications, interior paneling, lighting, offices, waiting areas, receptions etc.,			
Description of Actual Services Provided: Interior design, programmer stations, reception area, and officers rooms, color coordination and construction/ supply of all office furniture, design and furnishing/furbishing of all executive offices, air conditioning, employees mess, kitchen, etc.			
Type of Services provided: Design – Architectural / Engineering / Industrial etc., Quantity Surveying / Cost Estimating, Supervision/ Inspection of Construction, Supervision/Inspection of Equipment Installation, Technical Assistance and Advisory Services, Turnkey Operations, Quality Control, Civil Works Rehabilitation.			
Fields of Specialization: Industry Sector: Medium & Small-Scale Industries. Urban Development Sector: Office Buildings Design			

**MAJOR WORK DURING LAST TEN YEARS WHICH BEST
ILLUSTRATES QUALIFICATIONS**

Project Data Sheet No.27

Page 1 of 2

Assignment Name: Civil Structures Building Works for 7.5 MW Thermal Power Plant Project at Attock Refinery Limited.		Country: Pakistan	
Location within Country: Rawaplindi, Province of Punjab		Number of person-months of the entire project: 24	
Name of Client: Attock Refinery Ltd., Morgah Rawalpindi		Total value of full project (in million US\$): US \$ 2.00 million	
No. of Staff: 8		No. of persons-months: 24	
Start Date (Month/Year): October 1999	Completion Date (Month/Year): March 2001	Approx. Value of Services (in million US\$): US \$ 22,000/-	
Name of Associated Firm (s), If Any: None		No. of Months of Professional Staff Provided by Associated Firm (s): Nil	
Names of Key Experts of the firm (Project Director/Coordinator, Team Leader) Involved and Functions Performed: Sr. Structural Designer, Road Designer, Water Supply and Sanitation Design Engineer, and Architect for design. For top supervision one Sr. Engineer supported by a Site Engineer, Surveyor and one Lab. Technician.			
Brief Narrative Description of Project: A 7.5 MW Power Plant in Attock Refinery Limited, Morgah Rawalpindi was to be constructed for which detailed design and supervision services were provided to the Contractor as a joint venture in this turnkey project. The civil works contractor was responsible for construction of the power plant and ancillary buildings.			
Description of Actual Services Provided: Detailed architectural design and construction drawings for civil works were prepared for a 7.5 MW Power Plant. The work entailed:- <ul style="list-style-type: none"> • Main Power House Design = 1930 sqm • Tank Farm Area = 110 sqm • Purifier Room Area = 110 sqm • Cooling Tower Area = 125 sqm • Workshop and Maintenance areas = 125 sqm • Internal Road = 0.5 km • Foundation designs for heavy equipment including generators • Storm Water Drainage • Pipe Rack supports • Steel Tanks • Water Supply, Plumbing and Sanitation • Interior and exterior finishes • Preparation of detailed BOQ <p>After approval of design, top supervision and on site supervision of construction were provided.</p>			

**MAJOR WORK DURING LAST TEN YEARS WHICH BEST
ILLUSTRATES QUALIFICATIONS**

Project Data Sheet No.27

Page 2 of 2

Type of Services provided:

Soil Surveys, Topographic Surveys, Technical Studies, Design – Architectural / Engineering / Industrial etc., Soil Mechanics and Foundation Engineering, Earthquake Engineering, Quantity Surveying / Cost Estimating, Estimation/Preparation of Contract Documents and Bid Evaluation, Structural Engineering, Supervision/ Inspection of Construction, Technical Assistance and Advisory Services, Materials Testing, Quality Control.

Fields of Specialization:

Construction Industry Development Sector:

Construction Management

Energy Sector:

General

Industry Sector:

Industrial Plant/Factory Buildings

Urban Development Sector:

Office Buildings Design, Building Construction Management, Land Development (Residential/Commercial/ Industrial), Municipal Services

Water Supply and Sanitation Sector:

Water Supply, Water System Planning & Design, Sewage Treatment, Storm Drainage.

**MAJOR WORK DURING LAST TEN YEARS WHICH BEST
ILLUSTRATES QUALIFICATIONS**

Project Data Sheet No.26

Page 1 of 1

Assignment Name: Design of Income Tax Offices for Azad Jammu & Kashmir Government		Country: Pakistan
Location within Country: Muzaffarabad, Azad Kashmir		Number of person-months of the entire project: 6
Name of Client: Income Tax Office AJ&K.		Total value of full project (in million US\$): US \$ 3.00 million
No. of Staff: 3		No. of persons-months: 6
Start Date (Month/Year): May 1998	Completion Date (Month/Year): November 1998	Approx. Value of Services (in million US\$): US \$ 8,000/-
Name of Associated Firm (s), If Any: None		No. of Months of Professional Staff Provided by Associated Firm (s): Nil
Names of Key Experts of the firm (Project Director/Coordinator, Team Leader) Involved and Functions Performed: The senior technical staff comprised of, an architects, electrical engineer and structural design engineer with supported by quantity estimator to carry out detailed engineering design of buildings including all utilities, electrification, water supply and sewage.		
Brief Narrative Description of Project: Project comprised of design of multistory office buildings and preparation of detailed architectural and structural drawings and tender documents.		
Description of Actual Services Provided: Detailed site topographic survey, followed by architectural and structural engineering design was carried out. Included in the services were design of electrification, plumbing and, sewerage systems. Detailed construction drawings and tender documents were prepared.		
Type of Services provided: Soil Surveys, Topographic Surveys, Design – Architectural / Engineering / Industrial etc., Soil Mechanics and Foundation Engineering, Quantity Surveying / Cost Estimating, Estimation/Preparation of Contract Documents and Bid Evaluation, Structural Engineering.		
Fields of Specialization: Urban Development Sector: Sites & Services-Planning/Design & Engineering, Office Buildings Design. Water Supply and Sanitation Sector: Water Supply, Sanitation, Storm Drainage.		

**MAJOR WORK DURING LAST TEN YEARS WHICH BEST
ILLUSTRATES QUALIFICATIONS**

Project Data Sheet No.25

Page 1 of 2

Assignment Name: Design of Civil Works for Askari Power Plant (50 MW) at Nizampur.		Country: Pakistan	
Location within Country: Niazampur, Punjab		Number of person-months of the entire project: 47	
Name of Client: M/s Sembawong, Singapore/Army Welfare Trust.		Total value of full project (in million US\$): US \$ 5.00 million	
No. of Staff: 7		No. of persons-months: 47	
Start Date (Month/Year): January 1998	Completion Date (Month/Year): October 1998	Approx. Value of Services (in million US\$): US \$ 70,000/-	
Name of Associated Firm (s), If Any: None		No. of Months of Professional Staff Provided by Associated Firm (s): Nil	
Names of Key Experts of the firm (Project Director/Coordinator, Team Leader) Involved and Functions Performed: The senior technical staff comprised of Sr. Structural Engineers, water supply and sanitation engineer, architects, road design engineer, and cad engineers with extensive experience in architectural and structural design of industrial, commercial & residential buildings were deputed for the project.			
Brief Narrative Description of Project: Project comprised of design of all civil works for the new 50 MW power plant being constructed by Army Welfare Trust for their cement plant expansion project at Nizampur. The prime contractor for the civil works was M/s Sembawong (Singapore) who awarded the design of all civil works to ACC			
Description of Actual Services Provided: Detailed site topographic survey, sub soil investigations followed by architectural and structural engineering design meeting all international standards such as ACI, BS and UBC was carried out. Included in the services were design of heavy foundations, shear walls, stacks, steel structures, steel tanks, tank farm area, crude decanting yard, main power plant building, double tee roofing system, control room, cooling towers, workshops, guard rooms, ware houses, oil storage areas, auxiliary areas, internal roads and drainage, all electrification, water treatment rooms, plumbing and, sewerage systems, pipe rack etc. Detailed construction drawings and BOQ were prepared. Top supervision during construction was provided.			
Type of Services provided: Soil Surveys, Topographic Surveys, Technical Studies, Design – Architectural / Engineering / Industrial etc., Soil Mechanics and Foundation Engineering, Earthquake Engineering, Quantity Surveying / Cost Estimating, Estimation/Preparation of Contract Documents and Bid Evaluation, Structural Engineering, Supervision/ Inspection of Construction, Technical Assistance and Advisory Services.			

**MAJOR WORK DURING LAST TEN YEARS WHICH BEST
ILLUSTRATES QUALIFICATIONS**

Project Data Sheet No.25

Page 2 of 2

Fields of Specialization:

Energy Sector:

General, Energy Demand forecasting

Industry Sector:

Industrial Plant/Factory Buildings

Urban Development Sector:

Office Buildings Design, Building Construction Management, Municipal Services

Water Supply and Sanitation Sector:

Water Supply, Water Storage, Water Treatment, Sanitation, Sewerage Treatment, Storm Drainage.

**MAJOR WORK DURING LAST TEN YEARS WHICH BEST
ILLUSTRATES QUALIFICATIONS**

Project Data Sheet No.24

Page 1 of 2

Assignment Name: Detailed engineering design and construction supervision of Farm to Market Roads Project Phase II: Sukkur and Larkana Districts – ADB Loan 917 Pak (SF).		Country: Pakistan
Location within Country: Province of Sindh		Number of person-months of the entire project: 355
Name of Client: Communication and Works Department, Government of Sindh.		Total value of full project (in million US\$): US \$ 26.00 million
No. of Staff: 49		No. of Persons-Months: 355
Start Date (Month/Year): April 1991	Completion Date (Month/Year): June 1997	Approx. Value of Services (in million US\$): US \$ 1,136,000/-
Name of Associated Firm(s), If Any: None		No. of Months of Professional Staff Provided by Associated Firm(s): Nil
Name of Key Experts of the firm (Project Director/Coordinator, Team Leader) Involved and Functions Performed: Top supervision was provided by senior management. A Technical Manager, Highway and Structural Design Engineers, Pavement Design Engineers, Material Engineer, Surveyors, CAD Designers and other staff was deployed for design. For construction supervision Chief Resident Engineer, Resident Engineers, Material Engineers, Site Engineers Inspectors, Laboratory Technicians, Surveyors, Quantity Surveyors were deployed.		
Brief Narrative Description of Project: The project comprises detailed engineering design and construction supervision covering about 164 KM of Farm to Market Roads in the following districts of Sindh Province: 1. Larkana District 92.85 KM 2. Sukkur District 71.00 KM		
Description of Actual Services Provided: The work entailed survey, soil investigations, route alignment, traffic studies, geometric design, pavement design and preparation of all tender documents and drawings in the design stage as per guidelines of the Asian Development Bank. Details of services provided are as follows:- ➤ Detailed Topographic Survey ➤ Study on Alternate Alignments ➤ Fixing of Permanent Reference Monuments and Establishing Permanent Bench Marks ➤ Soil, Sub Soil Investigations, Borrow Sources, Quarries and their analysis		

**MAJOR WORK DURING LAST TEN YEARS WHICH BEST
ILLUSTRATES QUALIFICATIONS**

Project Data Sheet No.24

Page 2 of 2

- Traffic Counts and Surveys, Axle Loads Study and related analysis
- Hydrological Studies, Design of River Training Works
- Capacity Analysis
- Pavement Design
- Detailed Design of Bridges, Sub Structures/Super Structures, Drainage Structures
- Storm Water Drainage
- Preparation of Construction Drawings, Plan and Profiles, Longitudinal Sections and Cross Sections
- Bill of Quantities
- Preparation of Specifications, Tender Documents, General and Special Terms and Conditions of Contract as per FIDIC
- Evaluation of Tenders / Bids for Procurement

During Supervision:

- Project Monitoring
- Construction Contract Management
- Quality Control
- Quality Assurance
- Materials Testing
- Contract Interpretation and Evaluation of Claims
- Setting out of Works
- Inspection and Testing as per Specifications
- Processing of Bills/IPC's

Type of Services provided:

Hydrological Surveys, Soil Surveys, Topographic Surveys, Planning Studies, Technical Studies, Design – Architectural / Engineering / Industrial etc., Soil Mechanics and Foundation Engineering, Hydraulics Studies and Engineering, Earthquake Engineering, Quantity Surveying / Cost Estimating, Estimation / Preparation of Contract Documents and Bid Evaluation, Structural Engineering, Procurement Services, Supervision/ Inspection of Construction, Project Management/Administration (on behalf of owner), Technical Assistance and Advisory Services, Material Testing, Quality Control, Project Monitoring and Evaluation.

Fields of Specialization:

Agriculture & Rural Development Sector:

Rural Development Planning, Physical Infrastructure, Flood/River Control Works.

Transportation Sector:

National/Regional/Multimodal Transportation Planning – Traffic/Origin-Destination Surveys – Demand forecasting, - Highway Planning & Programming, Rural Feeder Roads (Farm to Market) (Highway Planning & Programming), New Highways/Improvements & Reconstruction, Rural Feeder Roads (Farm to Market) (New Highways, New Structures/Reconstruction), Bridges (Road Transportation Facilities), Highways Safety.

**MAJOR WORK DURING LAST TEN YEARS WHICH BEST
ILLUSTRATES QUALIFICATIONS**

Project Data Sheet No.23

Page 1 of 2

Assignment Name: Detailed Design and Construction Supervision of Farm to Market Roads Project, Phase II: Balochistan – ADB Loan 917 Pak (SF)		Country: Pakistan										
Location within Country: Province of Balochistan		Number of person-months of the entire project: 324										
Name of Client: Communication and Works Department, Government of Balochistan.		Total value of full project (in million US\$): US \$ 29.00 million										
No. of Staff: 62		No. of Persons-Months: 324										
Start Date (Month/Year): November 1990	Completion Date (Month/Year): June 1997	Approx. Value of Services (in million US\$): US \$ 2,600,000/-										
Name of Associated Firm(s), If Any: None		No. of Months of Professional Staff Provided by Associated Firm(s): Nil										
Name of Key Experts of the firm (Project Director/Coordinator, Team Leader) Involved and Functions Performed: Top supervision was provided by senior management. A Technical Manager, Highway and Structural Design Engineers, Pavement Design Engineers, Material Engineer, Surveyors, CAD Designers and other staff was deployed for design. For construction supervision Chief Resident Engineer, Resident Engineers, Material Engineers, Site Engineers Inspectors, Laboratory Technicians, Surveyors, Quantity Surveyors were deployed.												
Brief Narrative Description of Project: Detailed engineering design and construction supervision of the following Farm to Market Roads in the Province of Balochistan: <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 5%;">1.</td> <td style="width: 75%;">Nuttal - Gandawa Road</td> <td style="width: 20%; text-align: right;">89 KM</td> </tr> <tr> <td>2.</td> <td>Winder - Bagh Road</td> <td style="text-align: right;">24 KM</td> </tr> <tr> <td>3.</td> <td>Loralai - Khanozai Road via Spera Ragha Road</td> <td style="text-align: right;">96 KM</td> </tr> </table>				1.	Nuttal - Gandawa Road	89 KM	2.	Winder - Bagh Road	24 KM	3.	Loralai - Khanozai Road via Spera Ragha Road	96 KM
1.	Nuttal - Gandawa Road	89 KM										
2.	Winder - Bagh Road	24 KM										
3.	Loralai - Khanozai Road via Spera Ragha Road	96 KM										
Description of Actual Services Provided: The work entailed survey, soil investigations, route alignment, traffic studies, geometric design, pavement design and preparation of all tender documents and drawings in the design stage as per guidelines of the Asian Development Bank. Details of services provided are as follows:- <ul style="list-style-type: none"> - Detailed Topographic Survey - Study on Alternate Alignments - Fixing of Permanent Reference Monuments and Establishing Permanent Bench Marks - Soil, Sub Soil Investigations, Borrow Sources, Quarries and their analysis 												

**MAJOR WORK DURING LAST TEN YEARS WHICH BEST
ILLUSTRATES QUALIFICATIONS**

Project Data Sheet No.23

Page 2 of 2

- Traffic Counts and Surveys, Axle Loads Study and related analysis
- Hydrological Studies, Design of River Training Works
- Capacity Analysis
- Pavement Design
- Detailed Design of Bridges, Sub Structures/Super Structures, Drainage Structures
- Storm Water Drainage
- Preparation of Construction Drawings, Plan and Profiles, Longitudinal Sections and Cross Sections
- Bill of Quantities
- Preparation of Specifications, Tender Documents, General and Special Terms and Conditions of Contract as per FIDIC
- Evaluation of Tenders / Bids for Procurement

During Supervision:

- Project Monitoring
- Construction Contract Management
- Quality Control
- Quality Assurance
- Materials Testing
- Contract Interpretation and Evaluation of Claims
- Setting out of Works
- Inspection and Testing as per Specifications
- Processing of Bills/IPC's

Type of Services provided:

Hydrological Surveys, Soil Surveys, Topographic Surveys, Planning Studies, Technical Studies, Design – Architectural / Engineering / Industrial etc., Soil Mechanics and Foundation Engineering, Hydraulics Studies and Engineering, Earthquake Engineering, Quantity Surveying / Cost Estimating, Estimation / Preparation of Contract Documents and Bid Evaluation, Structural Engineering, Procurement Services, Supervision/ Inspection of Construction, Project Management/Administration (on behalf of owner), Technical Assistance and Advisory Services, Material Testing, Quality Control, Project Monitoring and Evaluation.

Fields of Specialization:

Agriculture & Rural Development Sector:

Rural Development Planning, Physical Infrastructure, Flood/River Control Works.

Transportation Sector:

National/Regional/Multimodal Transportation Planning – Traffic/Origin-Destination Surveys – Demand forecasting, - Highway Planning & Programming, Rural Feeder Roads (Farm to Market) (Highway Planning & Programming), New Highways/Improvements & Reconstruction, Rural Feeder Roads (Farm to Market) (New Highways, New Structures/Reconstruction), Bridges (Road Transportation Facilities), Highways Safety.

**MAJOR WORK DURING LAST TEN YEARS WHICH BEST
ILLUSTRATES QUALIFICATIONS**

Project Data Sheet No.22

Page 1 of 2

Assignment Name: Design Vetting & Supervision Services for the Construction of Overlay on National Highway N-5 between Gujranwala and Kharian (57) kms - Contract 8bl, 4 th IBRD Highway Loan 2841 Pak		Country: Pakistan
Location within Country: Province of Punjab		Number of person-months of the entire project: 260
Name of Client: National Highways Authority, Government of Pakistan - # 28, Mauve Area, G-9/1, Islamabad		Total value of full project (in million US\$): US \$ 19.00 million
No. of Staff: 12		No. of Persons-Months: 260
Start Date (Month/Year): July 1993	Completion Date (Month/Year): December 1996	Approx. Value of Services (in million US\$): US \$ 620,000/-
Name of Associated Firm(s), If Any: None		No. of Months of Professional Staff Provided by Associated Firm(s): Nil
Name of Key Experts of the firm (Project Director/Coordinator, Team Leader) Involved and Functions Performed: For design vetting: Sr. Design Engineer, Pavement Design Engineer, Highway Design Engineer, Surveyors, Quantity Surveyors, and Material Engineer were deployed. For Supervision a Resident Engineer, Site Engineer, Material Engineer, Surveyor and Quantity Surveyor along with other support staff was deployed provided contract administration and quality control and assurance on behalf of the Client.		
Brief Narrative Description of Project: Design of overlay was made in 1987 by ACC, however due to late construction start, design vetting was carried out and overlay design re-evaluated. Construction of Improvement of a 57 km section of National Highway N-5 between Gujranwala and Kharian was a part of improvement of National Highway N-5 from Lahore to Rawalpindi under the 4 th IBRD Highway Project. In this Contract, ACC was the Engineer for the Project, and the interpretation and implementation of the COCs was the responsibility of the Engineer on behalf of the Client. The COCs and bidding documents are based on FIDIC sample documents. The work was awarded to M/s J&P (Cyprus).		
Description of Actual Services Provided: During design vetting the following tasks were performed:- <ul style="list-style-type: none"> ✓ Traffic Counts and forecasting ✓ Axle Load Studies and calculation of Design ESALS ✓ NDT/FWD and Back Calculations ✓ Pavement Condition Evaluation ✓ Pavement Design ✓ Design of Major Intersections, Traffic Signals ✓ Design of Urban Areas, Bus Bays, Channelization ✓ Plan & Profile Drawings 		

**MAJOR WORK DURING LAST TEN YEARS WHICH BEST
ILLUSTRATES QUALIFICATIONS**

Project Data Sheet No.22

Page 2 of 2

The following supervision services were provided:-

- Staking out, verification of PRM and permanent benchmarks.
- Soil investigations and approval of borrow areas including particle size analysis, CBR, atterberg limits, salt contents, water table determination and other standard tests, approval of quarries and related analyses of materials.
- Assist client in land acquisition proceedings.
- Testing of materials brought on site like steel, cement, asphalt, aggregates etc.
- Insitu testing of densities and compaction using AASHTO standards.
- Preparation of Concrete Mix Designs and testing of Concrete.
- Preparation of Job Mix Formulae for Asphalt.
- Quality Control/Quality Assurance
- Review and adjustments to geometric design and design of structures as per site requirements.
- Liaison with the client and keeping him abreast of day to day problems and progress of works. Informing him ahead of time regarding contractual problems, delays and anticipated bottlenecks. Assisting the contractor in improving his logistics and methodology.
- Evaluation of Contractors Claims
- Checking and verifying IPCs and overall contract administration.

Type of Services provided:

Technical Studies, Design – Architectural / Engineering / Industrial etc., Soil Mechanics and Foundation Engineering, Hydraulics Studies and Engineering, Quantity Surveying / Cost Estimating, Estimation / Preparation of Contract Documents and Bid Evaluation, Structural Engineering, Supervision/Inspection of Construction, Project Management / Administration (on behalf of owner), Technical Assistance and Advisory Services, Material Testing, Quality Control, Project Monitoring and Evaluation.

Fields of Specialization:

Construction Industry Development Sector:

Construction Management

Transportation Sector:

Highway Planning & Programming, Highways, New Highways/Improvements & Reconstruction, Primary Roads, New Structures/Reconstruction, - Bridges (Road Transportation Facilities), Maintenance of Highways, - Execution (Highways), Highways Safety.

Urban Development Sector:

Street Lighting, Traffic Management, Signs & Signalization, Channelization, Traffic Flow, Regulation Measures, Area Traffic Control Schemes, Urban Transport Planning, Traffic/Transport Surveys & Analysis.

**MAJOR WORK DURING LAST TEN YEARS WHICH BEST
ILLUSTRATES QUALIFICATIONS**

Project Data Sheet No.21

Page 1 of 2

Assignment Name: Detailed Engineering Design and construction supervision of Farm to Market Roads Project in Khairpur District of the Province of Sindh – ADB Loan 917 Pak (SF)		Country: Pakistan														
Location within Country: Province of Sindh		Number of person-months of the entire project: 253														
Name of Client: Communication & Works Department, Government of Sindh.		Total value of full project (in million US\$): US \$ 20.36 million														
No. of Staff: 75		No. of Persons-Months: 253														
Start Date (Month/Year): June 1991	Completion Date (Month/Year): December 1996	Approx. Value of Services (in million US\$): US \$ 910,000/-														
Name of Associated Firm(s), If Any: None		No. of Months of Professional Staff Provided by Associated Firm(s): Nil														
Name of Key Experts of the firm (Project Director/Coordinator, Team Leader) Involved and Functions Performed: Top supervision was provided by senior management. A Technical Manager, Highway and Structural Design Engineers, Pavement Design Engineers, Material Engineer, Surveyors, CAD Designers and other staff was deployed for design. For construction supervision Chief Resident Engineer, Resident Engineers, Material Engineers, Site Engineers Inspectors, Laboratory Technicians, Surveyors, Quantity Surveyors were deployed.																
Brief Narrative Description of Project: The project comprised detailed engineering design and construction supervision of the following roads totaling 139 kilometers in Khairpur District: <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 80%;">1) Thari Mirwah - Mehrabpur Road</td> <td style="text-align: right;">24 KM</td> </tr> <tr> <td>2) Kot Lalu - Akro Road</td> <td style="text-align: right;">23 KM</td> </tr> <tr> <td>3) National Highway to Adam Sultan</td> <td style="text-align: right;">10 KM</td> </tr> <tr> <td>4) Kumb Kot Lalu to Pholri via Bhango</td> <td style="text-align: right;">17 KM</td> </tr> <tr> <td>5) Nara Gate to Tajjal</td> <td style="text-align: right;">30 KM</td> </tr> <tr> <td>6) Mehrabpur to Thari Mirwah via Haji Kabul Mojal</td> <td style="text-align: right;">19 KM</td> </tr> <tr> <td>7) Razidero to Baharo via Sona Bhatti</td> <td style="text-align: right;">16 KM</td> </tr> </table>			1) Thari Mirwah - Mehrabpur Road	24 KM	2) Kot Lalu - Akro Road	23 KM	3) National Highway to Adam Sultan	10 KM	4) Kumb Kot Lalu to Pholri via Bhango	17 KM	5) Nara Gate to Tajjal	30 KM	6) Mehrabpur to Thari Mirwah via Haji Kabul Mojal	19 KM	7) Razidero to Baharo via Sona Bhatti	16 KM
1) Thari Mirwah - Mehrabpur Road	24 KM															
2) Kot Lalu - Akro Road	23 KM															
3) National Highway to Adam Sultan	10 KM															
4) Kumb Kot Lalu to Pholri via Bhango	17 KM															
5) Nara Gate to Tajjal	30 KM															
6) Mehrabpur to Thari Mirwah via Haji Kabul Mojal	19 KM															
7) Razidero to Baharo via Sona Bhatti	16 KM															
Description of Actual Services Provided: The work entailed survey, soil investigations, route alignment, traffic studies, geometric design, pavement design and preparation of all tender documents and drawings in the design stage as per guidelines of the Asian Development Bank.																

**MAJOR WORK DURING LAST TEN YEARS WHICH BEST
ILLUSTRATES QUALIFICATIONS**

Project Data Sheet No.21

Page 2 of 2

Details of services provided are as follows:-

- Detailed Topographic Survey
- Study on Alternate Alignments
- Fixing of Permanent Reference Monuments and Establishing Permanent Bench Marks
- Soil, Sub Soil Investigations, Borrow Sources, Quarries and their analysis
- Traffic Counts and Surveys, Axle Loads Study and related analysis
- Hydrological Studies, Design of River Training Works
- Capacity Analysis
- Pavement Design
- Detailed Design of Bridges, Sub Structures/Super Structures, Drainage Structures
- Storm Water Drainage
- Preparation of Construction Drawings, Plan and Profiles, Longitudinal Sections and Cross Sections
- Bill of Quantities
- Preparation of Specifications, Tender Documents, General and Special Terms and Conditions of Contract as per FIDIC
- After design stage was completed, pre-qualification of contractors, NIT, pre-bid meetings, bid evaluations and recommendation for award was carried out as per ADB Guidelines.

During Supervision:

- Project Monitoring
- Construction Contract Management
- Quality Control
- Quality Assurance
- Materials Testing
- Contract Interpretation and Evaluation of Claims
- Setting out of Works
- Inspection and Testing as per Specifications
- Processing of Bills/IPC's

Type of Services provided:

Hydrological Surveys, Soil Surveys, Topographic Surveys, Planning Studies, Technical Studies, Design – Architectural / Engineering / Industrial etc., Soil Mechanics and Foundation Engineering, Hydraulics Studies and Engineering, Earthquake Engineering, Quantity Surveying / Cost Estimating, Estimation / Preparation of Contract Documents and Bid Evaluation, Structural Engineering, Procurement Services, Supervision/ Inspection of Construction, Project Management/Administration (on behalf of owner), Technical Assistance and Advisory Services, Material Testing, Quality Control, Project Monitoring and Evaluation.

Fields of Specialization:

Agriculture & Rural Development Sector:

Rural Development Planning, Physical Infrastructure, Flood/River Control Works.

Transportation Sector:

National/Regional/Multimodal Transportation Planning – Traffic/Origin-Destination Surveys – Demand forecasting, - Highway Planning & Programming, Rural Feeder Roads (Farm to Market) (Highway Planning & Programming), New Highways/Improvements & Reconstruction, Rural Feeder Roads (Farm to Market) (New Highways, New Structures/Reconstruction), Bridges (Road Transportation Facilities), Highways Safety.

**MAJOR WORK DURING LAST TEN YEARS WHICH BEST
ILLUSTRATES QUALIFICATIONS**

Project Data Sheet No.20

Page 1 of 2

Assignment Name: Construction Supervision of FHP Contract Section 7a, 7b and 8a, Gujranwala to Kharian Section of 94 Kms on N-5, IBRD Loan 2841 Pak		Country: Pakistan
Location within Country: Province of Punjab		Number of person-months of the entire project: 1200
Name of Client: National Highways Authority, Government of Pakistan - # 28, Mauve Area, G-9/1, Islamabad		Total value of full project (in million US\$): US \$ 48.50 million
No. of Staff: 30		No. of Persons-Months: 1200
Start Date (Month/Year): January 1988	Completion Date (Month/Year): September 1996	Approx. Value of Services (in million US\$): US \$ 2,270,000/-
Name of Lead Firm(s), If Any: M/s ACER Freeman Fox, UK		No. of Months of Professional Staff Provided by Associated Firm(s): 192
Name of Key Experts of the firm (Project Director/Coordinator, Team Leader) Involved and Functions Performed: The senior staff comprised of Resident Engineers, highly experienced highway, bridge, materials and site engineers with extensive experience in construction supervision of highway projects. The key staff was supported by surveyors, measurement engineers, laboratory technicians and site inspectors. The functions performed were initially those of the Engineers Representative and later as the Engineer as defined in the FIDIC Contracts.		
Brief Narrative Description of Project: The project was a world bank financed project and a part of the Fourth IBRD Highway Project. The scope of work included full supervision of highway construction for 94 kilometers in two contract packages and also of four major bridges as a separate contract. Bridges included the Chenab River Bridge of 760 meters length. Quality control and assurance, measurements, processing of IPC, claims, escalations and contract management services were provided.		
Description of Actual Services Provided: Initially from 1988 to 1993 M/s FFL were the Engineers and after 1993, M/s ACC were appointed the Engineers for the project. During the role of Engineer M/s ACC resolved several difficult outstanding issues left over from the time of M/s FFL and managed to achieve completion of final account and issue of maintenance certificates. During construction the several design changes and problems at site were tackled by the staff and elegant solutions proposed. Due to effective management and control of the project the final costs have been within the final variation order costs of the project. All services as per role of the Engineer under the Contract were performed including approval of setting out, checking of lines and levels, shop drawings, work plans & programs, civil works, measurements, quality control and quality assurance, evaluation of claims, project cost control, approval of mix designs, approval of maintenance works, checking and certifying of IPCs etc.		

**MAJOR WORK DURING LAST TEN YEARS WHICH BEST
ILLUSTRATES QUALIFICATIONS**

Project Data Sheet No.20

Page 2 of 2

Type of Services provided:

Hydrological Surveys, Soil Surveys, Topographic Surveys, Technical Studies, Design – Architectural / Engineering / Industrial etc., Soil Mechanics and Foundation Engineering, Hydraulics Studies and Engineering, Quantity Surveying / Cost Estimating, Estimation / Preparation of Contract Documents and Bid Evaluation, Structural Engineering, Supervision/Inspection of Construction, Project Management / Administration (on behalf of owner), Material Testing, Quality Control, Project Monitoring and Evaluation.

Fields of Specialization:

Agriculture & Rural Development Sector

Flood/River Control Works

Construction Industry Development Sector:

Construction Management

Transportation Sector:

Highway Planning & Programming, Highways, New Highways/Improvements & Reconstruction, Primary Roads, New Structures/Reconstruction, - Bridges (Road Transportation Facilities), Maintenance of Highways, - Organization/Funding & Programming, Highways Safety.

**MAJOR WORK DURING LAST TEN YEARS WHICH BEST
ILLUSTRATES QUALIFICATIONS**

Project Data Sheet No.19

Page 1 of 2

Assignment Name: Detailed engineering design and construction supervision of Infrastructure and Township at the Copper Gold Complex Saindak		Country: Pakistan
Location within Country: Province of Balochistan		Number of person-months of the entire project: 300
Name of Client: Resource Development Corporation, Quetta.		Total value of full project (in million US\$): US \$ 50.00 million
No. of Staff: 12		No. of persons-months: 300
Start Date (Month/Year): September 1991	Completion Date (Month/Year): July 1996	Approx. Value of Services (in million US\$): US \$ 180,000/-
Name of Associated Firm (s), If Any: None		No. of Months of Professional Staff Provided by Associated Firm (s): Nil
Names of Key Experts of the firm (Project Director/Coordinator, Team Leader) Involved and Functions Performed: The senior staff comprised of highly experienced town planners, architects, highway, materials, water supply and sewerage systems designers and electrical engineers with extensive experience in detailed engineering design of townships and construction supervision of civil works. After completing the design work and master planning, supervision services were provided during construction. The supervision staff comprises of a Resident Engineer, site engineers, surveyors and laboratory technicians.		
Brief Narrative Description of Project: The project was located at the Saindak Copper Gold mining and refinery complex in Balochistan near Iran border. The work entailed topographic survey, soil investigations, master planning, town planning, housing and commercial areas requirements, detailed design of water supply, sewerage, drainage, roads, electrification, other utilities, preparation of all tender documents and drawings in the design stage. The water supply component alone involved overhead storage tanks, bulk reservoirs, deep tubewells, transportation of water by main pipes across 45 kilometers, pumping stations, internal distribution etc. After award of civil works construction supervision services were provided.		
Description of Actual Services Provided: The project involved the design of a complete township spread over 4 square kilometers including various types of housing units, bungalows, mosques, schools, shopping centers, clubs, industrial buildings and a hospital. Complete infrastructure facilities like roads, water supply and sewerage, electrification etc., were designed. ACC was responsible for pre-qualification of contractors, evaluation of bids and recommendation of procurement awards to the client, and detailed supervision of all civil works.		

**MAJOR WORK DURING LAST TEN YEARS WHICH BEST
ILLUSTRATES QUALIFICATIONS**

Project Data Sheet No.19

Page 2 of 2

Type of Services provided:

Hydrological Surveys, Soil Surveys, Topographic Surveys, Planning Studies, Feasibility Studies, Economic Studies, Financial Studies, Technical Studies, Environmental Studies, Design – Architectural / Engineering / Industrial etc., Soil Mechanics and Foundation Engineering, Hydraulics Studies and Engineering, Quantity Surveying / Cost Estimating, Estimation/Preparation of Contract Documents and Bid Evaluation, Structural Engineering, Supervision/Inspection of Construction, Project Management/Administration (on behalf of owner), Technical, Quality Control, Monitoring and Evaluation.

Fields of Specialization:

Energy Sector:

General, Energy Demand forecasting, Energy Planning

Industry Sector:

Industrial Parks/Estates, Industrial Plant/Factory Buildings

Transportation Sector:

Highway Planning & Programming, New Highways/Improvements & Reconstruction, New Structures/ Reconstruction.

Urban Development Sector:

Urban Development Planning, Urban Area Survey/Analysis & Monitoring, Strategic Development Planning (incl. Master Planning), Shelter/Housing Planning/Design/Engineering & Implementation, Sites & Services-Planning/Design & Engineering, Municipal Services, Community Facilities/Planning & Design, Traffic Management.

Water Supply and Sanitation Sector:

Water System Planning & Design, Water Resource Development, Ground Water, Water Quality, Source Reservoirs, Water Transmission, Low-Cost Urban Sanitation, Storm Drainage

**MAJOR WORK DURING LAST TEN YEARS WHICH BEST
ILLUSTRATES QUALIFICATIONS**

Project Data Sheet No.18

Page 1 of 2

Assignment Name: Master Planning, Detailed engineering design and construction supervision of Infrastructure for the Gulshan-e-Rail Township in Khana Kaccha Lahore.		Country: Pakistan
Location within Country: Lahore, Province of Punjab.		Number of person-months of the entire project: 36
Name of Client: Federation of Railway Cooperative Housing Society, Lahore		Total value of full project (in million US\$): US \$ 2.00 million
No. of Staff: 6		No. of persons-months: 36
Start Date (Month/Year): September 1995	Completion Date (Month/Year): April 1996	Approx. Value of Services (in million US\$): US \$ 70,000/-
Name of Associated Firm (s), If Any: None		No. of Months of Professional Staff Provided by Associated Firm (s): Nil
Names of Key Experts of the firm (Project Director/Coordinator, Team Leader) Involved and Functions Performed: The senior staff comprised of highly experienced town planners, architects, highway, materials, water supply and sewerage systems designers and electrical engineers with extensive experience in detailed engineering design and planning of townships.		
Brief Narrative Description of Project: The project entails carrying out master planning of the housing scheme in conformity to the applicable codes. Providing detailed design for all infrastructure, like water supply, sewerage, storm water drains, power, roads, sidewalks, etc.		
Description of Actual Services Provided: A detailed topographic survey was carried out on the basis of which the Master Plan has been prepared to provide for residential, commercial, recreational areas, internal roads, drainage, water supply, sewage, and all utilities. After approval of master plan, detailed design of all infrastructure was carried out and tender documents were prepared for award of civil works. Total land area was 343 Kanals .		
Type of Services provided: Hydrological Surveys, Soil Surveys, Topographic Surveys, Planning Studies, Feasibility Studies, Market Studies, Economic Studies, Financial Studies, Technical Studies, Environmental Studies, Design – Architectural / Engineering / Industrial etc., Soil Mechanics and Foundation Engineering, Quantity Surveying / Cost Estimating, Estimation/Preparation of Contract Documents and Bid Evaluation, Structural Engineering.		

**MAJOR WORK DURING LAST TEN YEARS WHICH BEST
ILLUSTRATES QUALIFICATIONS**

Project Data Sheet No.18

Page 2 of 2

Fields of Specialization:

Energy Sector:

General

Urban Development Sector:

Urban Development Planning, Urban Area Survey/Analysis & Monitoring, Strategic Development Planning (incl. Master Planning), Land Use/Transportation Planning, Sites & Services-Planning/Design & Engineering, Land Development (Residential/Commercial/Industrial), Municipal Engineering, Urban Road Construction & Maintenance, Street Lighting, Community Facilities/Planning & Design, Building Standards & Regulations.

Water Supply and Sanitation Sector:

Water System Planning & Design, Water Resource Development, Ground Water, Water Quality, Water Storage, Water Treatment, Water Distribution, Sanitation, Sewage Treatment, Storm Drainage, Solid Waste, Requirements forecasting.

**MAJOR WORK DURING LAST TEN YEARS WHICH BEST
ILLUSTRATES QUALIFICATIONS**

Project Data Sheet No.17

Page 1 of 2

Assignment Name: National Procurement Reforms Programme (NPRP) – TF 028753		Country: Pakistan	
Location within Country: Islamabad, Pakistan		Number of person-months of the entire project: 36	
Name of Client: Ministry of Finance, Govt. of Pakistan, Islamabad / The World Bank - 20-A Shaharah-e-Jamhuriat, G-5/1, Islamabad, Pakistan		Total value of full project (in million US\$): US \$ 35.00 million	
No. of Staff: 4		No. of persons-months: 24	
Start Date (Month/Year): March 1995	Completion Date (Month/Year): March 1996	Approx. Value of Services (in million US\$): US \$ 80,000/-	
Name of Lead Firm (s), If Any: M/s International Procurement Consultants, Inc. USA.		No. of Months of Professional Staff Provided by Associated Firm (s): 12	
Names of Key Experts of the firm (Project Director/Coordinator, Team Leader) Involved and Functions Performed: Team Leader, Project Coordinator, Procurement Specialist, Contracts Specialist.			
Brief Narrative Description of Project: M/s International Procurement Consultants were awarded the project financed through a grant by the World Bank/IDF. Pakistan National Procurement Reforms programme was developed to: <ul style="list-style-type: none"> a. Report on the relevance and needed modifications of the findings and recommendations of the earlier Sindh Procurement Conference for procurement reform at the Federal and provincial levels. b. Provide interim procurement guidelines and written principles to guide revision and formulation of federal and provincial laws and rules. c. Prepare a revised federal procurement code. d. Prepare a model procurement code e. Prepare model procurement documents and engineering code and user handbooks. f. Prepare a contract management with flow charts and description of steps and corresponding concerns g. Prepare a contract management and administration system with standard response times. h. Model provisions and conditionalities for World Bank supported projects in Pakistan. i. Propose a system for monitoring results of procurement reforms. j. Prepare a national training plan for procurement and trainer training. 			
Description of Actual Services Provided: ACC provided the technical, administrative and logistical support to the lead consultants M/s International Procurement Consultants, USA on the National Procurement Reforms Program Phase-I. ACC assisted in collecting all relevant information related to current procurement practice within the government of Pakistan (Federal, Provincial, City). Conducted preliminary evaluations of collected data. Prepared formal reports and executive summaries under direction of IPC. Coordinated steering committee meetings at the highest government decision making levels.			

**MAJOR WORK DURING LAST TEN YEARS WHICH BEST
ILLUSTRATES QUALIFICATIONS**

Project Data Sheet No.17

Page 2 of 2

Project technical responsibilities included analysis and review of the procurement cycles in the country for goods, services, and works, development of draft standard procurement documents for goods, commodities, services, works, etc. Assisted in development of draft legislation for procurement based on UNCITRAL model law and the draft recommendations for establishing of a National Procurement Authority.

Type of Services provided:

Policy Studies, Planning Studies, Procurement Services, Technical Assistance and Advisory Services, Management Information Systems, Institutional Strengthening/Restructuring, Organizational Development Studies, Training and Transfer of Technology, Legal Services.

Fields of Specialization:

Construction Industry Development Sector:

General, Institution Buildings.

Energy Sector:

General

Industry Sector:

Industry General

Transportation Sector:

General

**MAJOR WORK DURING LAST TEN YEARS WHICH BEST
ILLUSTRATES QUALIFICATIONS**

Project Data Sheet No.16

Page 1 of 2

Assignment Name: Design and Supervision Services for Overlay on National Highway N-5 between Lahore and Gujranwala (40) kms, including Rehabilitation / widening of Structures and improvement of Urban Areas - Pavital Catalyzed Sections, Phase I and II.		Country: Pakistan
Location within Country: Province of Punjab		Number of person-months of the entire project: 90
Name of Client: National Highways Authority, Government of Pakistan - # 28, Mauve Area, G-9/1, Islamabad		Total value of full project (in million US\$): US \$ 11.212 million
No. of Staff: 6		No. of persons-months: 90
Start Date (Month/Year): February 1994	Completion Date (Month/Year): June 1995	Approx. Value of Services (in million US\$): US \$ 106,000/-
Name of Associated Firm (s), If Any: None		No. of Months of Professional Staff Provided by Associated Firm (s): Nil
Names of Key Experts of the firm (Project Director/Coordinator, Team Leader) Involved and Functions Performed: For design vetting: Sr. Design Engineer, Pavement Design Engineer, Quantity Surveyor, Surveyors, Material Engineer and other support staff were deployed. For Supervision One Resident Engineer, Lab. Technician, One Surveyor, Site Engineer and a Senior Surveyor were deployed to provide Quality Assurance/Quality Control and Contract Monitoring on behalf of the Client.		
Brief Narrative Description of Project: The Project consisted of Design and Construction Monitoring of Improvement of a 40 km section of National Highway N-5 between Lahore and Gujranwala by means of an overlay. Scope included design and construction of urban areas. The project is unique in Pakistan as it introduced a new technology using a stabilized catalyzed base product which is a patented material developed by the Contractor, M/s Pavital SPA (Italy) which is sort of a rigid pavement. The pavement structure has a full guarantee of five years by the contractor in an environment consisting of high temperatures, over loading and high tire pressures. Phase I & II consisting of 20 Km each have been completed. In these Contracts, ACC was nominated as the Engineer for the Project, and the interpretation, and implementation of the COCs was the responsibility of the Engineer on behalf of the Client. The COCs and bidding documents are based on FIDIC sample documents.		
Description of Actual Services Provided: In design ACC provided surveying, field testing, soil studies, NDT/FWD testing and evaluation, traffic studies and forecasting, axle load studies and design EASLs analysis, cross drainage requirements and design of structures, vetting of pavement design and drawings prepared by the Contractor. Detailed analysis and design of Urban Areas, design of storm water drainage in urban areas, design of intersections, signs, channelization, bus bays, lighting etc., and design of other improvements for better traffic flow in highly congested areas was carried out by ACC.		

**MAJOR WORK DURING LAST TEN YEARS WHICH BEST
ILLUSTRATES QUALIFICATIONS**

Project Data Sheet No.16

Page 2 of 2

The following supervision monitoring tasks were carried out:

- Staking out, verification of PRM and permanent benchmarks.
- Soil investigations and approval of borrow areas including particle size analysis, CBR, atterberg limits, salt contents, water table determination and other standard tests, approval of quarries and related analyses of materials.
- Testing of materials brought on site like steel, cement, asphalt, aggregates etc.
- Insitu testing of densities and compaction using AASHTO standards.
- Preparation and approval of Concrete Mix Designs and testing of Concrete.
- Preparation and approval of Job Mix Formulae for Asphalt.
- Review and adjustments to geometric design as per site requirements.
- Liaison with the client and keeping him abreast of day to day problems and progress of works. Informing him ahead of time regarding contractual problems, delays and anticipated bottlenecks.
- Checking and verifying IPCs and overall contract administration.

Type of Services provided:

Soil Surveys, Topographic Surveys, Planning Studies, Technical Studies, Design – Architectural / Engineering / Industrial etc., Soil Mechanics and Foundation Engineering, Hydraulics Studies and Engineering, Quantity Surveying / Cost Estimating, Estimation / Preparation of Contract Documents and Bid Evaluation, Structural Engineering, Supervision/Inspection of Construction, Project Management / Administration (on behalf of owner), Material Testing, Quality Control, Project Monitoring and Evaluation.

Fields of Specialization:

Construction Industry Development Sector:

Construction Management

Transportation Sector:

National/Regional/Multimodal Transportation Planning, Traffic/Origin-Destination Surveys, Demand forecasting, Highway Planning & Programming, Highways, New Highways/Improvements & Reconstruction, Primary Roads, New Structures/Reconstruction, Maintenance of Highways, Highway Traffic Control, Highways Safety.

Urban Development Sector:

Traffic Management, Signs & Signalization, Channelization, Traffic Flow Regulation Measures, Area Traffic Control Schemes, Urban Transport Planning.

Water Supply and Sanitation Sector:

Strom Drainage

**MAJOR WORK DURING LAST TEN YEARS WHICH BEST
ILLUSTRATES QUALIFICATIONS**

Project Data Sheet No.15

Page 1 of 2

Assignment Name: Detailed Engineering Design for World Bank Financed MBRP/RSP-7156, RSP-7157 and RSP-7158 sections on National Highway N-5 at Sangjani, Hasanabdal and Wah Cantt 9 Kms – Loan 2841 Pak		Country: Pakistan
Location within Country: Province of Punjab		Number of person-months of the entire project: 16
Name of Client: National Highways Authority, Government of Pakistan - # 28, Mauve Area, G-9/1, Islamabad		Total value of full project (in million US\$): US \$ 3.50 million
No. of Staff: 9		No. of Persons-Months: 16
Start Date (Month/Year): January 1995	Completion Date (Month/Year): March 1995	Approx. Value of Services (in million US\$): US \$ 10,000/-
Name of Associated Firm(s), If Any: None		No. of Months of Professional Staff Provided by Associated Firm(s): Nil
Name of Key Experts of the firm (Project Director/Coordinator, Team Leader) Involved and Functions Performed: The senior staff comprised of highly experienced highway, bridge, materials and pavement design engineers. The key staff was supported by surveyors, measurement engineers, laboratory technicians and CAD Drafting personnel. The functions performed were those of detailed design and preparation of tender documents for the rehabilitation of highway N-5.		
Brief Narrative Description of Project: The scope of work included investigations, NDT using FWD and data analysis, prepared detailed design and contract documents as per IBRD guidelines for the three contracts under Maintenance Backlog Reduction Program. Design was based on the residual strength of the existing carriageway and present road conditions and traffic volumes. For resurfacing and strengthening works, the design was to be based on water bound macadam base with triple surface treatment. For the rehabilitation contracts the design was to be provided for aggregate bases, asphaltic bases and wearing courses.		
Description of Actual Services Provided: The activities carried out included detailed topographic survey and reports, traffic studies and forecasting, axle load studies, soil investigations, pavement analysis using NDT/FWD and data analysis, material surveys and testing. AASHTO/ASTM standards were followed for pavement and geometric design. Structural design for drainage structures to be rehabilitated/reconstructed was prepared. The documents submitted included design and materials reports, tender documents and drawings, and engineer's estimates.		
Type of Services provided: Hydrological Surveys, Soil Surveys, Topographic Surveys, Planning Studies, Design – Architectural / Engineering / Industrial etc., Soil Mechanics and Foundation Engineering, Hydraulics Studies and Engineering, Quantity Surveying / Cost Estimating, Estimation / Preparation of Contract Documents and Bid Evaluation, Structural Engineering, Material Testing, Maintenance Planning.		
Fields of Specialization: Transportation Sector: National/Regional/Multimodal Transportation Planning, Traffic/Origin-Destination Surveys, Demand forecasting, Highway Planning & Programming, Highways, New Highways/Improvements & Reconstruction, Primary Roads, New Structures/Reconstruction, - Bridges (Road Transportation Facilities), Maintenance of Highways, Highways Safety, Road Transport Economics.		

**MAJOR WORK DURING LAST TEN YEARS WHICH BEST
ILLUSTRATES QUALIFICATIONS**

Project Data Sheet No.14

Page 1 of 2

Assignment Name: Detailed Engineering Design and Technical & Economic Feasibility Study for Gwadar Ratodero Motorway, Khuzdar- Karkh - Shahdad Kot Section - 208 Kilometers including Nineteen Major Bridges.		Country: Pakistan
Location within Country: Provinces of Balochistan and Sindh		Number of person-months of the entire project: 180
Name of Client: National Highways Authority, MOC, Government of Pakistan - # 28, Mauve Area, G-9/1, Islamabad		Total value of full project (in million US\$): US \$ 133.33 million
No. of Staff: 15		No. of persons-months: 180
Start Date (Month/Year): June 1993	Completion Date (Month/Year): January 1995	Approx. Value of Services (in million US\$): US \$ 280,000/-
Name of Associated Firm (s), If Any: None		No. of Months of Professional Staff Provided by Associated Firm (s): Nil
Names of Key Experts of the firm (Project Director/Coordinator, Team Leader) Involved and Functions Performed: Sr. Design Engineer, Pavement Design Engineer, Sr. Structures Engineer, Highway Designers, Contract Specialist, Transport Economist, Materials Engineer, CAD Engineers, Estimators and support staff were deployed to carry out the detailed design and technical / economic feasibility study.		
Brief Narrative Description of Project: A 208 kilometers long highway from Khuzdar City (Balochistan) to Shahdadkot (Sindh) has been designed. This proposed road traverses through some of the most arid and difficult mountainous regions of Balochistan, providing an East-West link for Sindh and Balochistan provinces in addition to being a vital section of the Gawadar - Ratodero Motorway. The road is a 7.3 meters wide, Asphalt pavement with three meter shoulders. Bypasses for three towns along the route have been provided. The number of major bridges designed in this section is nineteen. A total of 75 additional Kms was traversed to identify alternate alignments for the road in the Kirthar range / Wangu Hills area and extensive use was made of aerial photographs and aerial reconnaissance.		
Description of Actual Services Provided: Tasks executed were: <ul style="list-style-type: none"> • Geodetic survey, detailed topographic survey, route and alignment selection, fixing of permanent reference monuments and permanent benchmarks. • Soil investigations including particle size analysis, CBR, atterberg limits, salt contents, water table determination and other standard tests. Sub Soil investigations for bridges were carried by means of boring, SPT etc., study of borrow sources, quarries and related analyses of materials. • Study of Right of Way, land acquisition and relocation of utilities • Traffic counts and surveys, origin - destination studies • Axle load studies and determination of Design ESALs • Pavement Design • Highway Geometric Design • Design of nineteen (19) major bridges over river including sub structure, super structure • Design of river training works • Design of Retaining Walls • Design of intersections. • Hydrological studies • Capacity analysis. • Preparation of Mass Haul Diagrams for cut/fill. 		

**MAJOR WORK DURING LAST TEN YEARS WHICH BEST
ILLUSTRATES QUALIFICATIONS**

Project Data Sheet No.14

Page 2 of 2

- Geometric pavement design, detailed design of structure,
- Economic studies, sensitivity analysis
- Preparation of Project Approval Documents (PC I)
- Preparation of construction drawings, bill of quantities, preparation of specifications, tender documents etc. as per FIDIC.

Type of Services provided:

Aerial Surveys/Satellite Imagery, Hydrological Surveys, Soil Surveys, Topographic Surveys, Planning Studies, Feasibility Studies, Market Studies, Economic Studies, Financial Studies, Technical Studies, Design – Architectural / Engineering / Industrial etc., Soil Mechanics and Foundation Engineering, Hydraulics Studies and Engineering, Earthquake Engineering, Quantity Surveying / Cost Estimating, Estimation / Preparation of Contract Documents and Bid Evaluation, Structural Engineering, Material Testing.

Fields of Specialization:

Agriculture & Rural Development Sector

Flood/River Control Works

Transportation Sector:

National/Regional/Multimodal Transportation Planning, Traffic/Origin-Designation Surveys, Demand forecasting, Highway Planning & Programming, Highways, New Highways/Improvements & Reconstruction, Primary Roads, New Structures/Reconstruction, - Bridges (Road Transportation Facilities), Highways Safety, Road Transport Economics.

**MAJOR WORK DURING LAST TEN YEARS WHICH BEST
ILLUSTRATES QUALIFICATIONS**

Project Data Sheet No.13

Page 1 of 2

Assignment Name: Master Planning, Detailed engineering design and construction supervision of the RAILVIEW Township in Rawalpindi.		Country: Pakistan
Location within Country: Rawalpindi, Province of Punjab.		Number of person-months of the entire project: 60
Name of Client: Federation of Railway Cooperative Housing Society, Lahore		Total value of full project (in million US\$): US \$ 2.00 million
No. of Staff: 6		No. of persons-months: 60
Start Date (Month/Year): May 1992	Completion Date (Month/Year): December 1994	Approx. Value of Services (in million US\$): US \$ 60,000/-
Name of Associated Firm (s), If Any: None		No. of Months of Professional Staff Provided by Associated Firm (s): Nil
Names of Key Experts of the firm (Project Director/Coordinator, Team Leader) Involved and Functions Performed: The senior staff comprised of town planners, road, materials, water supply and sewerage systems designers and electrical engineers with extensive experience in detailed engineering design of infrastructure and planning of townships. In addition staff for top supervision comprising of a project engineer supported by surveyors, and quality control personnel was provided during construction of infrastructure.		
Brief Narrative Description of Project: The project comprised master planning and detailed engineering design for the township and the infrastructure. Project included construction supervision of the entire works.		
Description of Actual Services Provided: The work entailed survey, soil investigations, master planning, detailed design of water supply, storm water drainage, sewage, roads, electrification, lighting, preparation of all tender documents and drawings in the design stage and construction supervision of the civil works. The project site required precision surveying due to its undulating and broken topographic characteristics. The Master Plan has been prepared to take advantage of the natural drainage available without taking up valuable real-estate. Total land area was 394 Kanals .		
Type of Services provided: Soil Surveys, Topographic Surveys, Planning Studies, Feasibility Studies, Market Studies, Economic Studies, Financial Studies, Technical Studies, Design – Architectural / Engineering / Industrial etc., Soil Mechanics and Foundation Engineering, Quantity Surveying / Cost Estimating, Estimation/Preparation of Contract Documents and Bid Evaluation, Structural Engineering, Supervision/Inspection of Construction, Project Management/ Administration (on behalf of owner), Materials Testing, Quality Control.		

**MAJOR WORK DURING LAST TEN YEARS WHICH BEST
ILLUSTRATES QUALIFICATIONS**

Project Data Sheet No.13

Page 2 of 2

Fields of Specialization:

Energy Sector:

Energy Demand forecasting

Urban Development Sector:

Urban Development Planning, Urban Area Survey/Analysis & Monitoring, Strategic Development Planning (incl. Master Planning), Sites & Services-Planning/Design & Engineering, Land Development (Residential/ Commercial/Industrial), Municipal Engineering, Urban Road Construction & Maintenance, Street Lighting, Solid Waste (Refuse), Collection/Disposal, Community Facilities/Planning & Design.

Water Supply and Sanitation Sector:

Water System Planning & Design, Water Resource Development, Ground Water, Water Quality, Water Transmission, Water Distribution, Sanitation, Sewage Treatment, Storm Drainage, Solid Waste.

**MAJOR WORK DURING LAST TEN YEARS WHICH BEST
ILLUSTRATES QUALIFICATIONS**

Project Data Sheet No.12

Page 1 of 2

Assignment Name: Design of National Highway N-40 & Updating Technical and Economic Feasibility Study for Improvement of Quetta (Lakhpas) - Nokkundi Section (478 Kilometers).		Country: Pakistan
Location within Country: Provinces of Balochistan		Number of person-months of the entire project: 215
Name of Client: National Highways Authority, MOC, Government of Pakistan - # 28, Mauve Area, G-9/1, Islamabad		Total value of full project (in million US\$): US \$ 191.2 million
No. of Staff: 22		No. of persons-months: 215
Start (Month/Year): August 1993	Date	Completion Date (Month/Year): December 1994
		Approx. Value of Services (in million US\$): US \$ 390,000/-
Name of Associated Firm (s), If Any: None		No. of Months of Professional Staff Provided by Associated Firm (s): Nil
Names of Key Experts of the firm (Project Director/Coordinator, Team Leader) Involved and Functions Performed: Technical Manager, four highway engineers, three structural engineers, two pavement engineers and two material engineers, one hydrologist and three junior engineers were employed to carry out detailed survey, design, preparation of technical and economic feasibility and tender documents including pavement evaluation. Economist and financial analyst assisted in the feasibility.		
Brief Narrative Description of Project: This 478 km long highway was earlier designed as a 6.1 m wide two lanes facility in 1985. NHA subsequently decided to revise the design to 7.3 m standard width pavement with improved geometrics. The project covered the engineering services for redesigning and carrying out re-alignment in nearly 45% of the length. Several bridges and railway overhead passes were also designed. The assignment included soil investigation, traffic surveys, improvement of geometrics, pavement evaluation, overlay design and pavement widening from an existing 3.4 m to 7.3 m and new highway design in re-aligned reaches. The work also involved more than 1100 cross drainage structures.		
Description of Actual Services Provided: Services provided were: <ul style="list-style-type: none"> • Geodetic survey, detailed topographic survey, route and alignment selection, fixing of permanent reference monuments and permanent benchmarks. • Soil investigations including particle size analysis, CBR, atterberg limits, salt contents, water table determination and other standard tests. Sub Soil investigations for bridges were carried by means of boring, SPT etc., study of borrow sources, quarries and related analyses of materials. • Study of Right of Way, land acquisition and relocation of utilities • Traffic counts and surveys, origin - destination studies • Axle load studies and determination of Design ESALs • Pavement Design • Highway Geometric Design • Design of nineteen (19) major bridges over river including sub structure, super structure • Design of river training works • Design of Retaining WallsDesign of intersections. • Hydrological studies • Capacity analysis. 		

**MAJOR WORK DURING LAST TEN YEARS WHICH BEST
ILLUSTRATES QUALIFICATIONS**

Project Data Sheet No.12

Page 2 of 2

- Preparation of Mass Haul Diagrams for cut/fill.
- Determine of Vehicle Operating Costs
- Establishing Toll Rates for cross border traffic
- Economic studies, Financial Studies, Sensitivity Analysis
- Feasibility Studies
- Preparation of Project Approval Documents (PC I)
- Preparation of construction drawings, bill of quantities, preparation of specifications, tender documents etc. as per FIDIC.

Type of Services provided:

Hydrological Surveys, Soil Surveys, Topographic Surveys, Regional Development Plans, Planning Studies, Feasibility Studies, Market Studies, Economic Studies, Financial Studies, Technical Studies, Design – Architectural / Engineering / Industrial etc., Soil Mechanics and Foundation Engineering, Hydraulics Studies and Engineering, Earthquake Engineering, Quantity Surveying / Cost Estimating, Estimation / Preparation of Contract Documents and Bid Evaluation, Structural Engineering, Material Testing.

Fields of Specialization:

Transportation Sector:

National/Regional/Multimodal Transportation Planning, - Traffic/Origin-Destination Surveys, Demand forecasting, Policies & Investment Programs, Highway Planning & Programming, Highways, New Highways/ Improvements & Reconstruction, Too Roads, Primary Roads, New Structures/Reconstruction, Bridges (Road Transportation Facilities), Maintenance of Highways, Organization/Funding & Programming, Highways Safety, Road Transport Economics, Road User Charges, Financial Analysis/Costing & Tariffs (Road Transportation Industry).

**MAJOR WORK DURING LAST TEN YEARS WHICH BEST
ILLUSTRATES QUALIFICATIONS**

Project Data Sheet No.11

Page 1 of 1

Assignment Name: Project Preparation of Low Cost Urban Housing Project – 25000 units in 25 selected districts of Pakistan.		Country: Pakistan
Location within Country: All Provinces		Number of person-months of the entire project: 1.5
Name of Client: Ministry of Local Government and Rural Development, Government of Pakistan		Total value of full project (in million US\$): US \$ 5.00 million
No. of Staff: 4		No. of persons-months: 1.5
Start Date (Month/Year): August 1994	Completion Date (Month/Year): September 1994	Approx. Value of Services (in million US\$): US \$ 3,000/-
Name of Associated Firm (s), If Any: None		No. of Months of Professional Staff Provided by Associated Firm (s): Nil
Names of Key Experts of the firm (Project Director/Coordinator, Team Leader) Involved and Functions Performed: The senior staff included an architect, and a structural engineer supported by a financial analyst and a quantity surveyor.		
Brief Narrative Description of Project: The project entailed preparing a cost estimate/feasibility document (PC-I) for a low cost mass housing project entailing construction of 25,000 units in 25 districts of Pakistan.		
Description of Actual Services Provided: Typical design of various options were prepared and evaluated along with quantities and costs. Various investment alternatives were looked at in the study including private financing, co-financing, self-help approach in construction and others. Cost of conventional technologies, system built modular housing units, and traditional methods of construction were evaluated and compared using life cycle cost analysis. Feasibility report was prepared.		
Type of Services provided: Sector Studies, Planning Studies, Feasibility Studies, Market Studies, Economic Studies, Financial Studies, Technical Studies, Research Design/Evaluation, Project Financing Advice, Design – Architectural / Engineering / Industrial etc., Quantity Surveying / Cost Estimating, Structural Engineering, Technical Assistance and Advisory Services.		
Fields of Specialization: Urban Development Sector: Urban Development Planning, Strategic Development Planning (incl. Master Planning), Shelter/Housing Planning/Design/Engineering & Implementation, Construction Methods & Materials, Urban Finance, Shelter Sector Finance.		

**MAJOR WORK DURING LAST TEN YEARS WHICH BEST
ILLUSTRATES QUALIFICATIONS**

Project Data Sheet No.10

Page 1 of 2

Assignment Name: Socio-Economic Survey, Surface and Ground Water Survey and Soil Survey for Chashma Right Bank 1st Lift Canal Project, D.I. Khan		Country: Pakistan
Location within Country: North West Frontier Province		Number of person-months of the entire project: 80
Name of Client: Nippon Giken/JICA.		Total value of full project (in million US\$): US \$ 1.00 million
No. of Staff: 15		No. of persons-months: 80
Start Date (Month/Year): July 1993	Completion Date (Month/Year): February 1994	Approx. Value of Services (in million US\$): US \$ 80,000/-
Name of Associated Firm (s), If Any: None		No. of Months of Professional Staff Provided by Associated Firm (s): Nil
Names of Key Experts of the firm (Project Director/Coordinator, Team Leader) Involved and Functions Performed: The senior staff included Agronomist, Financial Analyst, Data Base Specialists, and Enumerators, Social Scientists, Soil Scientists and Marketing Specialist to carry out the four separate studies under the project.		
Brief Narrative Description of Project: The consultancy involved four separate contracts covering: Socio-economic survey, Ground Water Study and Analysis, Surface Water Study and Analysis, and Soil Survey for the proposed command area. The assignment was part of the feasibility study being prepared by M/s Nippon Giken for the Chashma Right Canal 1 st Lift Irrigation Project.		
Description of Actual Services Provided: The socio-economic survey comprised design of a detailed questionnaire covering all aspects of village life and farming practices including land size holdings, farm sizes, living conditions, farm income and expenditure estimates, household income, water supply and sanitation conditions, access to roads, local transportation conditions, health, marketing and sale of farm produce, animal husbandry practices, cropping and agricultural practices, farm and livestock yields, use of pesticides and herbicides, use of fertilizers, availability of farm labor, family size, and social customs. The questionnaire was implemented in villages falling in the proposed command area, and also in villages already under gravity flow command area of the Chashma canal. A total of and 210 households were interviewed in the proposed command area and 30 households from villages already serviced by canal irrigation. A detailed report was prepared for the client on the socio-economic conditions in the project area. The command area of the project is over 150,000 hectares. Separate investigations were undertaken to determine agricultural extension services, CBOs, marketing practices of fertilizer companies, pesticide companies, seed programs, animal husbandry practices and support, veterinary support etc., The second contract was related to Soil Survey in the command area to ascertain the quality and extent of local soils for irrigation. ACC soil scientists carried out the survey using the latest GPS systems and analytical instruments. Collaboration with PARC soil laboratories was made for conducting chemical analysis of soil properties. The Soil Survey covered detailed assessment, classification as per USDA standards and mapping of the command area soils, their potential for agriculture under irrigation, requirements and extent of irrigation needed, permeability of the soils and the suitable types of crops and estimated yields.		

**MAJOR WORK DURING LAST TEN YEARS WHICH BEST
ILLUSTRATES QUALIFICATIONS**

Project Data Sheet No.10

Page 2 of 2

The third contract pertained to Ground Water Study and Analysis. The work assigned for water analysis comprised of identifying sources in the Barrani area, collecting samples, detailed physical and chemical analysis of samples and preparation of a comprehensive report on their potential for agricultural use.

The fourth contract pertained to a study of the Surface Water resources in the command area, collection of samples and their physical and chemical analyses.

Type of Services provided:

Soil Surveys, Planning Studies, Market Studies, Financial Studies, Technical Studies, Environmental Studies, Sociological Studies, Technical Assistance and Advisory Services.

Fields of Specialization:

Agriculture & Rural Development Sector:

Agricultural Development Planning, Rural Development Planning, Agricultural Censuses & Statistics, General Agricultural Production, Land Resources Appraisal/Use, Drainage Surveys & Evaluation, Land Classification, Land Use/Capability Studies, Land Suitability for Irrigation, Land Use Planning, Water Resources Appraisal, Water Quality/Characteristics, Water Suitability for Irrigation, Water Requirements for Irrigation, Rural Socio-Cultural Factors, Rural/Farmer Organizations, Cultivation, Production/Harvesting, Livestock Surveys.

**MAJOR WORK DURING LAST TEN YEARS WHICH BEST
ILLUSTRATES QUALIFICATIONS**

Project Data Sheet No.9

Page 1 of 1

Assignment Name: Project Management for Construction of Pira Fatehal Dam and Irrigation Channels.		Country: Pakistan
Location within Country: Province of Punjab		Number of person-months of the entire project: 18
Name of Client: M/s Vanika Engineers for Small Dams Organization, Punjab Irrigation Department.		Total value of full project (in million US\$): US \$ 0.50 million
No. of Staff: 3		No. of persons-months: 18
Start Date (Month/Year): July 1991	Completion Date (Month/Year): December 1992	Approx. Value of Services (in million US\$): US \$ 27,000/-
Name of Associated Firm (s), If Any: None		No. of Months of Professional Staff Provided by Associated Firm (s): Nil
Names of Key Experts of the firm (Project Director/Coordinator, Team Leader) Involved and Functions Performed: The senior staff included a Project Manager, Contracts Specialist and a Planner to provide project management and technical support.		
Brief Narrative Description of Project: The project entailed the construction of a RCC dam in the Potohar region on a perennial stream and the construction of lined irrigation channels. The main dam was 22 meters in height with a length of approximately 125 meters. Detailed project management services were rendered to the client M/s Vanika Engineers, and the project was completed within the scheduled time period. The irrigation channels, approximately 10 kilometers in length provided water to surrounding farms whereas before they were depended on rain water (barani) only for irrigation. The stored water allowed better management of the scarce water resources in the area.		
Description of Actual Services Provided: The client was provided construction/project management and technical support for the project. Staff advised in the interpretation of the tender documents for the project financed by JICA/OECF. Technical advice was given for construction and setting out and for optimum usage of manpower and machinery. Project monitoring and progress reports, Interim Payment Certificates etc., were prepared for the client. Logistic Support and precision surveying and soil investigation support was provided.		
Type of Services provided: Hydrological Survey, Soil Surveys, Topographic Surveys, Planning Studies, Technical Studies, Design – Architectural / Engineering / Industrial etc., Soil Mechanics and Foundation Engineering, Hydraulics Studies and Engineering, Quantity Surveying / Cost Estimating, Structural Engineering, Project Management/Administration (on behalf of owner), Technical Assistance and Advisory Services, Material Testing, Quality Control, Project Monitoring and Evaluation.		
Fields of Specialization: Agriculture & Rural Development Sector: Physical Infrastructure, Gravity Irrigation Systems, Dam (Storage), Diversion, Irrigation/Drainage Networks, Flood/River Control Works. Construction Industry Development Sector: Construction Management Water Supply and Sanitation Sector: Source Reservoirs, Dams		

**MAJOR WORK DURING LAST TEN YEARS WHICH BEST
ILLUSTRATES QUALIFICATIONS**

Project Data Sheet No.8

Page 1 of 2

Assignment Name: Project Management for Construction of Tainpura Dam II and Irrigation Channels.		Country: Pakistan
Location within Country: Province of Punjab		Number of person-months of the entire project: 16
Name of Client: M/s Vanika Engineers for Small Dams Organization, Punjab Irrigation Department.		Total value of full project (in million US\$): US \$ 0.50 million
No. of Staff: 3		No. of persons-months: 16
Start Date (Month/Year): June 1991	Completion Date (Month/Year): December 1992	Approx. Value of Services (in million US\$): US \$ 24,000/-
Name of Associated Firm (s), If Any: None		No. of Months of Professional Staff Provided by Associated Firm (s): Nil
Names of Key Experts of the firm (Project Director/Coordinator, Team Leader) Involved and Functions Performed: The senior staff included a Contracts Specialist, Project Manager and a Planning/Logistics Officer who were deployed for project management.		
Brief Narrative Description of Project: The project entailed the construction of a concrete dam on a perennial stream and construction of lined channels. The main dam was 20 meters in height with a length of approximately 75 meters. The project was in a joint venture with the contractor to provide him technical/project management support.		
Description of Actual Services Provided: Detailed project management services were rendered to the client M/s Vanika Engineers, and the project was completed within the scheduled time period. The channels, approximately 7 kilometers in length provide irrigation water to surrounding farms whereas before they depended on rainwater only for irrigation. The client was advised in the interpretation of the tender documents for the project financed by JICA/OECF. Technical advice was given for construction and setting out and for optimum usage of manpower and machinery. Project monitoring and progress reports, Interim Payment Certificates etc., were prepared for the client.		
Type of Services provided: Soil Surveys, Topographic Surveys, Planning Studies, Technical Studies, Design – Architectural / Engineering / Industrial etc., Soil Mechanics and Foundation Engineering, Hydraulics Studies and Engineering, Quantity Surveying / Cost Estimating, Structural Engineering, Project Management/Administration (on behalf of owner), Technical Assistance and Advisory Services, Material Testing, Quality Control, Management Advisory Services.		
Fields of Specialization: Agriculture & Rural Development Sector: Physical Infrastructure, Gravity Irrigation Systems, Dam (Storage), Diversion, Irrigation/Drainage Networks, Flood/River Control Works. Construction Industry Development Sector: Construction Management Water Supply and Sanitation Sector: Water System Planning & Design, Source Reservoirs, Dams		

**MAJOR WORK DURING LAST TEN YEARS WHICH BEST
ILLUSTRATES QUALIFICATIONS**

Project Data Sheet No.7

Page 1 of 2

Assignment Name: Consultancy Services for Water Rights Phase I and II, & Soil Survey for Development of Irrigation Based Upon Flood Flows of D.G. Khan Hill Torrents.		Country: Pakistan	
Location within Country: Province of Punjab, D.G. Khan		Number of person-months of the entire project: 40	
Name of Client: Nippon Giken/JICA.		Total value of full project (in million US\$): US \$ 1.00 million	
No. of Staff: 6		No. of persons-months: 40	
Start Date (Month/Year): January 1992		Completion Date (Month/Year): August 1992	Approx. Value of Services (in million US\$): US \$ 25,000/-
Name of Associated Firm (s), If Any: None		No. of Months of Professional Staff Provided by Associated Firm (s): Nil	
Names of Key Experts of the firm (Project Director/Coordinator, Team Leader) Involved and Functions Performed: The senior staff included Agronomist, Financial Analyst, Data Base Specialists, and Enumerators, Social Scientists, Soil Scientists.			
Brief Narrative Description of Project: The study was carried out to support the feasibility of constructing small dams on hill torrents and provide proper irrigation channels for the project area. The project entailed a study of the existing water rights and practices for utilization of water from hill torrents in the DG Khan district, Punjab Mapping of hill torrents, analysis of land holdings and the utilization of flood water for cultivation was carried out. Soil Survey of the area was carried out to determine the land use capability. Study of local farming practices was also carried out to determine how they could be improved.			
Description of Actual Services Provided: Detailed report was prepared regarding water rights to ascertain the effect of new irrigation projects to be funded by the JICA/OECF on the present land holdings and the water rights. A second report was prepared on the soil survey, which defined the properties of the soils in the project influence area and the type and extent of crops possible, their potential and expected yield. Brief description of each phase of the study is as follows:			
a) Irrigation Project Using Flood Flows of Hill Torrents in D. G. Khan - Phase I. Phase I of the project involved a study of the water rights and mapping of main distributaries and channels for six selected hill torrents in DG Khan and a preliminary survey regarding the suitability of the area for cultivation using water management practices.			
b) Irrigation Project Using Flood Flows of Hill Torrents in D. G. Khan - Phase II. Phase II of the project involved detailed study of the water rights for Vidore Hill Torrent and its branches. Detailed maps of all Wahs, Wahis, Shakhs were prepared alongwith water rights in order to ascertain the suitability for new water management schemes to be introduced. Special emphasis was made on the socio-economic aspects in the feasibility study.			

**MAJOR WORK DURING LAST TEN YEARS WHICH BEST
ILLUSTRATES QUALIFICATIONS**

Project Data Sheet No.7

Page 2 of 2

- c) Irrigation Project Using Flood Flows of Hill Torrents in D. G. Khan - Soil Survey and Classification of Flood Irrigated Land. Detailed Soil Survey involving physical and chemical testing of soils in the flood irrigated areas of Vidore hill torrent was carried out under supervision of Japanese experts. In addition land use classification was carried out and potential crop types and feasibility study prepared as a part of the water management project for DG Khan Hill Torrents.

Type of Services provided:

Soil Surveys, Topographic Surveys, Planning Studies, Technical Studies, Sociological Studies, Technical Assistance and Advisory Services.

Fields of Specialization:

Agriculture & Rural Development Sector:

Agricultural Development Planning, Rural Development Planning, Agricultural Censuses & Statistics, General Agricultural Production, Land Resources Appraisal/Use, Drainage Surveys & Evaluation, Land Classification, Land Use/Capability Studies, Land Suitability for Irrigation, Land Use Planning, Water Resources Appraisal, Surface Water, Ground Water, Water Quality/Characteristics, Water Suitability for Irrigation, Water Requirements for Irrigation, Gravity/Irrigation Systems, Dam (Storage), Diversion, Irrigation Field Practices, Flood/River Control Works.

**MAJOR WORK DURING LAST TEN YEARS WHICH BEST
ILLUSTRATES QUALIFICATIONS**

Project Data Sheet No.6

Page 1 of 1

Assignment Name: Data Analysis for Feasibility Study for Prioritization of Rural Roads for Design and Construction under Japanese Funding in NWFP, Sindh and Punjab.		Country: Pakistan	
Location within Country: Provinces of NWFP, Sindh and Punjab		Number of person-months of the entire project: 4	
Name of Client: SAPROF Mission/OCEF		Total value of full project (in million US\$): US \$ 415.00 million	
No. of Staff: 4		No. of persons-months: 4	
Start (Month/Year): September 1991	Date	Completion Date (Month/Year): September 1991	Approx. Value of Services (in million US\$): US \$ 10,000/-
Name of Associated Firm (s), If Any: None		No. of Months of Professional Staff Provided by Associated Firm (s): Nil	
Names of Key Experts of the firm (Project Director/Coordinator, Team Leader) Involved and Functions Performed: The senior staff comprised of a senior transportation engineer and a financial analyst with vast experience in transport sector studies. They prepared spreadsheet templates for data analysis and guided junior engineers/ data analysts in evaluation of the field data provided by the CWD's and PPD's through the SAPROF mission.			
Brief Narrative Description of Project: Data provided by the CWD's in the three provinces on candidate roads was analyzed and processed. Road Viability profiles and Economic feasibility studies were prepared for all rural roads based on data provided by the provinces to the SAPROF/OECF mission for evaluation. The objective was to prepare a prioritization listing of all roads for potential funding.			
Description of Actual Services Provided: Technical assistance services were provided consisting of data compilation, analysis and development of road socio-economic profiles. The Road Viability Profiles developed consisted of Road Scores (in accordance with MLGRD/ADB procedures) and Economic Internal Rates of Return (EIRRs), as well as geophysical/socio-economic profiles for the roads. The roads were then prioritized based on their economic feasibility/EIRRs.			
Type of Services provided: Regional Development Plans, Project Identification Studies, Planning Studies, Feasibility Studies, Economic Studies, Technical Studies, Quantity Surveying / Cost Estimating, Structural Engineering, Technical Assistance and Advisory Services.			
Fields of Specialization: Transportation Sector: National/Regional/Multimodal Transportation Planning, Policies & Investment Programs, Highway Planning & Programming, Rural Feeder Rods (Farm to Market) (Highway Planning Prog.), New Highways/Improvements & Reconstruction, Rural Feeder Roads (Farm to Market) New Highways, Road Transport Economics.			

**MAJOR WORK DURING LAST TEN YEARS WHICH BEST
ILLUSTRATES QUALIFICATIONS**

Project Data Sheet No.5

Page 1 of 2

Assignment Name: Feasibility Study for Prioritization of Rural Roads for Design and Construction – Balochistan.		Country: Pakistan
Location within Country: Province of Balochistan		Number of person-months of the entire project: 16
Name of Client: Communication & Works Department, Government of Balochistan.		Total value of full project (in million US\$): US \$ 45.56 million
No. of Staff: 6		No. of persons-months: 16
Start Date (Month/Year): July 1991	Completion Date (Month/Year): September 1991	Approx. Value of Services (in million US\$): US \$ 40,000/-
Name of Associated Firm (s), If Any: None		No. of Months of Professional Staff Provided by Associated Firm (s): Nil
Names of Key Experts of the firm (Project Director/Coordinator, Team Leader) Involved and Functions Performed: The senior staff comprised of a senior transportation engineer and transport economist supported by a highway design engineer, quantity surveyor and field staff. The team carried out the field data collection, prepared cost estimates and economic feasibility studies and prioritization of candidate projects for implementation.		
Brief Narrative Description of Project: Economic feasibility studies were conducted for 23 rural roads, a total length of 700 kms, in the districts of Kharan, Punjgur, Bela, Kacchi, Tambu, Jafferabad, Loralai, Pishin, Qilla Saifullah, Zhob, Kalat and Khuzdar in Balochistan. The list of candidate roads was then prioritized for section under OECF funding. Socio-economic profiles were developed for the districts, and detailed reconnaissance surveys were carried out for each road to develop Road Viability Profiles. The Road Viability Profiles consisted of Road Scores (in accordance with MLGRD/ADB procedures) and Economic Internal Rates of Return (EIRRs), as well as geophysical profiles for the roads.		
Description of Actual Services Provided: Detailed reconnaissance surveys were carried out for each road to develop Road Viability Profiles. The survey included reconnaissance, assessment of costs including cross drainage structures, population served in the road influence area (RIA), crops production, import and export of farm produce, market statistics, traffic densities, growth potential in the RIA as indicated by regional development plans etc. After the data was collected, compiled and analyzed, the EIRR for each road was prepared. The Road Viability Profiles consisted of Road Scores (in accordance with MLGRD/ADB procedures) and Economic Internal Rates of Return (EIRRs), as well as geophysical profiles for the roads. The roads were then prioritized based on their economic feasibility for development through OECF funding.		

**MAJOR WORK DURING LAST TEN YEARS WHICH BEST
ILLUSTRATES QUALIFICATIONS**

Project Data Sheet No.5

Page 2 of 2

Type of Services provided:

Soil Surveys, Topographic Surveys, Regional Development Plans, Project Identification Studies, Planning Studies, Feasibility Studies, Market Studies, Economic Studies, Technical Studies, Design – Architectural / Engineering / Industrial etc., Soil Mechanics and Foundation Engineering, Quantity Surveying / Cost Estimating, Estimation / Preparation of Contract Documents and Bid Evaluation, Structural Engineering, Technical Assistance and Advisory Services, Material Testing.

Fields of Specialization:

Agriculture & Rural Development Sector:

Rural Development Planning, Physical Infrastructure

Transportation Sector:

National/Regional/Multimodal Transportation Planning, Traffic/Origin-Destination Surveys, Demand forecasting, Policies & Investment Programs, Highway Planning & Programming, Rural Feeder Roads (Farm to Market) (Highway Planning Program), New Highways/Improvements & Reconstruction, Rural Feeder Roads (Farm to Market) (New Highways, New Structures/Reconstruction, Bridges (Road Transportation Facilities), Highway Safety, Road Transport Economics.

**MAJOR WORK DURING LAST TEN YEARS WHICH BEST
ILLUSTRATES QUALIFICATIONS**

Project Data Sheet No.4

Page 1 of 2

Assignment Name: Gadoon Amazai Industrial Estate Environmental Impact Assessment Study and Pollution Control, Master Planning, Housing and Township Design.		Country: Pakistan	
Location within Country: NWF Province, Gadoon Amazai		Number of person-months of the entire project: 10	
Name of Client: M/s SEBCON – Sarhad Development Authority, Peshawar.		Total value of full project (in million US\$): US \$ 2.00 million	
No. of Staff: 3		No. of persons-months: 10	
Start Date (Month/Year): January 1991	Completion Date (Month/Year): April 1991	Approx. Value of Services (in million US\$): US \$ 15,000/-	
Name of Associated Firm (s), If Any: None		No. of Months of Professional Staff Provided by Associated Firm (s): Nil	
Names of Key Experts of the firm (Project Director/Coordinator, Team Leader) Involved and Functions Performed: The senior staff comprised of environmental engineers and town planners who carried out the assignment and prepared environmental impact assessment studies and evaluation of the master planning of the industrial estate and township.			
Brief Narrative Description of Project: The project comprised preparation of an Environmental Impact Assessment Statement and master planning for the industrial estate and residential township. A detailed analysis of the type of industries planned, raw materials, process involved, and possible pollutants, and their disposal were covered. Master plan was evaluated to determine shortcomings and recommended improvements.			
Description of Actual Services Provided: Detailed estimates of the overall population, energy demand and infrastructure requirements were made for preliminary master planning of the industrial estate and township carried out. The site has important environmental characteristics due to close proximity of river Kabul and Tarbela Dam. The proposed industrial projects were examined and analyzed as per type of process involved, raw materials involved, effluents, pollutants, chemical reactivity of effluents, sludge disposal/containment etc. Recommendations were made on the list of industries which should be allowed considering a detailed EIA.			

**MAJOR WORK DURING LAST TEN YEARS WHICH BEST
ILLUSTRATES QUALIFICATIONS**

Project Data Sheet No.4

Page 2 of 2

Type of Services provided:

Hydrological Surveys, Topographic Surveys, Policy Studies, Regional Development Plans, Planning Studies, Feasibility Studies, Market Studies, Economic Studies, Financial Studies, Technical Studies, Environmental Studies, Design – Architectural / Engineering / Industrial etc., Hydraulics Studies and Engineering, Quantity Surveying / Cost Estimating, Technical Assistance and Advisory Services.

Fields of Specialization:

Energy Sector:

Energy Demand forecasting, Energy Planning

Industry Sector:

Industrial Parks/Estates, Industrial Plant/Factory Buildings, Environmental Issues & Pollution Control

Transportation Sector:

National/Regional/Multimodal Transportation Planning, Highway Planning & Programming, New Structures/ Reconstruction.

Urban Development Sector:

Urban Development Planning, Urban Area Survey/Analysis & Monitoring, Strategic Development Planning (incl. Master Planning), Shelter/Housing Sector Surveys & Analysis, Sites & Services-Planning/Design & Engineering, Municipal Services, Urban Transport Planning.

Water Supply and Sanitation Sector:

Water System Planning & Design, Sewage Treatment, Domestic, Industrial Stabilization Ponds, Low-Cost Urban Sanitation, Storm Drainage, Water Pollution Control, Solid Waste.

**MAJOR WORK DURING LAST TEN YEARS WHICH BEST
ILLUSTRATES QUALIFICATIONS**

Project Data Sheet No.3

Page 1 of 2

Assignment Name: Agricultural Sector Energy Conservation - Tubewell Energy Audits and Survey Project		Country: Pakistan
Location within Country: All of Pakistan		Number of person-months of the entire project: 30
Name of Client: ENERCON/Hagler Bailly, USA		Total value of full project (in million US\$): US \$ 2.00 million
No. of Staff: 5		No. of persons-months: 30
Start Date (Month/Year): March 1989	Completion Date (Month/Year): September 1990	Approx. Value of Services (in million US\$): US \$ 50,000/-
Name of Associated Firm (s), If Any: None		No. of Months of Professional Staff Provided by Associated Firm (s): Nil
Names of Key Experts of the firm (Project Director/Coordinator, Team Leader) Involved and Functions Performed: The senior staff included two Sr. Agricultural Engineers trained in Energy Conservation, a Mechanical Engineer, and field Enumerators. The staff carried out energy audits of tubewell installations all over Pakistan.		
Brief Narrative Description of Project: The project entailed field data collection of diesel, electric and tractor driven tubewells throughout Pakistan. The data included measurement of energy consumption, efficiency and condition of pumps, engines, turbines etc.		
Description of Actual Services Provided: Information was collected from the farmers on capital costs, break downs, operating and repair costs, water usage patterns, water sharing and other factors. Questionnaires were designed and used for collecting the data, which was later analyzed using statistical packages. Data was also collected on repair shop facilities and practices. Data from over 500 sites was compiled and analyzed to determine the energy consumption patterns for diesel, electric and tractor driven tubewells. An estimate the energy conservation possible in the Agriculture Tubewell Sector on a country wide basis if correct use of pumps, capacity considerations, head, engine, drive shaft, belts etc., were properly designed and matched as a complete system. Training and guidance was given to the farmers covered by the study for selecting the correct equipment which would give optimum and efficient performance. Planning and Feasibility studies for tubewell retrofits with farmers collaboration were carried out and nationwide program developed.		

**MAJOR WORK DURING LAST TEN YEARS WHICH BEST
ILLUSTRATES QUALIFICATIONS**

Project Data Sheet No.3

Page 2 of 2

Type of Services provided:

Sector Studies, Planning Studies, Feasibility Studies, Market Studies, Technical Studies, Research Design/ Evaluation, Supervision/Inspection of Equipment Installation, Technical Assistance and Advisory Services, Maintenance Planning, Equipment/Plant Rehabilitation, Training and Transfer of Technology.

Fields of Specialization:

Agriculture & Rural Development Sector:

Water Resources Appraisal/Use, Water Measurement, Water Requirements for Irrigation, Operation & Maintenance of Irrigation Systems, Physical Infrastructure, Pump Irrigation Systems, Well Drilling/Pumping.

Energy Sector:

Energy Demand forecasting, Energy Economics, Energy Planning, Energy Related Training, Energy Conservation.

Water Supply and Sanitation Sector:

Pumping Stations.

**MAJOR WORK DURING LAST TEN YEARS WHICH BEST
ILLUSTRATES QUALIFICATIONS**

Project Data Sheet No.2

Page 1 of 2

Assignment Name: Technical and Economic Feasibility and Detailed Engineering Design of Overlay for Existing Carriageway Gujranwala-Kharian 57 Km section of National Highway N-5, Fourth IBRD Highway Project. Loan 2841 Pak		Country: Pakistan	
Location within Country: Punjab, Gujranwala and Gujrat Districts.		Number of person-months of the entire project: 155	
Name of Client: National Highways Board, Ministry of Communications, Government of Pakistan - # 28, Mauve Area, G-9/1, Islamabad / The World Bank - 20-A Shaharah-e-Jamhuriat, G-5/1, Islamabad, Pakistan		Total value of full project (in million US\$): US \$ 63.00 million	
No. of Staff: 11		No. of persons-months: 155	
Start (Month/Year): Aug 1986	Date	Completion Date (Month/Year): Nov 1987	Approx. Value of Services (in million US\$): US\$ 344,000/-
Name of Associated Firm(s), If Any: None		No. of Months of Professional Staff Provided by Associated Firm(s): Nil	
Names of Key Experts of the firm (Project Director/Coordinator, Team Leader) Involved and Functions Performed: Two highway and transportation engineers, three structural engineers, two pavement engineers, two material engineers and one hydrologist and one Contracts Engineer were employed to carry out detailed survey, design, technical feasibility and tender documents preparation including pavement evaluation. One transport economist and one financial analyst provided inputs in economic feasibility report preparation. The team was supported by surveyors, draftsman, laboratory technicians, estimators, enumerators and other support staff.			
Brief Narrative Description of Project: The project consisted of the Preparation of a Technical and Economic Feasibility Study, Detailed Design, Preparation of Construction Drawings and Tender Documents for improvements by means of an overlay on 57 kilometers of existing highway between Gujranwala and Kharian (National Highway, N-5) and rehabilitation/reconstruction of 175 cross drainage structures of various types and sizes.			
Description of Actual Services Provided: The work entailed detailed topographic survey, study on alternate alignments, fixing of permanent reference monuments and establishing permanent benchmarks, soil and sub soil investigations, study of borrow sources and their analyses, Quarry material sources and analysis, traffic counts and surveys, traffic forecasts, design of major intersections and traffic flow analyses, Design of Urban Areas, Design of Street Lighting, Axle loads study and related analyses, Origin Destination Surveys, Hydrological studies, Design of Storm Water Drainage, Existing pavement evaluation using Benkleman Beam Deflection Method, Present Serviceability Ratings, Effective Thickness Method, Capacity Analysis, Study on Land Acquisition and Right of Way, Reports on Relocation Requirements for Utilities, Pavement Design, Structural Design, Design of Foundations, sub-structures, super structures, River Training Works, Preparation of Construction Drawings.			

**MAJOR WORK DURING LAST TEN YEARS WHICH BEST
ILLUSTRATES QUALIFICATIONS**

Project Data Sheet No.2

Page 2 of 2

Bill of Quantities, Preparation of Mass Haul Diagram, Preparation of Specifications, Tender Documents, General and Special Terms and Conditions of Contract, Engineering Cost Estimates, Study of Regional

Development Plans, Market Studies – Regional Import Export Volumes, Crop Production etc., Transport Sector Policy Studies, Vehicle Operating Costs, Economic Analysis, Financial Analysis, Preparation of Technical and Economic Feasibility Report, Preparation of Project Planning Approval Document (PC I), Evaluation of Tenders as per IBRD Procurement Guidelines.

Type of Services provided:

Hydrological Surveys, Soil Surveys, Topographic Surveys, Sector Studies, Regional Development Plans, Planning Studies, Feasibility Studies, Market Studies, Economic Studies, Financial Studies, Technical Studies, Design – Architectural / Engineering / Industrial etc., Soil Mechanics and Foundation Engineering, Hydraulics Studies and Engineering, Earthquake Engineering, Quantity Surveying / Cost Estimating, Estimation / Preparation of Contract Documents and Bid Evaluation, Structural Engineering, Technical Assistance and Advisory Services, Material Testing.

Fields of Specialization:

Agriculture & Rural Development Sector:

Flood/River Control Works

Transportation Sector:

National/Regional/Multimodal Transportation Planning – Traffic/Origin-Destination Surveys – Demand forecasting, - Transportation Models, - Policies & Investment Programs, International Transportation Tech., Road Transportation Facilities, Highway Planning & Programming, Highways, New Highways/Improvements & Reconstruction, New Structures/Reconstruction, Highways Safety, Road Transport Economics.

Urban Development Sector:

Land Readjustment, Traffic Management, Urban Transport Planning

Water Supply and Sanitation Sector:

Storm Drainage.

**MAJOR WORK DURING LAST TEN YEARS WHICH BEST
ILLUSTRATES QUALIFICATIONS**

Project Data Sheet No.1

Page 1 of 2

Assignment Name: Technical and Economic Feasibility and Detailed Engineering Design of Dual carriageway, Gujranwala - Kharian 94 Km section of National Highway N-5 - Fourth IBRD Highway Project Loan 2841 Pak.		Country: Pakistan
Location within Country: Punjab, Gujranwala and Gujrat Districts.		Number of person-months of the entire project: 155
Name of Client: National Highways Board, Ministry of Communications, Government of Pakistan, # 28, Mauve Area, G-9/1, Islamabad / The World Bank - 20-A Shaharah-e-Jamhuriat, G-5/1, Islamabad, Pakistan		Total value of full project (in million US\$): US \$ 63.00 million
No. of Staff: 11		No. of persons-months: 155
Start (Month/Year): August 1986	Date November 1987	Completion Date (Month/Year): November 1987
Name of Associated Firm(s), If Any: None		Approx. Value of Services (in million US\$): US\$ 344,000
Name of Associated Firm(s), If Any: None		No. of Months of Professional Staff Provided by Associated Firm(s): Nil
Names of Key Experts of the firm (Project Director/Coordinator, Team Leader) Involved and Functions Performed: Two highway and transportation engineers, three structural engineers, two pavement engineers, two material engineers and one hydrologist and one Contracts Engineer were employed to carry out detailed survey, design, technical feasibility and tender documents preparation including pavement evaluation. One transport economist and one financial analyst provided inputs in economic feasibility report preparation. The team was supported by surveyors, draftsman, laboratory technicians, estimators, enumerators and other support staff.		
Brief Narrative Description of Project: The project consisted of the Preparation of a Technical and Economic Feasibility Study and Detailed Design, Preparation of Construction Drawings and Tender Documents as per World Bank Guidelines for an additional carriageway, 94 kilometers in length along the existing highway between Gujranwala and Kharian (National Highway, N-5) and 260 cross drainage structures of various types and sizes. Three major river bridges – Bridge over River Chenab (760 m), Pulkhu (265 m), and Bhimber (275 m), Railway Overhead Bridges at Dinga (240 m) and Wazirabad (36 m), bridge over Upper Chenab Canal (100 m) and one bridge on Wazirabad Bypass (60 m) were designed.		
Description of Actual Services Provided: The work entailed detailed topographic survey, study on alternate alignments, fixing of permanent reference monuments and establishing permanent benchmarks, soil and sub soil investigations, study of borrow sources and their analyses, Quarry material sources and analysis, traffic counts and surveys, traffic forecasts, design of major intersections and traffic flow analyses, Design of Urban Areas, Design of Street Lighting, Axle loads study and related analyses, Origin Destination Surveys, Hydrological studies, Design of Storm Water Drainage, Existing pavement evaluation using Benkleman Beam Deflection Method, Present Serviceability Ratings, Effective Thickness Method, Capacity Analysis, Study on Land Acquisition and Right of Way, Reports on Relocation Requirements for Utilities, Pavement Design, Structural Design, Design of Foundations, sub-structures, super structures, River Training Works, Preparation of Construction Drawings.		

**MAJOR WORK DURING LAST TEN YEARS WHICH BEST
ILLUSTRATES QUALIFICATIONS**

Project Data Sheet No.1

Page 2 of 2

Bill of Quantities, Preparation of Mass Haul Diagram, Preparation of Specifications, Tender Documents, General and Special Terms and Conditions of Contract, Engineering Cost Estimates, Study of Regional

Development Plans, Market Studies – Regional Import Export Volumes, Crop Production etc., Transport Sector Policy Studies, Vehicle Operating Costs, Economic Analysis, Financial Analysis, Preparation of Technical and Economic Feasibility Report, Preparation of Project Planning Approval Document (PC I), Evaluation of Tenders as per IBRD Procurement Guidelines.

Type of Services provided:

Hydrological Surveys, Soil Surveys, Topographic Surveys, Sector Studies, Regional Development Plans, Planning Studies, Feasibility Studies, Market Studies, Economic Studies, Financial Studies, Technical Studies, Design – Architectural / Engineering / Industrial etc., Soil Mechanics and Foundation Engineering, Hydraulics Studies and Engineering, Earthquake Engineering, Quantity Surveying / Cost Estimating, Estimation / Preparation of Contract Documents and Bid Evaluation, Structural Engineering, Technical Assistance and Advisory Services, Material Testing.

Fields of Specialization:

Agriculture & Rural Development Sector:

Flood/River Control Works

Transportation Sector:

National/Regional/Multimodal Transportation Planning – Traffic/Origin-Destination Surveys – Demand forecasting, - Transportation Models, - Policies & Investment Programs, International Transportation Tech., Road Transportation Facilities, Highway Planning & Programming, Highways, New Highways/Improvements & Reconstruction, New Structures/Reconstruction, Highways Safety, Road Transport Economics.

Urban Development Sector:

Land Readjustment, Traffic Management, Urban Transport Planning

Water Supply and Sanitation Sector:

Storm Drainage.