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INTERNATIONAL CASE STUDIES – THE UAE, CHINA AND MALAYSIA

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South Asia Sustainable Development Unit (SASSD)

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The discussion paper series were prepared as a part of the Pakistan Infrastructure Implementation Capacity Assessment (PIICA) study and comprise of the following technical notes.

Technical Note 1: Development of Construction Industry –A Literature Review

Technical Note 2: Local Stakeholders' Perception Survey

Technical Note 3: Foreign Stakeholders' Perception Survey

Technical Note 4: Business Environment and Cost of Doing Business

Technical Note 5: Purchase Price Review in the Infrastructure Industry

Technical Note 6: A Review of Allocations and Expenditures in the Public Sector

Technical Note 7: Demand – Supply Gap Analysis

Technical Note 8: International Case Studies – UAE, CHINA and MALAYSIA

Technical Note 9: Local Case Studies

Technical Note 10: Response to International and Local Bids

Technical Note 11: Focus Group Discussions

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US$ 1 = PKR60.70 (February 6, 2007)

ABBREVIATIONS AND ACRONYMS

AASHTO	American Association of State Highway and Transportation Officials	GIKU	Ghulam Ishaq Khan University of Science & Technology
ACI	Airports Council International	GoP	Government of Pakistan
ADB	Asian Development Bank	GoS	Government of Sindh
ADP	Annual Development Program	GoB	Government of Balochistan
AIT	Asian Institute of Technology (Bangkok, Thailand)	HR	Human Resource
APCCA	All Pakistan Construction & Contractors Association	HRDF	Human Resources Development Fund
BCA	Building and Construction Authority	ICB	International Competitive Bidding
CAA	Civil Aviation Authority	ICT	Information and Communications Technology
CAK	Contractors Association in Korea	IFC	International Finance Corporation
CAPECO	The Peruvian Chamber of Construction	ILO	International Labor Organization
CBR	Central Board of Revenue	IPC	Interim Payment Certificate
CDA	Capital Development Authority	JXB	Jebel Ali International Airport
CICA	Confederation of International Contractors' Association	KPT	Karachi Port Trust
CIDB	Construction Industry Development Board	KWSB	Karachi Water and Sewerage Board
CIJC	Construction Industry Joint Committee	L/C	Letter of Credit
CITC	Construction Industry Training Center	LCB	Local Competitive Bidding
CITI	Construction Industry Training Institute	LUMS	Lahore University of Management Sciences
COTI	Construction Official Training Institute	MBA	Master of Business Administration
CRS	Contractors' Registry System	MCA	Monopoly Control Authority
CWTC	Construction Workers Training Center	MIT	Massachusetts Institute of Technology
DBS	Development Bank of Singapore	MOC	Ministry of Construction (Korea)
DELFT	Delft University of Technology, Holland	MTDF	Medium Term Development Framework
DEWA	Dubai Electricity and Water Authority	NAB	National Accountability Bureau
DFCs	Development Finance Companies	NEPRA	National Electric Power Regulatory Authority
DIB	Dubai Islamic Bank	NESPAK	National Engineering Services Pakistan (Pvt.) Ltd.
DIFC	Dubai International Financial Center	NHA	National Highway Authority
DLC	Dubai Logistics City	NIT	Notice Inviting Tender
DURL	Dubai Rail Link	NLC	National Logistic Cell
EDR	Engineering Development Board	NPRP	National Procurement Reforms Program
ENR	Engineering News Record	NWFP	North-West Frontier Province
FBR	Federal Board of Revenue	OGRA	Oil & Gas Regulatory Authority
FBS	Federal Bureau of Statistics	P&D	Planning and Development
FIA	Federal Investigation Agency	PC-1	Planning Commission's Performa 1
FIDIC	International Federation of Consulting Engineers	PEC	Pakistan Engineering Council
FWO	Frontier Works Organization	PERT/CPM	Project Evaluation Review Technique/Critical Path Method
PIDs	Provincial Irrigation Departments	SOP	Security of Payment

PKR	Pakistan Rupee	SPO	Special Purpose Organization
PPP	Purchase Power Parity	SSGC	Sui Southern Gas Company
PPRA	Public Procurement Regulatory Authority	TEVTA	Technical Education and Vocational Training Authority
PSDP	Public Sector Development Program	ToR	Terms of Reference
PTA	Pakistan Telecommunication Authority	UAE	United Arab Emirates
RFP	Request for Proposal	USAID	United States Agency for International Development
RTA	Road & Transport Authority (Dubai)	WAPDA	Water and Power Development Authority
SECP	Security and Exchange Commission of Pakistan	WB	World Bank
SNGPL	Sui Northern Gas Pipelines Limited		

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Technical Note 8
INTERNATIONAL CASE STUDIES – THE UNITED ARAB EMIRATES, CHINA AND MALAYSIA

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OBJECTIVES

As part of a wider study being carried out by the World Bank (WB) at the request of the Government of Pakistan (GoP), this infrastructure study report has been prepared to broadly describe and understand the business environment and regulatory frameworks in the United Arab Emirates (UAE) together with policies that have been successful in attracting leading consulting and construction firms to the country and in implementing large infrastructure projects. Particular focus in the studies has been on the application of these techniques to similar projects in Pakistan.

Several regional countries were considered for carrying out international case studies to learn from their experiences in developing large infrastructure including Malaysia, China and the UAE. Due to time constraints, only the UAE could be taken up for a detailed review, however, the team did benefit greatly from the case studies on the construction industry of Malaysia, China and France. These were carried out as part of the study on the Indian Road Construction Industry.[1]

The selection of the UAE as a case study was due to the fact that it is one of the countries in the region that has had rapid success in scaling up infrastructure in a relatively short period of time. Also, the GoP is seeking to attract participation of investors from the UAE into domestic infrastructure projects. The study also briefly considers the potential impact of the infrastructure development boom in the UAE on the Pakistan infrastructure implementation capacity in terms of competition for skilled resources in relation to consulting firms and construction services.

The study particularly touches upon the following aspects of infrastructure implementation in the UAE:

Land Transport and Airports: Current and future volume of infrastructure requirements, including major projects on the anvil.

Infrastructure Construction Experience: Procurement methods, cost of construction, successful project implementation experiences within original cost/time estimates, availability and nature of financing methods.

Client Agencies Human Resources: Experience and technical expertise available with the various public sector bodies that are frequently involved in large infrastructure projects.

Evaluation of the overall situation: Analysis of how impediments, if any, to successful and timely implementation of large infrastructure projects have been overcome.

Consulting Industry's Capacity: In terms of design and project management, construction quality assurance, management structure, equipment, skilled man-power (particularly at senior levels) and the ability to match anticipated demand.

Business Environment: Constraints if any, to financing and the business and regulatory environment; and implications of this large demand for construction contractors on other countries, including extent to which it may lead to a shortfall of expertise and increase in prices,

[1] Indian Road Construction Industry, Demand & Supply Issues, Constraints on Capacity, Enhancement & Recommendations (Draft), The World Bank, 2007.

throughout the region.

METHODOLOGY

Data was acquired from focus group interviews with stakeholders (contractors, consultants and executing agencies) and from secondary sources. Data collected included information on: the business and regulatory environment, staffing and salary costs, project design and management fee, materials cost, financial facilities and construction equipment and the general background of the UAE's economy.

The responses from global contractors in terms of reasons for non-participation of the same local/ global construction firms and consultants in projects in Pakistan have been compiled qualitatively rather than by quantitative survey based methodology.

The construction sector in the UAE is booming, both in real estate project developments and infrastructure. Demand from both these sectors impact the availability of materials, labor and capacity for project implementation. Specific project case studies included are of three infrastructure projects; 1) the Dubai Airport Extension Project, 2) Jebel Ali Airport and 3) the Dubai Metro Project. These are described from the point of view of infrastructure planning as well as financing and implementation. The studies illustrate good practices as well as impediments encountered and the lessons learned for implementation of similar projects in Pakistan.

SUMMARY FINDINGS

Dubai, proved to be an interesting choice for a case study, and the lessons learnt help understand why the often exemplified process of rapid development in Dubai cannot be applied in Pakistan but at the same time, showed what can be done to perhaps attract international consulting and construction firms to Pakistan.

The economy of the UAE, has benefited from an outward-oriented development strategy, based on an open trade regime and unrestricted capital outflows, a deregulated and competitive business environment with low taxes, a well-developed physical and institutional infrastructure and a relatively open and unrestricted labor market, which has resulted in an impressive economic growth and diversification of the UAE's economy. Particularly in the case of infrastructure project implementation, key success factors in the UAE include:

- High commitment from the government and effective decision making
- High liquidity due to "petrodollars," therefore, availability of finances
- Relatively well defined strategy and action plan
- Pace of implementation due to effective organization and project management

The study points out that while government agencies and private sector in the UAE have been very successful in implementing various large projects in the past, however, capacity constraints are becoming evident in construction and infrastructure implementation due to the mega size and scale of projects envisaged for completion over the coming years. Therefore, as in the case of other regions with expanding demand but constrained capacity, the way forward is likely to be an increasing focus on private sector participation as well as on newer models and

formats in which the projects will be implemented.

Valuable insight was gained at a workshop held in Dubai with key players in infrastructure development which included construction and consulting firms, financial institutions and Dubai Municipality officers.[2] Dubai being a principality can be considered to be run as a "country with one Chief Executive Officer (CEO)." The CEO with absolute powers has a clear vision of what he wants, "a state of the art, world class, development" and operates in a command and control environment like one big company. The will of the ruler is translated directly through the government machinery, there is no compromise on quality and the whole process is a delivery-oriented driven system.

The key to attracting interest in the development works was stated to be the approach of "clustering of development projects" where projects have to satisfy a diverse set of interests, and relying on "demonstration effect", as it was envisaged that success shall breed success, for example the Jebel-e-Ali project served as a key to attracting new developers. These three factors – CEO with absolute powers, clustering of projects and the demonstration effect provided the impetus for rapid growth in Dubai. Success of a few initial projects and the credibility established as an overall fair system, with an absence of even small scale corruption, ensured that liquidity of finance roaming the world was attracted to Dubai along with professional management and entrepreneurship.

If these two factors – of clustering projects and depending on demonstrating viability of planned projects coupled with continuity of policies is ensured; then mega development projects would ensure interest from qualified developers and investors.

Lessons from Dubai include what is different and would not work in Pakistan such as:

- Absolute monarchy – single ownership.
- Dubai's own resources (land and sea) – created as Dubai's owner's resources. For example, land acquisition procedures of Pakistan do not allow "directives" to be implemented as in the case of Dubai.
- No personal or corporate taxes.
- Supply-side economics - No project finance is provided by financial institutions, except in real estate. The Dubai government provides complete project financing. The government borrows on its books for public sector projects as it considers itself as efficient as the private sector.
- No subsidies to the poor, however, health or education, are taken care of by the state as only 15 percent of the population of Dubai are nationals.
- No accountability for project failures. As the project managers have complete freedom to "deliver," the outcome of failure requires sacking of the project managers and failures have to be rectified as soon as possible. There are no extra contractual watch-dogs.
- No accountability for investment, but transparency is maintained.

[2] Final discussions held on 15th March 2007, at International Finance Corporation (IFC) with: Mr. Ramesh Murthy, Head of Project finance, Mashreq Bank; Abhimanyu Jalan, Partner (Legal), Clyde & Co.; Wale Shonibare, Director, KPMG; M. Mohiuddin, Director, ETA-Ascon; Supriya Sen, Chief Investment Officer, Fortune Private Equity; Chiragh Shah, Director Strategy/Business Development, Dubai International Finance Center (DIFC); Ajay Malik, Investment Officer, IFC; Hussein Lootah, Acting Director, Dubai Municipality

Although, Dubai has developed a strategic plan up to 2015, this does not imply that public infrastructure development has been fully planned. Master plans are visionary and living documents. There are numerous examples where infrastructure put in place is deemed outdated and replaced as may be required. Emphasis is on implementation and administrative capacity through professional project management. Box 1, summarizes the lessons learnt about infrastructure delivery in the UAE and the anticipated challenges.

In the case of countries like Pakistan, given the international contractor's traditional concerns such as country perceptions, security, inherent competitiveness disadvantage vis-à-vis local contractors, domestic preference clause, and the relatively small size of contract packages, transparency issues and corruption, the local regulatory laws as well as client's project management quality, the returns in Pakistan's construction and infrastructure sector would have to be much better than comparable projects available in the region. Hence it is envisaged that given the apparent capacity constraints faced by local contractors and the large volume of projects, projects in Pakistan would have to be more attractive financially with substantial risk mitigation policies to gather sufficient international investor and construction industry interest.

The experiences of Malaysia, China, and the UAE helped in understanding the processes involved in developing the capacity to undertake large scale infrastructure projects. Common lessons are; that a strategic long-term vision and integrated master plan; ensured funding; sustained efforts to build up required human capital; and providing an enabling environment for local as well as international consultants, contractors and investors to work in the country proved successful. Strong government support in terms of HR development; streamlining procedures, policies and regulations; supporting trade associations; facilitating timely payments; and enacting reforms through appropriate legislation in financial sectors to encourage lending for infrastructure are essential. Policies have to be kept under constant review to face the new challenges for infrastructure development due to the ongoing massive development in the region.

All key elements of the industry must be planned, developed and coordinated for example manpower, materials, plant and equipment, technology, finance and management. Global trends are towards closer integration of construction activities and smart partnering among stakeholders through design build contracts, turnkey projects, BOT contracts, private financing initiatives and public-private partnership arrangements. The summary of development processes in the regional countries is shown in Annexure A.

In the context of Pakistan, the lessons learnt suggest that the solution to delivering mega projects may lie in ring-fencing projects of national importance, such as the Gawadar City and Port, reducuction of business risks, providing delegation and empowerment to the project developers and ensuring that professional project managers and Human Resources (HR) are deployed. It has to be mentioned however, that even in Dubai there is a shortage of contractors and consultants in the market and developing infrastructure in Pakistan will require innovative approaches to compete with the regional demand for professional services such as attractive and "non-conventional" terms of contract and project packaging.

Box 1: Lessons from Dubai

A closer look at the UAE reveals the policies and regulatory frameworks that have enabled it to implement large infrastructure projects, such as airports and metro. The UAE is a suitable country for comparison to Pakistan as it is located in the region and furthermore, Pakistan is actively seeking investors from the UAE to participate in infrastructure projects. The construction sector in the UAE is booming both in the infrastructure and real estate developments. *Rapid increase in demand has exerted pressure on the availability of materials, labor and capacity for project implementation.*

The *public sector in the UAE is an atypical one as it acts like corporate business house which rewards its mangers and provides incentives like the private sector.* And more importantly markets are allowed to function with limited price interventions and distortions. In comparison to other regional countries the public sector in the UAE has a greater capacity to plan and assess infrastructure works. Better quality in output and performance is demanded and enforced by the client. *The government enhances it's capacity by liberally employing foreign technical advisors.*

In planning infrastructure projects the government has prioritized transport infrastructure based on current trends and future projections. Projects are designed and deliberated based on data and latest software tools. Furthermore, the *financing of these large projects are done through appropriate and innovative financial structures that include funding agreements and financial models adapted to the unique capital, investment and real estate market. Historically most projects have been self financed or through public funds but increasingly the government realizes the benefits of partnering with the private sector.* Given the rapid rate of infrastructure development, market liquidity is a concern which can be addressed through long-term debt maturities. An upcoming avenue of financing is the Islamic Bonds (for example *Ijrah* facility- an Islamic compliant leasing agreement), however these remain under utilized due to the inadequacy of capital markets. Other developments on the financial side include financing through Japanese banks and the mix of long and short-term loans.

The biggest bottleneck however remains the availability of contractors, skilled engineers and professionals. Even though infrastructure development has been mushrooming, the supply of professional contractors has remained static. As a result many tenders made through the traditional procurement methods do not attract sufficient bids. Capacity constraints are felt all along the supply chain. Subcontracting services along with material prices have consistently been on the rise. *Given excess demand for consulting and contracting services, clients have developed new contract and procurement arrangements to overcome supply constraints and mitigate price and quality risk.* Some examples of these new contracts include advance payment arrangements and guaranteed maximum price instead of the traditional fixed price, lump-sum model. Both negotiated and partnering contracts are being employed. Due to improved opportunities, new entrants from the Far East, Europe and S. America have also entered the market.

Present regulatory laws prefer local investors to foreigners. As concerns the regulatory environment, *key success factors include high commitment from the government, high liquidity due to petro-dollars, well defined overall strategy cum action plan and comparatively better speed of implementation and project management.* However, in order to partner with the private sector greater transparency, less government involvement and political disruption along with legislation protecting foreign direct investment, which guarantees repatriation of funds is necessary. Lastly, means for providing better project and financial information will help further boost the industry.

ECONOMY, GROWTH AND INFRASTRUCTURE OF THE UAE

Economy and Business Environment

UAE Developing in Diverse Sectors

Abu Dhabi has exploited its comparative advantage in large-scale capital and energy intensive downstream industries such as petrochemicals and fertilizers. Dubai, with its depleting oil resources, has pursued an outward oriented strategy to develop as a commercial hub with entry port trade, finance and tourism. Sharjah has traditionally developed small-scale light manufacturing industries and tourism. While cement production is one of the oldest industries in Ras Al-Khaimah, other industries such as pharmaceuticals have also emerged. The Northern Emirates developed in the areas of shipping, agriculture, mining and quarrying. The Emirate of Fujairah is a popular tourist destination due to its temperate climate.

Over the years, an IMF paper published in June 2005, observes that the UAE has kept its non-oil fiscal balance, gross debt, and wage bill. Subsidies have also been relatively low compared to most other GCC countries. Also, most government controlled entities, like petrochemical plants, water and power, have been commercially operated.

Openness to Trade, Trade Facilitation, and a Favorable Business Environment

Openness to trade, facilitation and the business environment have enhanced non-oil diversification by stimulating trade and trade related services. Fundamental structural reforms in recent years together with liberal and market-oriented policies have fostered the rapid expansion of the non-oil economy with a well integrated trading system that has also ushered the participation of the private sector.

The diversification of the economy has also been driven by the rapid expansion of the services sector in tourism, finance, transport and communication sectors. This has been facilitated by the access to a large pool of expatriate labor available at competitive wages. At the end of 2004, expatriate workers accounted for 91.5 percent of total employment in the UAE.

High quality infrastructure and efficient operations of the ports and airports have reduced: (i) transaction cost in trade-related activities, (ii) clearing of goods in customs and (iii) shipping of goods overseas. The turnaround time for re-exports is less than one day in Jebel e Ali port.

Tourism - One of the Most Rapidly Growing Industries in the Services Sector

Dubai is becoming a destination for leisure tourism. Dubai Horse Race has become an international event contributing to the rise in tourism. At present, about over 5 million tourists visit Dubai annually, with the industry targeting 15 million by 2010. Passengers traveling through Dubai International Airport have increased from about 22 million in 2000 to more than 40 million during 2004.

Large-scale projects like the three Palm Islands, Dubailand and Dubai Healthcare City are expected to spur further growth in the non-oil economy during the coming years.

Services Sector Boosted by Free Trade Zones

The services sector has also been boosted by the launching of Free Trade Zones (FTZs) for media, knowledge and technology services. The latter, is a free zone encompassing information and communications technology (ICT) infrastructure dedicated to promoting media, e-commerce, software development and back office operations for the region. It offers ready-to-operate office spaces with advanced infrastructure. The establishment of Dubai Industrial City, a free industrial zone slated largely for manufacturing activity, is expected to further boost the international stature of the non-oil economy.

Dubai Vying to be the Leading Financial Capital of the Middle East Region

The recent establishment of the Dubai International Financial Center (DIFC) is an important step in that direction. DIFC is a financial free zone that is expected to provide more diversification and sophistication in the financial sector including investment banking. The regulatory structure has been based on international best practices. As of mid-March 2006, 11 financial institutions have been granted licenses to operate within the free zone and this number is expected to increase to about 50 institutions in near future.

The UAE, led by Dubai, has strived to provide a stable economic and efficiently functioning business environment. In this regard, a streamlined regulatory environment has bolstered the "efficiency premium" that the UAE has thrived on, and fostered an efficient organization of the production process, distribution of goods and response to the client base.

Global Perceptions

The perception of the global business community has been favorable in terms of economic, financial, and investment risks in the case of the UAE. Various surveys have given the UAE a relatively high score not only when compared to its GCC and regional peers but on a global scale also.

The Global Competitiveness Index (GCI) for 2004, which comprises three pillars: - macroeconomic environment, the state of the country's public institutions and the country's technological readiness-ranks the *UAE 16th in the world* with a high score of 5.21 and at the top of the list among GCC countries.

Macroeconomic stability has been maintained over the past few decades with prudent macroeconomic management, enabling a significant accumulation of assets. The macro stability of the economy as observed in the macroeconomic environment Index-a sub-component of the Growth Competitiveness comprising growth, government balance, national savings rate, inflation, composition of government spending, real effective rate, interest rate spreads between lending and borrowing-ranks the *UAE among the top fifteen in the world along* with Singapore, the UK, and Switzerland.

UAE also has a very favorable tax environment that encourages businesses to operate in the country, especially in the FTZs where in most cases there are no corporate and income taxes.

Sound Labor Policies

Based on the World Bank's survey of ‘Doing Business’ - the difficulties facing companies in hiring and firing workers is the least rigid compared to its peers in the region. The

flexible labor policy adopted in the UAE, has been an important contributing factor behind the diversification of the non-oil economy. Such a policy has allowed the UAE to have access to abundant supply of labor at an internationally competitive wages. About 90 percent of the labor force in the UAE are expatriates and work mainly in the private sector (Annexure B provides further details on wages in UAE). This labor policy has been a key contributor to maintaining the competitiveness of the non-oil economy. In the period ahead, increasing unemployment among nationals is likely to pose a serious problem. During 1999-2004, the overall rate of growth of the national labor force averaged close to 10 percent, with the female labor force growth averaged at about 20 percent. Based on the United Nations projections, population growth rate is projected to decline over the next 30 years.

Using conservative assumptions, the yearly addition to the national labor force is projected at an average of 11,000 workers per year through 2035, which corresponds to an average yearly growth rate of about 3 percent per year during 2006-35.

The vast resources of the UAE may be sufficient to pay reasonable annuity to every entrant to the labor force, either in the form of direct subsidies and transfers through the budget or in the form of increased (excess) government sector employment at the cost of increasing inefficiency in that sector.

Even in the long run, under plausible conditions and prudent policies, fiscal sustainability does not appear to be a serious problem in the UAE. Therefore, in view of the long-term projections for labor force growth, the broader problem for the UAE is the sustainability of the living standards enjoyed at present by nationals, which might not be sustainable for future generations, unless productive employment opportunities are created.

Overall Development Remains Dependent on Petrodollars

The UAE has one of the most diversified oil exporting economies in the Middle Eastern region. Nevertheless, overall economic developments remain dependent on the hydrocarbon sector, which accounts on average for about 30 percent of GDP. Hydrocarbon related industries, such as refining and petrochemicals, also contribute significantly to economic activity. While the relative economic importance of oil production has diminished in recent years, it still has an important impact on the development of the individual Emirates' economies through the financing of the modern infrastructure, social services, and industrial development. Likewise, the natural resource-poor northern Emirates have benefited greatly from Abu Dhabi's oil riches through direct financial transfers, transfers from the Federal government and subsidized energy supplies.

Abu Dhabi accounts for more than 90 percent of the federation's oil and gas reserves and production. The direct reliance of the local economies on the hydrocarbon sector differs greatly between the individual Emirates. The sector's GDP share varies from more than 50 percent in Abu Dhabi to zero in the small northern Emirates of Ajman, Fujairah, and Umm Al-Quwain. Oil and gas production contribute about 6 percent to Dubai's GDP, while its share is about 12 percent in Sharjah and 4 percent in Ras al-Khaimah.

The oil-rich Emirate of Abu Dhabi has an important role towards maintaining price and supply stability in the international oil market, as the Emirate is one of only very few oil producers worldwide which has traditionally maintained spare production capacity in order to react flexibly to changing market conditions.

The Emirate has followed a policy of fostering a stable international oil market, and has

repeatedly contributed to ensuring oil market stability by compensating for production shortfalls in other countries and by accommodating growing global demand for oil.

Currently, an ambitious plan to expand oil production capacity is underway, enabling production levels to increase in line with expected world oil demand. The government's intention in expanding production capacity is for the UAE to regain its capability to react flexibly to market developments by maintaining a sizeable spare capacity to increase the country's role in the world oil market.

In order to further promote oil market stability, the UAE is encouraged to enhance transparency in information related to petroleum production, capacity and reserves. Such data are crucial for investment planning and market forecasting. The high volatility of oil prices in the recent past was partially attributable to a lack of oil market data transparency in an environment of tight production, refining, and transport capacity as well as an unusually high number of individual supply shocks.

In principle, Abu Dhabi could to some degree increase crude oil production further in the short-term, however, it is constrained by strict environmental laws and its efforts at implementing its zero gas flaring rules. As the capacity of gas transport, storage and processing facilities are limited; raising oil production would necessitate the lifting of restrictions on flaring of natural gas extracted in association with crude oil.

The prudent management of oil wealth, trade openness and an efficiently functioning business environment has supported a higher intensity of trade integration and diversification, relative to the UAE's GCC peers.

Challenges for Sustained Growth

Dubai has played a key role as the country's commercial capital. However, the UAE's main challenge in the future is to leverage on its current diversification dynamics and broaden the role of the private sector further through liberalization beyond the FTZs and Dubai.

To this end, the proposed amendments to the Company Law and the new FDI law, by reducing foreign ownership restrictions and further strengthening the investment climate (such as contract enforcement, legal framework, property rights), would address the key shortcomings in the current business environment.

Growth and Demand for Infrastructure

Dubai is one of the fastest growing commercial cities in the world. With a total area of about 4,114 square km, Dubai is slightly larger than Luxembourg and boasts wide, U.S.-style highways and interchanges. Due to its modern infrastructure, central location and a population of 1.4 million, is rapidly emerging as the business centre of the region along with its trade and tourism hub. Over the last 20 years, population and employment have grown three times at an average annual rate of 6 percent which translates as at least 120,000 a year.

So far, Dubai's growth has been supported by world class infrastructure. The road network, which had a length of 200km in 1964, has increased to 9,100km by 2004. The public transport network, with 90 million passenger trips a year over 62 bus routes and a fleet of 516,

has an annual growth of 20 percent, in addition the Abras[3] carry over 16 million passengers per year. The number of people using the Dubai airport is projected to reach 42 million by 2020 against 13 million in 2000. Dubai's integrated transportation solution targets an increase of public transport market share from 4.7 percent to over 17 percent over the next 15 years.

With dwindling oil reserves and an insatiable demand for natural gas to support its massive infrastructure development schemes, Dubai's investment plans and emphasis in the coming years continues to be on the further development of the Emirate as a hub for tourism, trade and commerce. Recent announcements, from the establishment of the Dubai International Financial Centre to Dubai Aerospace Centre and many prestigious hotel developments all emphasize this trend. However, in recent years, the traffic gridlock has become one of the "growing pains" of Dubai's economy, which expanded at a rate of 17 percent last year. Therefore, transport and infrastructure solutions require implementation at a rapid pace to keep up with this growth.

CURRENT AND FUTURE INFRASTRUCTURE REQUIREMENTS

Land Transport

Rapid economic growth and the increasing population require increased investment in road and transport infrastructure, besides other basic necessities including water, electricity and telecommunications. The increase in traffic is the main cause of traffic snarl ups and congestion on Dubai roads. The total number of registered vehicles, which was around 350,000 in 2000, now stands at almost 500,000. This high rate of growth, almost 9 percent annually, along with similar increases in population and land use changes, has warranted the need to update transportation plans and an increase in spending on highway infrastructure. Over the past decade, road spending by the Dubai government has increased by almost tenfold. While spending on roads in 1995 was around US$54.4 million (AED200 million), now it is over $545 million (AED2 billion); it is expected to increase further in the future.

Government officials acknowledge that traffic congestion has grown at the same speed as the city, largely due to the construction boom fueled by the rapidly growing local economy. In terms of infrastructure, therefore, the government's main focus area in the coming years is transport infrastructure. Currently, Dubai Municipality is in the process of preparing new transportation plans for the next twenty years to be able to predict future traffic movement and congestion trends. Based on the past traffic and socio-economic trends, and the anticipated growth of the city, a transportation vision for the future and a highway network improvement plan is being drafted using software tools and through data collection. Usually done once every 15 to 20 years, in case of Dubai this has been done three times since 1990 because of the unprecedented growth witnessed over the last decade. The transportation models developed as part of this exercise are able to predict traffic flows with 85- 90 percent accuracy, which in turn predict the number of lanes required on highways, bridges and tunnels.

One of the major projects being implemented is the $4.2 billion Dubai Light Rail Transit

[3] Traditional boats used to cross the Dubai Creek. At present, nearly 150 Abras operate in the creek on two routes: from Bur Dubai to Deira Old Souk and from Bur Dubai Souk to Al Sabkha. This service is used by more than 60,000 people daily to commute between the two banks of the Dubai Creek on weekends and over 40,000 people on weekdays.

(LRT-or the Dubai Metro) and a proposed $2.5 billion inter-emirate rail network to link all the emirates of the UAE. In addition, considerable investments are envisaged in various road projects, at about $0.5 million per project. It is reported that the government had set aside 40 percent of the municipality budget to expand roads and bridges and there are plans to improve the bus network and introduce highway tolls in the coming year. In addition, there is a plan to integrate the bus network and the Abra network to support the Metro system.

Other tasks include *developing and establishing the appropriate financial structure* for these projects that include funding agreements, financial modeling to the realities of Dubai's unique capital, investment and real estate market as well as partnerships between Metro system authority and promoters of new projects around the stations. There is also a need to *create the institutional infrastructure* to support and control the efficient implementation of the integrated master transportation plan. As a first step in this regard, Dubai Municipality set up the new Dubai Roads and Transport Authority in November 2005, with a mandate to manage the transportation requirements for Dubai in an equitable and balanced manner.

Dubai Metro Project Case Study

Dubai Municipality had commissioned the Preliminary Engineering Study for Dubai Rail Project in 2002. Thereafter, during 2002-2004, the technical specifications and tender documentations for a Design and Build Contract based on FIDIC framework were completed; and the work was tendered in the marketplace in October 2004. In July 2005, a Dh12.45 billion ($4.2 billion) Design and Build Contract was awarded to a consortium known as Dubai Rail Link (DURL), which is a consortium of Japanese companies including Mitsubishi Heavy Industries, Mitsubishi Corporation, Obayashi Corporation, Kajima Corporation and Yapi Markezi of Turkey. The consortium, also won a Dh1.88 billion contract to carry out maintenance of the project for 15 years.

The Dubai Metro project is being built in two phases, and will have a total of 68.9 km rail network with 44 stations, including elevated and underground stations. The busiest Metro section would have a capacity of 16,792 passengers per hour per direction at peak hours, leading to total Metro boarding capacity of 124,605 during peak hour, 1.80 million per day and 570 million per year. The total length of the rail is 69.7 kms, 52.1km of which would be covered under the first phase. Of the total 43 stations, 33 would be on the ground, while 10 stations would be underground.

The Dubai Metro will have two lines, with the Red Line running from Rashidiya Station to Jebel e Ali Station, with a trip duration of 60 minutes, and the Green Line running from the Dubai Airport Free Zone to Dubai Health Care City, with a 25-minute travel time. The Red Line will have a total of 18 five-car trains, while the Green Line would have 25 trains of three cars each. One car in each train would be divided between first class passengers and for women and children.

Construction of the Dubai Metro system started during late 2005. It is envisaged that the $4.2 billion project will be completed for the first trains to run in 2009 and the 17.6 km green line (phase 2 of the project) which will run from the Dubai airport free zone to the new Dubai Health Care city, is to be completed by mid 2012. Of the total capital cost, 45 percent are expected to be civil works and stations, while 51.5 percent would be for system fixed equipment and rolling stock. The consultancy services that include project management and construction supervision would cost 3 percent.

The municipality would proceed with a Blue Line after the completion of Red and Green Lines. The Blue Line will, on the one hand, act as a link between the current Dubai International

Airport and the proposed Jebel e Ali Airport; while on the other hand, it will be a service for the areas located between the terminals. Once operational, the LRT project will decrease congestion on Dubai's road network, as public transit usage will, according to an estimate, increased from the current five percent to as much as 17 percent. With implementation of desirable policies, the share of public transit is expected to go up to 35 percent.

The benefits of the project include additional rail system revenue, increased rail ridership, promoting efficient land use patterns, increased land value around stations, an efficient, comfortable, reliable and affordable alternative, enhanced productivity and security, and a cleaner environment. The provision of a fast, efficient, non-polluting, integrated rapid transit network throughout the city will provide greater mobility; and will support Dubai's economic growth, encourage private sector participation and investment. An economically viable system will enable Dubai's continuing growth.

Airports

There are several new airport projects under planning and construction stages in the UAE. The main projects under implementation are listed below:

a) $4.2 billion Dubai Airport expansion
b) New airport in Jebel e Ali developed by CAA, $8 billion
c) Sharjah Airport undergoing a $62 million expansion plan
d) $6.8 billion New Abu Dhabi airport as well as expansion of existing airport.

Dubai's Department of Civil Aviation (DCA) commenced the Phase II expansion program of Dubai International Airport in June 2002. The expansion program has been divided into five major projects. Costing an estimated $4.2 billion, the first set is an expansion of passenger facilities, which includes the construction of Terminal 3 (a new terminal in place of the existing Terminal 2), concourse 2 and concourse 3, and a new VIP pavilion for the Dubai Royal 'Wing'. The second project incorporates the expansion of cargo facilities, including the Mega Cargo Terminal and Cargo Village. The third is the expansion of airfield infrastructure, such as new aprons, taxiways, roads, tunnels and runway extensions. The other two are a large Flower Centre, and a car parking facility. The Dubai airport extension and Jebel e Ali International Airport are discussed below in more details.

Dubai Airport Extension Case Study

The growth of Dubai can probably be best seen through the increase in air passenger traffic. Dubai International Airport was ranked as the second fastest growing airport in the world as per ACI traffic statistics for 2002. The number of passengers passing through the airport has increased fourfold from 4.3 million in 1988 to 9.7 million in 1998. It almost doubled to 18 million in 2003 and reached up to 21.7 million in 2004. It is projected that 60 million passengers will transit Dubai by 2010.

To meet these burgeoning travel needs and enable Dubai to maintain its position as the logistics and travel hub for the region, a major expansion plan of US $4.1 billion is being implemented for Dubai International Airport and its affiliated divisions, which will increase capacity of the airport to 70 million passengers a year from its present capacity of 22 million passengers; and the cargo terminal capacity, from 1 million TPA to 5 million TPA.

The new expansion program includes construction of Terminal 3, concourse 2 and

concourse 3 all dedicated to Emirates airlines, and a Mega Cargo Terminal. Construction work was scheduled to complete by 2006. The main components of the project are: Hall 'B' Express Mail Centre; Cargo Mega Terminal; Administrative and Agents Facilities; Multi-storey car park; Elevated Roadway; Central Utility Plant; Mosque and Amenities; and the Flower Centre. The cargo village at Dubai is one of the world's largest and most central cargo hubs, with much of the cargo for Asia and Africa coming through the facility. Forecasts in 2004 for cargo growth predicted that additional major cargo handling facilities were needed to meet the growing demands. Therefore, it was planned to construct the Cargo Mega Terminal, which by 2018 will have the ability to handle three million tons of freight. Phase 1 of the Cargo Mega Terminal has now been completed and the next phase of expansion is scheduled for completion towards the end of 2007.

For financing the above airport expansion project, the Dubai Civil Aviation Authority raised a US $1 billion 3 year Ijarah facility (an Islamic-compliant leasing agreement) through its lead arrangers, i.e. Dubai Islamic Bank (DIB). Eight other banks that participated in the facility also as lead arrangers including Standard Chartered Bank, ABN Amro, Deutsche Bank, WestLB, Development Bank of Singapore (DBS), Societe Generale, Depfa Bank, and DZ Bank; and DIB, Standard Chartered Bank, Deutsche Bank and ABN Amro were the joint book runners.

Jebel e Ali International Airport Case Study

Dubai will have the world's largest airport when the under-development Jebel e Ali International Airport (JXB) will be built at a cost of more than $8 billion on a 140-square-kilometer plot that will house a commercial and residential city. Upon completion, JXB will have at least six parallel runways and as many concourses capable of handling more than 120 million passengers and more than 12 million tons of cargo per year.

JAAC is conceived as a mixed-use urban environment, comprising aviation, logistics, commercial, residential, educational, recreational, technology and entertainment components. At the core of JAAC, and scheduled to be the project's first component to launch operations at the end of 2007, is Dubai Logistics City (DLC), a free zone for businesses which require, or provide, logistics and multi-modal transport services to the GCC, wider Middle East, India, Africa, East Europe and the CIS. Jebel e Ali has its own seaport and is declared a free zone, where hundreds of foreign companies are operating in various sectors, including industry, cargo and clearing, re-exports and numerous services and goods.

The proposed airport which is designed to serve Dubai's passenger and cargo air transportation needs until 2050, could handle 120 million passengers a year, compared with today's largest, London's Heathrow, which has a capacity to handle 83.5 million passengers a year. It will have at least six parallel runways and as many concourses capable of handling more than 120 million passengers and more than 12 million tons of cargo per year.

Bank consortiums, led by leading local banks, are reportedly interested in raising finance for Dubai's Dh30 billion 140 square kilometer airport city coming up in Jebel e Ali. Financing will be arranged through a leading UAE bank. Dubai's current airport is also self-financed-i.e. the government does not fund it; and the same financing pattern will be followed in case of JXB.

LESSONS LEARNT

Large Infrastructure Project Implementation in the UAE

The brisk pace of industrialization, and the demands of rapidly growing population, leave no doubt that the UAE needs to develop more infrastructure for the provision of basic services like transport infrastructure, water, electricity and telecommunications. So far, most of the projects have been self financed or through public funds- and in some cases, the bond markets have been used for financing these projects. However, the opportunities for private participation in infrastructure development are increasing as governments are realizing the benefits of private sector contributions to infrastructure development. Competitive award of projects to the private sector has recently started in this region, in telecom, electricity, water, transport and financial services.

The UAE economy has benefited from an outward-oriented development strategy, based on an open trade regime and unrestricted capital outflows, a deregulated and competitive business environment with low taxes, a well-developed physical and institutional infrastructure and a relatively open and unrestricted labor market, which has resulted in an impressive economic growth and diversification of the UAE's economy. Particularly in the case of infrastructure project implementation, key success factors in the UAE include:

- High commitment from the government - effective decision making
- High liquidity due to “petrodollars”- availability of financing
- Relatively well defined strategy and action plan
- Speed of implementation due to effective organization and project management

Regulatory Framework

The regulatory framework in the UAE generally, favors local investors over foreigners. Foreign ownership of land/stocks is restricted, and FDI is limited to 49 percent. The two main laws, which govern regulation of projects in UAE, are:

a. Federal Industry Law: all industrial projects should have 51 percent UAE national ownership and either managed by UAE nationals or have Board of Directors comprising UAE nationals
b. Government Tender Laws: Supplier, contractor or bidder must be either UAE national or company in which UAE nationals own at least 51 percent of the share capital. Foreign companies must enter into a joint venture arrangement with a UAE national or company.

Generally infrastructure projects in the UAE are procured at the Emirate level by the respective sector agencies such as Abu Dhabi Electricity & Water Authority or local authorities like Road and Transport Authority in Dubai. In other sectors where liberalization has commenced, separate legal bodies are being contemplated.

However, *regulatory, administrative and economic changes, together with the development of successful models, are the key to further scaling up private investment.* At present, the regulatory framework in the UAE is often based on ad hoc specific sector regulations, if any.

The legal and regulatory frameworks should be further strengthened in the UAE for facilitating PPPs. This includes the need for greater transparency, less government involvement and the need for specific legislation protecting foreign direct investment, which would guarantee the repatriation of funds, and protect investors against political disruption.

Another challenge to scaling up of project financing in the region is the rather limited availability of project and financial information, which project developers say can hamper the evolution of an active project finance industry. Information must be made available as transparently as possible so that the economics of the project, which can be very complex, and the risks are known. An improvement, in procurement procedures as well as transparency and accountability of government is also required. However a beginning has been made in that e-government is a stated priority of the government and several departments and agencies can be approached online. Annexure D provides further details on the current business and regulatory environment.

Financing of Infrastructure Projects in the UAE

The volume of projects being contemplated in the UAE and the region also raise issues such as market liquidity. Longer-term debt maturities are required, and in addition, some bankers point out that there is often a return mismatch in project financing in the region, with prices often being too low to provide an acceptable return to shareholders.

Although volumes are not large at present, it is believed that the use of Islamic bonds and other forms of Islamic financing will help drive infrastructure development in the Middle East in future. Bonds, both Islamic and conventional, are likely to play a pivotal role in the region, but the current underdevelopment of capital markets has so far hampered their potential. However, the development of capital markets is a major opportunity for the region, and the potential of bonds to fund infrastructure projects in the region is good as long as there is sufficient depth of products and liquidity where the bonds will be actively traded. Other recent innovations are the entrance of Japanese banks into regional project finance, and the mix of long and short-term loans and bond financing on recent infrastructure projects[4].

IMPLICATIONS FOR THE UAE & PROJECTS IN REGIONAL COUNTRIES

Implementation of Mega Projects Challenged by Supply Side Constraints

Traditionally, construction projects in the Gulf had consisted of oil and gas-related schemes supplemented by government funded infrastructure development. However, in early 2000, when Dubai launched the Palm Jumeirah scheme and announced that expatriates would be able to buy property for the first time, the change in Dubai property legislation along with the start of the oil price rally (and the resulting increase in liquidity), led to a proliferation of mega-projects across the region.

[4] An example of bond financing of infrastructure projects is the Dubai government's plan to raise 4,000 million Euro through a medium-term note (EMTN) program with expected 10 year tenure. The funds raised through these bonds, which could have either an Islamic or conventional structure, will be used to part finance the Dubai Metro scheme, future projects for Dubai Electricity & Water Authority (DEWA) and the remainder for the expansion of Dubai International Airport.

However, although the number of projects has grown exponentially, the number of contractors has remained relatively static. From conversations with project developers *it appears that the single biggest challenge that will be the bottleneck for implementing the multi million dollar construction projects being planned is in finding experienced contractors.* A recent study conducted by MEED Projects, a leading economic research consultancy in the Middle East, found that the shortfall in capacity is most acute in Qatar but increasingly seen across the region; and this is to be expected given the multifold increase in projects under implementation. In mid-April 2006, the total value of GCC projects tracked by MEED Projects crossed the $1 trillion mark, while just 18 months before, the figure stood at $277,000 million.

With so many projects now under way, clients are struggling to attract bids from consultants and contractors alike. This does not just apply to Dubai, which has attracted contracting capacity from across the region over the past two years, but also to other GCC markets, where in places such as Abu Dhabi, Kuwait, Qatar and Saudi Arabia, construction activity has still to reach its peak.

Abu Dhabi's construction sector is also now set to boom, as the new government embarks on a large scale development program that will transform the Emirate. New property development firms have been set up, and projects are proliferating. The new projects include the new runway and the Etihad terminal and the $6.8 billion expansion of the Abu Dhabi International Airport. The volume of construction work in Abu Dhabi is also set to steeply increase.

Abu Dhabi has a long tradition of large scale civil projects, but the sector has seen little activity during the past five years, hence some contractors have scaled down operations, while others have traveled to Dubai and are now committed there. Other local contractors diversified into the more active oil and gas and power sectors. Similarly leading builders already have healthy orders booked from active markets elsewhere in the Gulf and are beginning to turn down projects. However, companies such as Arabtec Construction and Al-Habtoor Engineering have formed JVs with international companies, and Emirates Belbadi has tied up with Germany's Alpine Bau for several projects. It is expected that the combination of international project expertise and local business knowledge would allow local contractors to participate in major projects.

Clients Reconsidering Options as Bidders Shy Away

Mindful of capacity constraints impeding projects in Dubai and limitations of contractors in Abu Dhabi, the clients are considering their options. Some have tried new procurement methods and others are entering into partnership with leading global contractors. Mubadala Development Company is using the PPP format for the $400 million expansion of the UAE University in Al-Ain. Much depends on whether clients are willing to grant greater autonomy to contractors, and whether contractors in turn can expand and take on the challenges of these projects.

Traditional procurement methods are attracting few bidders and high prices. Public sector clients employing traditional procurement methods have been hit hard by low contractor turnout. It was reported that at Dubai's Roads & Transport Authority, which has launched a massive highway overhaul program to alleviate the Emirate's chronic traffic problem, a handful of recent tenders failed to attract bidders; on some others, only a couple of bids were received and even they were tendered well above budget. Invariably, the result is a re-tender, which means further delays for vital infrastructure.

The private sector did not fare much better. It was reported in the press that prestigious

projects such as the Fairmont Hotel and resort project on Palm Jumeirah only attracted one bid after other as potential bidders picked up work elsewhere. Thereafter, since tendering and negotiations can take months, in the meantime, a contractor may take on new projects or even change its strategy.

Capacity Issues are Not Limited to Main Contractors

The whole supply chain is struggling to meet demand. Specialist subcontractors involved in areas such as cladding and mechanical, electrical and plumbing (MEP), are operating at full capacity and turn down work even more frequently than main contractors.

Suppliers are being recompensed by higher prices, in the UAE, rebar prices alone increased by a further 10 percent during a short period of two months (Feb-March 2006), and across the board, costs are reckoned to have gone up by at least 15 percent since then. New capacity is coming on stream but, so far, additional supplies are being immediately absorbed by the rapidly increasing demand.

Material inflation is driving up the cost of construction right across the Gulf. Just two years ago, when a building could be completed for $320/square meter, it has now gone up to $427-480/square meter (Annexure C provides further details on materials costs).

The vast number of project opportunities means that contractors can afford to be selective, comfortable in the knowledge that they already have healthy order books.

Clients Respond by Reducing Risk and Improving Contracts

The situation is forcing a rethink among major clients. Some have moved to make their contract terms more favorable. Last May, Qatar's Public Works Authority (Ashghal), the agency behind the state's $7,500 million infrastructure upgrade program, introduced advance payments for the first time and slashed payment terms in half to 45 days. Emaar and Nakheel are also now offering advanced payment on selected contracts, while other clients are looking to move away from the traditional fixed-price, lump-sum model to other contract types, such as guaranteed maximum price.

Both negotiated contracts and partnering arrangements are moving up the agenda, as well. Although ideas of what negotiation actually mean differ widely, contractors are generally happy to negotiate work, especially if they have worked with the client previously. But uncertainty still remains. "The stumbling block is risk," says an international contractor based in Dubai. "Clients still look for fixed rates, which mean agreeing on future price escalations, which is difficult to agree on as it is crystal ball-gazing. The only way round it is to include a cost escalation contingency clause, something that in the past clients have not been willing to accept."

Another alternative is partnering- for instance between architectural teams and builders. Because all parties are much more informed of the project's objectives, much of the uncertainty and potential disputes the project faces can be determined in advance, resulting in time and cost savings.

Despite improved procurement methods, however, the fact remains that without an increase in capacity across the construction industry, many of the projects will not be delivered on time, on budget or to a satisfactory quality. As a result, new contractors are being encouraged to move in

from as far as the Far East, Europe and even South America, with the promise of plentiful work. But with most contractors already reporting full order books, it remains to be seen whether the market will be able to deliver.

Implications for Pakistan

In the case of countries like Pakistan, given the international contractor's traditional concerns such as country perceptions, security, inherent competitiveness disadvantage vis-à-vis local contractors, domestic preference clause, and the relatively small size of contract packages, transparency issues and corruption, the local regulatory laws as well as client's project management quality- the contractors came up with a response that the returns in Pakistan's construction and infrastructure sector would have to be much better than comparable projects available in the UAE.

Hence it is envisaged that given the apparent capacity constraints faced by local contractors and the large volume of development plans, projects in Pakistan would have to be more attractive financially with substantial risk mitigation policies to gather sufficient international investor and construction industry interest.

Annexure A: Lessons from Regional Countries

Group	China	Malaysia	UAE
Planning	• Develop a good effective master plan for an integrated highway network and link it through regular economic plans. Master plan developed with consultation through international experts, research institutions, academics and line agencies and kept updated. • Ensure that the plan formulation involves all stakeholders (provincial governments) as they are responsible for administrating the construction process. • National level integration of all plans	• Develop a good, integrated master plan for infrastructure development. • Master plan provides a framework for the private sector to plan business development and investment	• Development of an integrated master plan, kept updated • Mega development projects planned for the long term
Funding	• Moved from relying exclusively on investment by the central, provincial, and local governments, to funds provided with interest, bank loans and other financing mechanisms. • Adopted "build with a loan and repay through charging tolls" policy • Tolling rights are transferable • Banking sector reforms carried out to facilitate loans for infrastructure • Established special fund for infrastructure construction through state bonds • Encouraging private sector investment in infrastructure	• Initially through government funding, and switched to private sector when financial crisis hit the Asian economies. • Moved to BOT • Currently all three forms are used, State, BOT and private sector investment	• State funding - The Dubai government provides complete project financing. The government borrows on its books for public sector projects as it considers itself as efficient as the private sector. • Self financing arranged by CAA, RTA and others through banks and consortiums • Banks give loans against contracts, Bonds being used to raise finance • Mix of long and short-term loans and bond financing on recent infrastructure projects.
Policy	• Implement policies to facilitate implementation of plan.	• Recognize required changes in policy and implement changes to support the implementation of the overall plan.	• Policies in place to facilitate infrastructure development, policies under constant review to ensure meeting new challenges for development
Land Acquisition	• Green field development is the fastest and most productive method of constructing a new national network due to the lack of interference from existing network. Land is considered nationally owned, acquisition not a problem.	• Green field development was found to be the most advantageous with the least social problems. • Land acquisition completed before start of project	• Land acquisition is not a problem being a Kingdom, however, essentially green field development taking place.
Building Highway Industry Capacity	• International consultants and contractors brought advanced technology, improved project management techniques and modern, high tech equipment. International staff responsible for management and technical expertise, JVs formed. • Ten years of capacity building 1988-1998 through sustained investment in development and proactive support • Supply chain was improved through institutional reform and privatization initiatives, smaller companies taken along in the development process • Training of professionals, operators and technicians through foreign equipment manufacturers at overseas facilities and through on the job training with foreign collaboration • Moving from imported machinery to local manufacturing though joint ventures and licensing	• Use the international highway construction community for guidance, technology transfer and capacity building – 1980's through late 1990s. • Active support for development of construction industry infrastructure and supply chains • Divide large projects into appropriate packages to allow smaller domestic contractors the opportunity to subcontract and build supply chain. • Sustained development has built capacity Training of professionals, operators and technicians through foreign equipment manufacturers at overseas facilities and through on the job training with foreign collaboration • Plant hire companies established in the private sector	• Older equipment is difficult to import • custom duty on equipment 0 to 5% maximum • Leasing of equipment available • No personal or corporate taxes • Sustained development plans • Reliance on international professionals, skilled workers and labor. • Project management consultants engaged

Group	China	Malaysia	UAE
	• Long term plans and commitment instilled confidence • Materials and equipment supply company set up		
Regulations and Legislation	• Central ministry of construction as regulator • Developed appropriate regulations and legislation to support and enable the development of the industry and for overall policies to be implemented. • Develop clear and transparent regulations for industry. • 1998 -Construction Law enacted covering procurement, delivery of works, supervision, safety and quality, procedures etc., • 2003 – Procurement rules for bidding and tendering introduced • Credit guaranty system for small and medium enterprises set up to facilitate financing - special industrial and technological bonding companies set up to encourage banks to lend to the sector • Appropriate agencies are established to administer policies. • State owned enterprises function as corporations and commercial undertakings, politically independent. • Allowed foreign stakeholders to own shares in domestically owned enterprises including state owned enterprises • BOT regulations are weak and need to be strengthened	• Establish one government organization to administer regulations. Must have dialogue with industry. • Established the Malaysian Highway Authority specifically to manage the expressway program. • Accountability and management is clearly designated • Develop regulations but these should not be too cumbersome. • Private Management Act introduced in 1981 for BOT and private sector financing • CIDB set up as regulatory body in 1996 • Set up Human Resources Development Fund through legislation (PSMB Act) in 2001– Demand driven training and re-training grants for the industry, promote and stimulate manpower training, domestic or overseas	• Road and Transport Authority regulate the industry – only one trade license required. • No personal or corporate taxes • Role limited to hiring of consultants and contractors • Department of quality assurance to monitor quality • Cost escalation clause being introduced to reduce risk • 51% local ownership of all foreign companies • Minimum wages enforced • Flexible labor policy • Free trade zones
Trade Associations	• Support and encourage the growth of trade associations. Ensure open dialogue with government. Encourage self regulation by industry. • Establish one trade organization (or group of associations) to be voice of industry. • Inputs from trade associations while forming policies	• Trade associations encouraged and supported to build the capacity of the industry through training, seminars, international symposiums, and advice • Encouraged self regulation & sharing of information within the industry • One trade organization developed as main voice	
Procurement – Design Build, Turnkey, BOT and alternative contract arrangements for operation and maintenance	• Transparent bidding procedures , FIDIC adopted • BOT not too successful because of the lack of an adequate legal framework. 60% of expressway toll roads built and managed by provincial governments, the rest 40% built either through BOT or by provincial governments and then given to concessionaire to operate and maintain. • Government wants to buy back concessions to reduce tolls. • Moving to increase design-build/turnkey procurement • Be open to different contract arrangements. Currently exploring Private Financing Initiatives.	• FIDIC adopted • From traditional bidding, to BOT/concessions and back to BOQ based bidding. • BOT was used extensively but now believe that the change from totally public to totally private was too fast. • Criticism about the "irritation" of tolls by the public • Experimenting with Private Financing Initiatives	• For state projects FIDIC used • Contracts are not standardized across public and private sectors. • Pre and post qualification both are used • Normally lowest evaluated bid procedure • Traditional procurement methods are attracting fewer bidder, negotiated contracts and partnering arrangements being pushed as well as design build and turnkey contracts
Dispute Resolution	• Adjudicators and DRB followed by Arbitration. Not normally a problem due to team approach. Vital to complete projects with minimal delay. • Team approach to resolving problems at site level and no delays in issuing instructions, Site staff has authority to make decisions, no second guessing by others. • Decisions of adjudicators/DRBs are normally respected	• Historically not a problem but a new adjudication act is being considered. • Project level staff makes on site decisions to avoid delay in project addition to asset base • Team approach to resolving problems	FIDIC clauses followed

Annexure B: Staffing and Salary Costs

The Table below gives guideline figures for typical market rates for consultancy staff costs in AED. Many factors affect the choice of staff, not least of which are experience, competence, market forces, client stipulations, availability, qualifications, immigration restrictions among others. There are many employers that insist on higher professional qualifications for senior staff that are normally only obtained from the USA and Europe which automatically focuses selection process on Western educated & trained staff. Packages for Western staff must be higher if they are to be encouraged to the region. *Local staff trained in the West and returning with these higher qualifications will merit parity of salary with their Western counterparts*. The rates in the table should be viewed in this context. Also, the definition of local rather than being 'Emirati' refers to that of Arab nationals in general.

A - Annual Salary of Consultant Design Staff (in AED)

S. No	Staff Description	UAE (inclusive)		
		Local Staff	Western *(Developed Nations)*	Pakistani/ Indian Origin
1	Principal Design Engineer / Project Manager *(more than 10 years of relevant experience)*	N/A	40,000	N/A
2	Senior Design Engineer *(more than 10 years of relevant experience)*	N/A	28,000	N/A
3	Junior Design Engineer *(up to 5 years of relevant experience)*	17,000	N/A	17,000
4	Entry Level Design Engineers	11,000	N/A	11,000
Employment benefits as % of annual salary		*25%*	*25%*	25%

B - Annual Salary of Consultant Staff – Construction Supervision (in AED)

S.No	Staff Description	UAE		
		Local Staff	Western *(Developed Nations)*	Pakistani/ Indian Origin
	Resident Engineer / Project Manager *(more than 10 years of relevant experience)*	N/A	40,000	N/A
2	Supervision Engineer *(up to 10 years of relevant experience)*	N/A	32,000	N/A
3	Junior Supervision Engineer *(up to 5 years of relevant experience)*	20,000	N/A	20,000
4	Technicians *(3 to 5 years of relevant experience)*	9,000	N/A	9,000
5	Entry Level Supervision Engineers	N/A	N/A	N/A
Additional employment benefits as % of annual salary		*25%*	*25%*	25%

Annexure C: Consultancy Fee and Other Costs

Project Design, Supervision and Management Costs Vary

Design and management costs are difficult to quantify as a percentage of project costs as all jobs differ in nature, scope and complexity. Mega marine projects such as dredging and reclamation typically require only 2-3 supervision staff plus a survey team and the construction costs can easily be in the AED 50-100 million - so the percentage fee is very low in comparison to a more complex on-shore project.

Major buildings will differ from highways and marine works. Typical simple high rise buildings at the low end of the market covered by local companies would be 2+2 percent for design and supervision, but the more complex signature buildings command international inputs and rates - design of 3.5 percent and supervision of around 6-8 percent is possible on some unique complex multi-discipline projects (of minimum $150M in value).

It is generally estimated that for infrastructure jobs, it is necessary to allocate 2 percent design and 3 percent supervision on the small jobs (<$ 50M) but the percentage will reduce with an increase in development area/value. However, there is no simple linear progression as each job is individual and must be priced accordingly. For example, design and supervision fees on an ongoing prestigious $2billion real estate project, is estimated to be in the range of 3.75 to 4 percent.

Increase in Material Costs

Two reports entitled “Price Fluctuations of Construction Materials-Steel and Cement,” summarizing the results of a survey conducted by the Dubai Chamber of Commerce and Industry in early 2005 were reviewed. These reports conclude that the prices of steel and cement in Dubai have rapidly increased over the last 5 years in line with the increase in demand for construction materials.

Material shortages and price fluctuations are the main source of irritation to contractors in the region and introduce risk in the form of delayed project delivery programs and, of concern to the end user, in terms of quality issues. The use of substitutes and accelerated construction operations will invariably place quality at risk.

Annexure D: Business Environment, Financial Facilities and Equipment

Country Case Study: the UAE

Respondent: Lalith Bhalla, Manager Commercial & Finance, Scientechnic, Principal Agent Siemens AG

REGULATORY ENVIRONMENT		
1.	What are the main regulations/acts/statutes applicable to the industry?	RTA Act
2.	Which government entities are involved in regulating the industry?	Road and Transport Authority
3.	Is there a single government agency/ministry/board in charge of coordinating the development and regulation of the Construction & Consulting Industry? If yes, what is the mandate of this entity? *(Please provide an organogram if available)*	Not yet
4.	Is there a licensing/registration system enforced in the country? If yes, which entity is responsible for supervising/enforcing the licensing/registration system?	No – other than trade license of the contractor
5.	Does the government enforce a standardized contract for the procurement of construction and consulting services?	For Govt. jobs, most follow FIDIC standards and other government standards for buildings (electricity, fire safety, etc.)
6.	Are contracts standardized across public and private sector clients?	No
7.	What is the income tax rate applicable to the various types (sole proprietorship, private limited, public etc.) of construction and consulting companies?	No Income tax
8.	What is the income taxation mechanism (at sources deduction, annual returns etc.)?	N.A
9.	Are there any other taxes applicable to contractors and consultants? If yes, please list and provide the associated tax rates for each type of tax.	No Tax applicable
10.	What, if any, regulations has the government enacted specifically to promote/strengthen the Construction & Consulting industry in the country? Have these succeeded in achieving the intended results?	Presently none. Under consideration (forming codes for construction etc)

BUSINESS ENVIRONMENT		
11.	What is the award criterion for public sector projects (lowest bid, lowest evaluated bid, evaluation after removal of lowest and highest bids etc.)?	Normally the lowest evaluated bid
12.	Which is the clients' preferred qualification method; pre-qualification or post-qualification?	Pre qualification or post qualification –case to case
13.	Are contractors and consultants required to put up 'Bid Bonds'? If yes, what kinds of guarantees are acceptable to government clients (Bank Guarantee, insurance guarantee, corporate guarantee etc.)?	Bid bonds are required. Usually 10 percent Bank Guarantee most common
14.	Are contractors and consultants required to put up 'Performance Bonds'? If yes, what kinds of guarantees are acceptable to government clients (Bank Guarantee, insurance guarantee corporate guarantee)?	Yes, performance bonds are required. 10 percent bank guarantees are most common.
15.	Are contractors and consultants required to put up 'Mobilization advance guarantees'? If yes, what kinds of guarantees are acceptable to government clients (Bank Guarantee, insurance guarantee, corporate guarantee etc.)?	Yes in most case Mobilization payment 10 percent are covered by Bank guarantee
16.	Are contractors liable to pay 'Retention money' to clients? If yes, what is the amount as a percentage of the project cost?	Normally 10 percent is retained as retention money from every bill- and after 12 month defect liability period this is returned.
17.	Do contractors receive 'Mobilization advance'? If yes, what is the typical range as a percentage of the project cost?	Yes about 10 percent
18.	Are contractors liable to pay interest on 'Mobilization advance' to clients? If yes, at what interest rate?	Normally interest is not payable on mobilization advance.
19.	How long does it typically take a government client to process a contractor's Interim Payment or Running Bill?	60- 90 days
20.	How long does it typically take a government client to process a consultant's Payment?	60 days
21.	Are there any special laws and/or penalties applicable to government clients for preventing delay in payments to Contractors and Consultants?	No. But usually when payment is delayed then further work is stopped until payments are received.
22.	Is there a standard progress reporting mechanism in place to supervise the progress of public sector projects? If yes, please explain briefly.	Weekly meetings; PERT/ CPM etc. consultants like Parsons supervise
23.	What is the typical role of a public sector client in the implementation of projects?	Hire the consultant to oversee the contractor
24.	What is the typical role of the client's consultant engineer in the implementation of projects?	Represent the client ex: TCI, Parsons, WS Atkins are active in this region

25.	Do clients typically employ Project Management Consultants as an interface between the client and contractor? If yes, what is the role of the Project Management Consultants?	Yes. Ex Wilbur Smith, Al Turath evaluate and supervise
26.	Does the government, as a regulator, employ special mechanisms to ensure high productivity and quality of construction projects? If yes, please explain briefly.	Built to specs, Dept of Quality Assurance, Variation orders
27.	Do government clients employ special mechanisms to ensure high productivity and quality of construction projects? If yes, please explain briefly.	Through engineering consultants they ensure highest productivity and quality
28.	Are the prices of construction materials regulated? If yes, are the regulations applied effectively?	Not as yet, but because of sudden increase, they are trying to regulate cement prices
29.	Are wages (for engineers and skilled/unskilled labour) regulated? If yes, are the regulations applied effectively?	Minimum wages enforced before govt approves contract
30.	Do the industry regulations directly or indirectly favor either local or foreign contractors/consultants? Explain briefly.	Depends on size of project- may indirectly favor local consultants. But large projects all use foreign expertise.

FINANCIAL FACILITIES		
31.	Is a 'Running Finance' or 'Operating loan' facility for construction companies readily available from Banks in the country? If yes, what are the typical collateral and margin requirements?	Banks give loans against contract. Large local firms can self finance.
32.	Is a 'Working Capital' or 'Term Finance' facility for construction companies readily available from Banks in the country? If yes, what are the typical collateral and margin requirements?	Not readily available, system is not there. Case to case, client opens LC
33.	Is 'Project Finance' (discounting of project receivables) easily available to construction companies from Banks in the country? If yes, what are the terms applicable?	Not easily available. Can be negotiated
34.	What are the typical collateral/margin requirements of Banks for providing Bonds/Guarantees to construction companies?	Case to case- can be 100 percent margin for small companies because banks don't take much risks here
35.	Is 'Lease Financing' for construction equipment easily available? If yes, what are the applicable terms of the facility?	Started construction equipment at 10 percent-11 percent terms
36.	Do Financial Institutions generally provide financing against a contractor's construction material inventory?	No

CONSTRUCTION EQUIPMENT		
37.	Is rental equipment easily available?	Yes- but this may become a constraint in future as the construction volume ramps up
38.	Are equipment maintenance facilities easily available?	Yes
39.	Is new equipment for purchase easily available?	Imported using agencies
40.	Is new and used equipment easy to import from abroad?	If used equipment is more than 10 years old, not easy to import- broad guidelines apply
41.	What is the tax/duty regime for imported equipment?	0 percent to 5 percent customs duty
42.	Is there any difference in the import laws applicable to new versus old construction equipment? If yes, please explain briefly.	Guidelines for old equipment to be adhered to
43.	Does the government provide any special incentives to encourage contractors to use newer equipment?	No

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