

**\*\* DRAFT \*\***

## **SECTION C - DESCRIPTION/SPECIFICATIONS/WORK STATEMENT**

### **Infrastructure Sector Development IQC**

#### **BACKGROUND AND STATEMENT OF WORK**

USAID partner countries often lack access to critical basic infrastructure. Energy, telecommunications, transportation, water and sanitation systems provide vital services that fuel economic growth and social development. Electricity grids, generation plants and transformers, cable networks, microwave towers and satellite base stations, roads, bridges, basic water and wastewater networks – along with the institutions, financial flows, and technologies that maintain their productive and equitable use -- underpin the expansion and improvement of services in all other sectors of development, including governance, agriculture, health, and education. They are essential to improving overall quality of life. Their importance also is reflected in the enormous investments made in them worldwide each year and in the projections of future investment needed to support economic growth and social development in coming years. Over the next five years, funding will be used to improve access to reliable and affordable energy, information and communications technologies, transportation, basic water and wastewater systems and housing; to improve regulation and governance in the infrastructure sector; and to demonstrate the use of innovative technologies and business models. Improving access to infrastructure directly contributes to transformational diplomacy in developing and rebuilding countries, as described in the new Foreign Assistance Framework (see USAID website).

**Development Challenge:** Despite the centrality of infrastructure to development, rebuilding and developing countries are often disadvantaged in achieving development objectives because of lack of access to critical infrastructure and the services provided by this infrastructure.

In important fields in infrastructure, developing countries and countries in transition often lag far behind developed countries. For instance, two billion people worldwide live without access to modern energy services. In southern Africa, 75 percent of the region's population still relies on wood for fuel leading to deforestation and indoor air pollution that causes respiratory illnesses and high infant mortality rates. Energy can also be a significant financial burden to developing country populations who spend an average of 12 percent of their income on energy, compared to an average of 2 percent in developed countries. Three billion people have never used a telephone, and only slightly more than 500 million people use the Internet. This is at a time when the rapid diffusion of information and communication technology (ICT) in industrialized countries is changing the way we work, learn, cure, govern, and protect the environment. As an example, the conduct of business on the Internet has created a global electronic market estimated at

over a trillion dollars in value - but almost entirely for the benefit of industrialized nations. Developing nations trail far behind in access to (ICT) and its enormous economic and social benefits. The cost of transportation and logistic services for most developing countries can account for as much or more than three times the cost of tariff rates. Many developing countries have weak and inefficient transport and logistic systems that lead to longer transit times, problems with predictability and reliability and higher trade transaction costs that undermine competitiveness.

Globally, half of the world's population (3.3 billion people) resides in urban areas and by 2030 nearly two-thirds will be urban. Almost all of this future urban growth will occur in developing countries, and it is expected that the urban population in developing countries will increase by 2.5 billion people over the next two decades. Urbanization has been correlated with a variety of positive socioeconomic changes in many countries. However, the rapid rate of growth places tremendous pressure upon the limited resources and management capacity of most developing countries and the inability of national and city governments to manage rapid urbanization will have negative repercussions including environmental degradation, harmful impacts on human health, political instability, and hindered economic growth.

The Office of Infrastructure & Engineering (I&E) in USAID acknowledges that infrastructure development does not simply consist of the physical construction of facilities. It is clear that developing sustainable infrastructure depends on building effective enabling environments for infrastructure to be managed. Factors such as sector and corporate governance, regulation, financing mechanisms, and mechanisms for public input and accountability are also very important.

In addition, it is also widely understood that building the capacity of infrastructure service providers – utilities, departments and so forth – to operate effectively is a key part of the infrastructure development process.

For the purpose of this IQC, we will define infrastructure services as a set of businesses that own and operate physical assets. These businesses enjoy economies of scale and may have monopoly characteristics. Three main building blocks of infrastructure are: physical assets, an enabling environment and the “businesses” that operate and maintain a system. This definition will apply to core management of these services at various levels of government including national, state, provincial and local.

The objective of this contract is to:

- Address the growing demand for infrastructure services in post-conflict, rebuilding and developing countries and post-disaster activities which are not predominately engineering oriented; and
- Support USAID infrastructure activities that fall under the full range of USAID program areas, and that are consistent with the new U.S. Framework for Foreign Assistance (see: <http://www.state.gov/documents/organization/79748.pdf> for the Foreign Assistance Framework).

## **OBJECTIVE AND GENERAL DESCRIPTION OF THE CONTRACT**

The Office of Infrastructure and Engineering in the Bureau for Economic Growth, Agriculture and Trade (EGAT/I&E) will have technical management and responsibility for this Indefinite Quantity Contract (IQC). The purpose of this Infrastructure Sector IQC is to provide ready access to short and long-term professional technical assistance and capacity building in the areas of energy, information and communications technology (ICT), roads and transport, water and urban issues to USAID Washington and USAID missions abroad in countries that are assisted by USAID. The tasks awarded under this contract will support USAID's objective of fostering sustainable infrastructure development in USAID-assisted countries.

This contract shall complement and reinforce the activities of the I&E Office, other USAID Washington Pillar/Technical Bureaus, USAID Regional Bureaus, and USAID Regional and Bilateral Missions. The contractor shall provide professional services and experienced personnel with the specific skills sets required in IQC Task Orders.

The Infrastructure Sector IQC will address the following sectors:

### **A. Energy**

Expanding access to modern energy services empowers people to take a major step out of poverty into a better future. Energy increases economic growth, employment opportunities, private sector investment, and competitiveness; strengthens democracy and fosters political stability through improved transparency and communication; enhances national security; improves quality of life by enabling better health care, education, and access to clean water; and protects the environment and public health. Unfortunately, more than 2 billion people, or one-third of the world's population, have no access to electricity or other modern forms of energy. Expanding access to safe, affordable, efficient, reliable and clean energy to power economic and social development is the cornerstone of USAID's energy mission.

### **B. Information and Communications Technology (ICT)**

Information and communications technology (ICT) has become a powerful tool in the fight against world poverty, providing developing countries with an unprecedented opportunity to meet vital development goals, such as poverty reduction, basic health care, economic growth and education, far more effectively than before. ICT depends on affordable access to telecommunications networks. These include Internet (IP) networks as well as mobile phone networks, the latter increasingly being used for data applications as well as voice communications. These networks can be used by the private sector, civil society and governments

themselves. Governments use ICT for e-government applications to improve the quality of services to citizens and businesses.

### **C. Roads and Transport**

In many countries, roads and highways provide the dominant mode of land transport and play a vital role in improving people's lives and in contributing to national economic growth. They often carry more than 80 percent of passenger-km and over 50 percent of freight ton-km in a country. Consequently, roads and highways form the backbone to the economy and provide essential links to the vast local and community (rural) road networks. Sea and air ports also provide important entry ways for the movement of goods and people.

### **D. Water and Sanitation**

Water is essential to life, and because over one billion people still lack access to safe water and nearly two billion lack safe sanitation, more than three million people die every year from avoidable water-related disease. Water security is a rapidly growing issue. The poor are particularly vulnerable when water is either unclean or in short supply. At the same time, water is a key development ingredient that impacts on a variety of factors that sustain and enhance life, as well as serving as a major input for industrial production (e.g., food processing).

### **E. Urban Management**

Over 90 per cent of the world's population growth in the coming two decades will occur in developing cities - most of it in urban slums. In the absence of sound governance and management practices, rapid urbanization will harm the environment. It will also create life threatening water shortages, deplete valuable natural resources, strangle economic growth, widen income disparities and increase the spread of disease. However, well-managed cities can become engines of economic growth, enhance national prosperity, and increase both domestic harmony and international goodwill. In a global and increasingly urbanized world, cities play a key role in building a better future. Cities and local governments need the skills and tools to manage their resources effectively, deliver critical urban services, partner with the private sector, and foster economic growth for the betterment of their citizens.

## **IQC Themes across Infrastructure Sectors:**

This mechanism will provide USAID Missions/Offices and their partners with a broad range of technical assistance resources in order to address complex development needs across infrastructure sectors. It will provide cutting edge technical assistance to USAID Missions and partners as they address emerging challenges to achieving increased social, economic and environmental benefits through sound infrastructure development and management.

The focus of this IQC is on the following major areas related to infrastructure development:

- 1) Developing Strategies and Activity Designs for Infrastructure Programs;
- 2) Creating Enabling Environments for Infrastructure Development, including Legal, Regulatory and Corporate Governance Structures and Mechanisms;
- 3) Increasing Human Resource Capacities related to Infrastructure Services;
- 4) Fostering Private Sector Participation and Investment;
- 5) Facilitating Innovative Financing Approaches, such as Revolving Funds, Bond Pools, and Structured Finance;
- 6) Assess Environmental Implications of Infrastructure Services;
- 7) Improving Disaster Preparedness, Response, and Recovery; and
- 8) Linking Infrastructure to Other Development Sectors.

## **The following are brief descriptions of each major infrastructure development area:**

### **1) Developing Strategies and Activity Designs for Infrastructure Programs**

USAID is frequently required to develop strategies and activities (projects) related to infrastructure development. Activities under this IQC in this area can include, but are not limited to:

1. Assessing existing natural resources (e.g., water supplies, energy resources)
2. Determining the status of the existing infrastructure and the services supplied
3. Identifying the most critically needed facilities, institutions and capacities
4. Evaluating past strategies and national plans
5. Collecting data, and deploying and applying financial, economic and technical models to evaluate options for infrastructure development (e.g., least-cost power sector expansion plans, project feasibility studies, and tariff studies)
6. Designing program strategies and activities to be implemented by USAID operating divisions in areas related to infrastructure development
7. Providing technical assistance and training to development partners in developing, adopting, and carrying out infrastructure activities and programs

## 2) Creating Enabling Environments for Infrastructure Development

Infrastructure development and the maintenance of services over the long term require the creation of supportive enabling environments. Enabling environments include the legal, regulatory, sector and corporate governance arrangements, as well as key public sector financing mechanisms, such as revolving funds, public budgeting and financial management arrangements, and specialized banks and lending windows. It is well known that the enabling environment is a key factor that can attract significant public and private sector investment and foster accountable, financially sound institutions to operate the systems reliably to provide services to consumers.

Activities under this IQC in this area can include, but are not limited to:

- Assessing the existing policy, legal, regulatory, and commercial situation within each infrastructure sector, including level and quality of services supplied to various customer groups.
- Evaluating existing infrastructure development strategies, and past and future investments and their sources.
- Supporting the development of the key enabling environment institutions in each infrastructure sector, including their roles and responsibilities and relative perceived effectiveness in carrying out their duties.
- Analyzing the state of each infrastructure sector to determine:
  - Policy reforms needed to facilitate implementation of the infrastructure development strategy, including access to commercial financing and private sector participation;
  - Legal reforms needed to ensure efficient operation, financial sustainability, environmental compliance and social equity;
  - Regulatory arrangement(s) that are most suitable;
  - Sector structures that are most appropriate (e.g., unbundling the power sector);
  - Pricing, tariff, or subsidy reforms needed;
  - Needed commercial operational improvements;
  - Institutional performance improvements needed; and
  - Market structures that are the most appropriate.
- Developing infrastructure sector reform strategies to create an improved enabling environment for the sustainable expansion, improvement, and maintenance of infrastructure services to support economic and social development, including involving all key stakeholders and getting the strategies formally adopted.
- Providing technical assistance and training to development partners in developing, adopting, and carrying out an implementation plan for the infrastructure sector reform strategies, corporate development for key public service providers, and key enabling environment components, such as regulatory bodies.

### **3) Increasing Human Resources to Provide Infrastructure Services**

The organizational and management capacity of public institutions, civil society and the private sector are directly linked to the sustainable management of infrastructure. USAID is committed to building institutional capacity of partner organizations and host-country government agencies to improve management and governance of infrastructure.

This mechanism will improve capacity to:

- (i) strengthen the governance capacity and capability of key government, non-government and private sector organizations to sustainably manage infrastructure;
- (ii) enhance the business and financial management, internal governance, and monitoring and evaluation capacity of local institutions; and
- (iii) promote adaptive management practices that will foster institutional strengthening in support of sound infrastructure management.

Activities under this functional area can include, but are not limited to:

- Organizational restructuring, the development of personnel, financial, and business management systems, and enhancing the strategic planning capacity of NGOs, government institutions and sustainable enterprises;
- Development of advocacy and negotiation skills that allow civil society organizations, business associations and other local groups to amplify the voice of their constituents;
- Perform outreach activities for public awareness and education on the use and benefits of appropriate practices and technologies;
- Organize roundtables, conferences, and seminars for technical practitioners, industrial owners, and policy makers; and
- Assist in the establishment of information and professional networks and partnerships among these parties.

### **4) Fostering Private Sector Participation and Investment**

One of USAID's goals is to create opportunities in developing and rebuilding countries for a vibrant private sector, including private sector investment, particularly in the provision of infrastructure services.

Activities under this IQC in this area can include, but are not limited to:

- Assessing the current status of private sector participation, and identifying the barriers private participation;
- Conducting private sector participation options studies, and formulating strategies and plans for development and management of private sector participation transactions;

- Designing regulatory and contracting arrangements for private sector participation, such as regulatory methodologies, RFPs and contracts;
- Designing privatization strategies that include proper sequencing of privatization, management control issues, investment advisor roles, the role of strategic investors and majority share sales, tender processes, share purchase agreements, evaluation of investor interest and conduct of pre-bid meetings, evaluation of bids and support for negotiations, analysis of key privatization issues (e.g. debt liabilities, treatment of workers and lay-offs, cut off of non-payers, approaches to government and budgetary organization, tariff and minimum investment issues, and dispute resolution mechanisms); and
- Developing transparent and public process to address the social implications of privatization, including social safety net alternatives, variable tariffs, and collection issues for the poor and disadvantaged.

## **5) Facilitating Innovative Financing Approaches**

In order to achieve results and lay the ground work for increased private investment and commercial financing, USAID also seeks to facilitate access to financing for infrastructure services and, where needed, develop new, innovative approaches to financing infrastructure.

Specific assignments within this topic under this IQC can include, but are not limited to, the following:

- Providing technical support for design of structured and project financing, revolving funds, municipal bonds, specialized financing mechanisms, such as pro-poor investment funds;
- Facilitating access to financing for medium- to large-scale infrastructure projects, through credit guarantees (e.g., USAID's Development Credit Authority or DCA) or liaising and partnering with other donors (e.g., Multilateral Development Banks, IFC);
- Designing financing programs, which may include DCAs, to support small-scale infrastructure service providers, such as energy and water small and medium enterprises (SMEs);
- Providing assistance in project feasibility analysis, tariff studies, business and financial planning for infrastructure projects; and
- Formulating innovative business models and financial products to assist in the development of clean energy and energy access markets.



## **6) Assess Environmental Implications of Infrastructure Services**

USAID promotes environmentally sound design by requiring application of environmental assessment processes at the program, project and activity design stages. Early environmental considerations increase long-term sustainability of development interventions and help avoid costly design errors and expensive mitigation. Implementation monitoring and reporting leads to adaptive management actions for unforeseen conditions. This mandate is codified in Federal Regulations (22 CFR 216) and in USAID's Automated Directives System (ADS) Part 204. Activities under this function could include:

- Reviewing ongoing and planned activities for potential environmental impacts and recommending mitigating measures to reduce or eliminate adverse impacts;
- Assessing best environmental management practices for specific projects or programs and incorporating those practices into project design;
- Performing environmental impact assessments of proposed projects and preparing draft Initial Environmental Evaluations (IEE) or Environmental Assessments (EAs), consistent with the requirements of 22 CFR 216, for USAID review and approval;
- Preparing environmental mitigation and monitoring plans for infrastructure projects; and
- Providing environmental management expertise.

## **7) Improving Disaster Preparedness, Response, and Recovery**

This functional area focuses on the improvement of national or local government capacity to prepare for and respond to natural or man-made disasters. Activities under this functional area can include, but are not limited to:

- Pre-disaster risk and hazard assessments, including but not limited to; environmental; structural; infrastructure and population vulnerabilities;
- Preparation of response plans, training and programs intended to improve the capability of emergency service personnel and local community leadership to respond to disasters;
- Post-disaster risk assessments and mitigation plans or programs;
- Post-disaster short, medium and long-term recovery plans and/or programs that will assist urban communities recover from the effects of a disaster; and
- Programs intended to share experiences and techniques related to the preparation for and the recovery from a disaster.

## **8) Linking Infrastructure to Other Development Sectors**

Infrastructure is a critical input to virtually every economic, political, and social sector. One example is the use of ICT to link farmers to customers in nearby and remote markets, and the need for roads to allow the goods to be taken from the farms to the markets. The contractor should be prepared to address development problems that arise at the intersection of infrastructure and other sectors with which the Agency engages.

Key sectors currently include:

- Democracy & Governance;
- Disaster Mitigation, Preparedness, Response and Rehabilitation;
- Economic Growth and Trade (including poverty alleviation, private investment and finance);
- Education;
- Human Population and Health;
- Social Development and Gender Equality;
- Reconstruction;
- Agriculture;
- Environmental and Natural Resource Management; and
- Urban Development.

## **SPECIFIC INFRASTRUCTURE SECTOR ISSUES**

### **Energy Sector**

#### **Background**

Energy is a critical input to economic growth and transformational development, and 1.6 billion people in developing countries still lack access to modern forms of energy. Expanding access to affordable, reliable, efficient, and clean energy services empowers people to take a major step out of poverty into a better future.

Global energy use is expected to increase by over 50% from the year 2000 through 2020, with the major growth in energy demand to occur in developing countries. The IEA has estimated that \$140 to \$160 billion per year will need to be invested in the electricity sectors in developing countries from 2002 to 2020 to meet the needs of emerging economies. Numerous studies have documented the decisive relationship between the provision of energy services and global social, economic, and political development. Analyses of the linkages between energy and the economy, social and health issues, environmental protection, and security have revealed that:

- Lack of access to affordable, modern energy supplies severely constrains opportunities for economic development and improved living standards. Women and children are disproportionately burdened by dependence on traditional fuels.
- Wide disparities in access to affordable energy services are inequitable and unjust, run counter to the concept of human development, and threaten social stability.
- For many who do have access, the unreliability of supplies poses a hardship and economic burden.
- Dependence on imported fuels leaves many countries vulnerable to disruptions in supply, resulting in dangerous social, economic, and political consequences.
- Chronic power shortages severely undermine economic growth and environmental sustainability, by encouraging the use of small-scale, inefficient generators
- Both the health of humans and the health of ecosystems are threatened by high levels of pollution resulting from energy use at the household, community, and regional levels.

Emissions of anthropogenic greenhouse gases, mostly from the production and use of energy, are altering the atmosphere in ways that are already having a discernible impact on the environment.

### **Energy Sector – Somewhat Unique Features**

In addition to the cross-cutting infrastructure themes described above, the following elements are somewhat peculiar to the Energy Sector and will need to be taken into account when strategies and plans are developed, and technical assistance programs are designed and implemented:

1. Energy resources take a variety of forms: oil & oil products, natural gas, coal, nuclear, hydro, solar, wind, biomass, landfill gas, waste-to-energy, etc., and each resource type generally has its own unique policy, institutional, legal/regulatory, commercial, and pricing/subsidy arrangements, as well as its own form of public involvement in sector decision making.
2. The different energy resources also differ widely on their scale of development and utilization. For example, oil & gas deposits are generally exploited for trade in global or regional marketplaces, while say landfill gas, biogas, or small hydro resources are generally exploited for use by local communities and are rarely traded across borders.
3. Few countries are fully energy independent – most countries import some of the energy or energy products needed to run their economies. For resource-poor countries, changes in import prices for energy can have major impacts on economic growth. Even for resource-rich countries, exports and imports of energy can raise significant governance issues (i.e., Dutch disease) or geopolitical issues regarding energy security and sovereignty (e.g., Ukraine dependence on Russian gas).

4. Many developing and rebuilding countries are still only partway through the transition from traditional energy sources to modern forms of energy (e.g., electricity, LPG), and are struggling with the challenge of affordably expanding access to un-served populations so that their economies can grow and participate more effectively in the global marketplace for goods and services.
5. Energy availability and use has strong links to the viability and success of other development programs. One example is agriculture, where lack of energy to support intensification and/or to support value-added processing of agricultural products can undermine efforts to increase farm incomes.
6. Energy use has strong environmental and health impacts at the local (e.g., deforestation, poor indoor air), national (e.g., air pollution), and global levels (greenhouse gas emissions, acid rain, etc.) which must be effectively dealt with to minimize the social costs of development.
7. Like other natural resources (e.g., water), energy can be inefficiently produced, transported, and utilized by end consumers, leading to waste. Thus, energy systems must incorporate effective technical and economic measures to improve both physical and financial performance to improve efficiency of production, distribution, and use.
8. Viable alternatives, such as renewable energy and energy efficiency, can address energy security and environmental concerns and should, therefore, form a part of the overall energy sector development strategy of developing countries.
9. Energy assistance programs within USAID are strongly shaped by each Mission's development objectives. Some programs focus on: (i) regional integration and trade (South Asia Regional Initiative in Energy, the Baku-to-Ceyhan and West Africa Gas Pipelines), (ii) national energy sector reform, commercialization, and privatization (Guatemala), (iii) restoring vital electricity services (Liberia, Sudan), or (iv) economic development of under-developed areas using decentralized energy sources (AMORE in the Philippines, the Biogas Support Programme in Nepal).
10. Like in the transport and ICT sectors, standards and protocols have a significant influence on technology deployment and on the reliability and efficiency of service provision. Examples include fuel-efficiency standards for vehicles and energy efficiency standards for appliances.

## **Information and Communications Technology (ICT)**

### **Background**

Access to affordable telecommunications networks is essential for economic growth as well as general human development – education, health care and governance.

Telecommunications networks include IP (Internet) networks as well as mobile phone networks. Although access to both types of networks has steadily grown in developing countries, it still lags far behind the developed world. Almost three quarters of all broadband Internet subscribers are in high income countries, accounting for only 16 percent of the world's population. Access to mobile phone networks is better, but some three billion people still have never used a phone. Cell phone penetration is improving the most rapidly — increasing in Africa almost 10 fold since 2001. Most of the unconnected are in rural areas.

Studies have confirmed the importance of telecommunications for economic growth, making local economies more efficient. Increases in cell phone penetration have been linked to increases in economic growth. The poor use cell phones to conduct business, transfer money, and check market prices. To save money, they exchange text messages, share phones, and find second-hand phones. Internet access requires more adaptations, e.g., cell phone networks can be used to exchange email that is then passed to the Internet; shared and sustainable Internet access points help; booster antennae and wireless approaches are often used to make access more commercially viable; and a national universal telecommunications service process can boost access significantly.

### **ICT – Somewhat Unique Features**

Telecommunications infrastructure has some unique features, with opportunities and challenges much different than in other types of infrastructure.

The technology of telecommunications is changing quickly where the uses of different types of telecommunications networks are starting to converge. Wireless approaches are making it cheaper to extend Internet networks. Cell phone networks are increasing in bandwidth and capabilities, enabling them to be used for more information applications (beyond voice and text messaging). As these networks become more robust, they are converging with the capabilities – and even the infrastructure -- of Internet networks. Service provision is converging as well with Internet networks being used increasingly for voice services (Voice over IP), video and data. Mobile, wireless access to Internet networks is also enabling new services that, in the past, were more likely to be carried over mobile phone networks. Finally, “fixed mobile” phone service is now emerging as a service cheaper than traditional mobile phone service and equivalent to traditional fixed phone line service to households and businesses.

Concurrently, countries are steadily moving from a telecommunications environment centered on a state owned (or private) monopoly provider to a competitive environment,

partially because the traditional and very expensive wired network is no longer necessary to provide telephone service.

All of these changes require re-examination of the enabling environment for telecommunications. Laws, regulations and regulatory processes must provide order and transparency while not hampering innovation and competition on a “level playing field.” If the legal and regulatory environment for telecommunications is defined and managed well, the private sector – or public-private partnerships – can address most if not all of a country’s telecommunications needs, including providing affordable services to the poor and rural areas. Countries have seen repeatedly that when their telecommunications environment is perceived to support fair competition and innovation and provide the critical monitoring needed, private investors make significant investments in the country’s telecommunications sector and relatively little public sector investment is needed.

Several legal and regulatory areas related to telecommunications may need adjustment in light of the above changes, e.g., those dealing with spectrum management, phone number portability, interconnection between networks; access to scarce network resources (e.g., access to an undersea cable); and universal service obligations. Other topics that may need improvement relate to consumer protection and quality of service. Laws may be needed to address aspects of security and the use of electronic transactions to facilitate electronic commerce or “m-commerce” (business transactions or money transfers via mobile phone networks) and electronic records management.

Regulators involved in oversight of telecommunications need to re-examine regulatory policies to encourage investment in the new technologies that are changing business models in the communication infrastructure.

There are many cross-border issues that affect telecommunications infrastructure. If addressed well, cross-border telecommunications can facilitate trade and speed the flow of goods and services to markets. Such issues to be addressed include cross-border roaming for cell phone services and international interconnection of all types of telecommunications networks.

Finally, telecommunications infrastructure differs from other types of infrastructure in that its positive effect on economic growth and poverty depends on the development and use of *applications* that use the telecommunications networks. Some of these are e-government applications, some business-to-business and some business-to-consumer. These applications must be designed and developed carefully and implemented in a way that the business processes they support are revised to take full advantage of them. This development and implementation process poses numerous and significant challenges to governments and the private sector. Luckily there are best practices available to increase the probability that telecommunications enabled applications will indeed result in their intended benefits for a country’s economic growth.

USAID missions address telecommunications infrastructure issues in a wide variety of ways, sometimes within their economic growth portfolios, but in other portfolios as well, such as health (with e-health initiatives) and democracy and governance (with e-government initiatives to create transparency and improved responsiveness). Ideally but relatively infrequently, a mission will look across its portfolio at how telecommunications infrastructure affects its entire portfolio. One of the challenges of support to missions is assisting them to consider ways telecommunications affects the mission's entire portfolio and how it provides.

USAID missions use global development alliances, leveraging investments of local and international firms, regularly in telecommunications efforts. USAID has global alliances established with a few telecommunications related firms; other alliances are formed at a local level. Alliances with other donors are also a strong option with telecommunications initiatives given most donor projects try to use ICT in various ways so depend on access to a telecommunications network. Consolidating demand across USAID or donor project is a proven technique for enabling services to be sustainable in more remote areas.

One telecommunications challenge in post-conflict and post-disaster countries is that the teams providing initial support have had to move in telecommunications capabilities quickly so have high cost and hence unsustainable telecommunications networks. One challenge is to use initial approaches that can be more gracefully transitioned to longer-term telecommunications infrastructure.

## **Roads and Transport**

### **Background**

Reliable and safe roads and transport services are needed to achieve the objectives of USAID in post conflict countries, such as Sudan, Liberia, Afghanistan and Iraq. These objectives include the provision of peace dividends, conflict prevention and confidence building; and facilitate IDP/returnee movements and resettlement. Reliable motorized and non-motorized rural and urban road and transport services are critical input to economic growth, regional and international integration, employment and poverty reduction of all USAID member countries. Also, reliable road and transport services are needed to improve productivity of agriculture services, reduce cost of access to food and food production; stimulate and modernize the transportation sector, including institutional modernization of the following four principal sub-sectors:

- A- Land Transport: Planning, construction and maintenance of road networks, cargo and passenger road and railway transport services.
- B- Air Transport: Modernization of civil aviation agencies, improvements of airside and landside services of airports and airstrips, security and safety improvements of air-transport services.

- C- Inland Water transport (such as the Nile in Sudan and Egypt and the Amazonas in several Latin American countries): Planning and improvement of national and international river navigation services, improvement of port facilities including the improvement of the security and safety services.
- D- Maritime Transport: Modernization of maritime administration directorates and improvement of operations and facilities of sea and dry ports including the improvement of the security and safety services.

### Roads and Transport – Somewhat Unique Features

In addition to the cross-cutting infrastructure themes described previously in this document, the following elements are somewhat peculiar to roads and other transport sub-sectors and will need to be taken into account when strategies and plans are developed, and technical assistance programs are designed and implemented, including:

1. Modernization of the road sector: Provision of institutional and technical capacity building to road agencies to manage consultants and contractors; using modern engineering tools; and promoting private sector participation in management and finance of road investment and maintenance works.
2. Institutional decentralization: Institutional decentralization of responsibilities is a useful tool in the administration of road systems. Activities that are best performed at the central level need not be delegated to the district level. The principal advantages of a decentralized highway agency are: (a) better response to users and local community needs; (b) road investment and maintenance goals are adjusted to the local conditions of every district; (c) rational commitment of fund allocations; (d) effective and transparent distribution of allocated funds; and (e) effective accountability and consistency procedures in monitoring and auditing the project.
3. Traffic management considerations: Traffic management, particularly in urban areas, is crucial to reduce traffic congestion, reduce vehicle operating costs, improve road safety services, implement clean and cost effective urban and inter-urban bus services, improve pedestrian, bicycle and other non-motorized traffic, minimize road improvement and maintenance expenditures and keep low CO<sub>2</sub> and other transportation related contaminants.
4. Acceleration of the implementation of road services in post conflict countries: Provision of special/ emergency institutional setup and related capacity building support to accelerate design, implementation and maintenance of low cost all-weather unpaved road services.
5. Technical and institutional tests for transport project development and implementation, including: (a) Definition of the problems that the project will solve, such as reduction of transport costs and fewer accidents, and the sectoral context of project implementation and operation, including a commitment of Government to provide adequate funding for maintenance and road safety services; (b) Determination of the root causes of the problems, including insufficient investment and maintenance funds, ineffective institutional capacity, and insufficient community and road user's participation in the project planning and implementation stages; (c) Identification of



- the stakeholders who would benefit from (road users), or be harmed by the project (affected communities), and provision of adequate and affordable mitigation procedures; (d) Determination of the project dimensions, socio/economic ranking and priorities, demonstrating that the proposed project is a clear priority in relation to other road needs and Government is committed to provide enough political support; (e) Provision of a project level detailed financial and socio/economic viabilities, demonstrating that the project is viable (high financial and socio economic values of net present value and economic returns) and affordable with reliable financing for the construction works and for the future maintenance activities; (f) Verification of the project's internal and external consistencies, demonstrating that the project is consistent with the multi-annual macro-economic framework of the ministry of finance and considered a priority within the overall inventory of the country's projects, not only the road sector; and (g) Incorporation of lessons learned from international best practices of road and bridge modern planning and design tools to optimize the life cycle costs of construction, maintenance and operation expenditures.
6. Use of modern road evaluation and planning tools: Lessons learned from developing and developed countries indicate that modern engineering tools are very useful to accelerate functional and structural evaluation of road and bridges, as well as planning road and other transport maintenance systems. Examples include:
    - a. The online-GPS-GIS-multimedia road & bridge inventory and condition assessments system was very useful to accelerate the evaluation of the functional and structural characteristics and conditions of the 900-km Peruvian road corridor from Lima (Pacific Rim) to Pucallpa, located in the Amazonas region, the engineering evaluation and design of this road was financed by USAID.
    - b. Road network-level routine maintenance works have been considered as recurrent expenditures. Pavement improvement works are major investments that play an important financial role and are evaluated using the HDM-4, developed by the World Bank and the University of Birmingham of the UK, among others. The HDM-4 is designed to achieve desired road serviceability levels for minimum life cycle costs. The HDM-4 has been extensively and effectively used in developing and developed countries to reduce overall road transportation costs including vehicle operating costs, travel time, and improved road safety.
    - c. The most practical and quick procedures to evaluate the pavement structural capacity is to use the falling weight deflectometer (FWD) or the Benkelman Beam (BB). The FWD and BB are non destructive testing (NDT) devices that measure the elastic surface basin deflections under a given loaded plate or under the vehicle axle load. The thickness of each pavement layer is determined using the Ground Penetrating Radar (GPR) device.
    - d. The road maintenance management system (RMMS): Specific objectives of the RMMS include the following institutional procedures and computerized systems: (a) A system for road inventory, including: traffic projections, axle load distribution, extent and severity of road & bridge defects related first to road safety, and then to drainage and finally to the quality of road and bridge performance; (b) A system for annual planning (network level), weekly/monthly programming (project level) of maintenance works of priority selected roads

under budget, social and environmental constraints; (c) Procedures of quality assurance, quality control, monitoring and reporting of maintenance activities actually carried out; and (d) Procedures of evaluating the capacity of the road agency, local municipalities and the local construction industry to undertake routine and periodic maintenance works of the rehabilitated and not yet rehabilitated Interstate roads.

7. Quality and cost effectiveness considerations: A high priority is assigned to quality, social and environmental conservation, ethics and transparency of road construction and maintenance works. Quality is defined as the responsibility to deliver safe, on time and effective road services to the taxpayer and user and associate this responsibility with quality assurance (QA) programs. Quality assurance refers to all the institutional activities necessary to verify, audit, evaluate and implement road quality services. QA procedures are adjusted to the inherent variability of construction conditions and local soils and material characteristics, sampling and testing guides, and maintenance standards. Quality control (QC) procedures ensure that proper materials and procedures are used and placed in a definite context so that the end product will have the desired level of performance in terms of service and life. Cost effectiveness of transport infrastructure investment and maintenance projects is associated with the use of: (a) Innovative procurement procedures such as performance-based-lump-sum construction, maintenance and supervision contracts and value engineering procedures that encourage rapid implementation and discourage delays; (b) Affordable risk sharing procedures that assign the implementation risks to the party that can better manage these risks; (c) community-based micro-enterprises for road maintenance works; (d) baselines for competitive construction and maintenance detailed unit costs to attract international bidders, support the development of infrastructure market economy, break local monopolies and promote transparency; and (e) Engineering initiatives that protect the environment and support energy efficiency of construction and maintenance projects.
8. Integrated multi modal transport services (Land, air, inland water and maritime transport sub-sectors), including the following activities for each sub-sector: (a) Diagnostic of the policy, institutional, legal, regulatory and financial framework and the sub-sector contribution to, and impact on the socio economic development of the country; (b) Develop strategic policy plans, including commercialization, privatization, operations, pricing, social/ environmental assessment, management and monitoring procedures; (c) Institutional setup, organization, staffing, planning, use and management of engineering surveys and laboratory equipment, basic and on the job training procedures; (d) Prioritize multi-modal investment, maintenance and operation programs; (e) Optimize the implementation of multi modal transport system to minimize costs; (f) Prepare financial plans for both the development and maintenance which pays due regard to cost recovery while at the same time making provision for protecting the needy; (g) Develop a monitoring and evaluation framework for each sub-sector including the creation of a sub-sector database from existing data and identify new possible sources of data needed for future planning and M&E activities; (h) Identify institutional and technical capacity constraints in implementing the strategies, investment plans and transport services and develop a capacity building roadmap for addressing them. This would include assessing needs

and recommending the technical assistance required for various transport sub-sector activities; and (i) Design the procedures of transfer of knowledge to achieve the goal of the transport sector.

## **Water and Sanitation**

### **Background**

Many USAID Missions and operating divisions carry out programs and projects related to water and sanitation services. These programs range from the development of important infrastructure facilities, such as water and wastewater treatment plants and distribution networks, to support for utility performance improvement, water and sanitation sector reform, and creation of effective enabling environments for water and sanitation services.

### **Municipal Services for Water – Somewhat Unique Features**

#### **Unique features of the water sector include:**

##### **1) Successful Models of Water Sector Reform**

Over the past decade, a number of countries have been able to achieve remarkable improvements in water and sanitation services through water utility sector reforms. There are a wide range of countries where this is leading to better services, including, for example, Armenia, Cambodia, Chile, Colombia, Cote d'Ivoire, Czech Republic, Poland, Russia, Senegal, Thailand, Uganda, and Zambia. There is also a wide range of reform approaches being used, including corporatization, development of regulatory agencies, sector restructuring, performance agreements, benchmarking and operating contracts.

##### **2) Importance of Corporatization and Corporate Governance**

There is clearly a trend internationally toward corporatization of water and sanitation service providers. A recent study by the Asian Development Bank cited sector and corporate governance as the central challenge related to water and sanitation service expansion for the poor.<sup>1</sup> Numerous examples of effective corporatization can be found throughout the developing world. For example, USAID has worked with corporatization initiatives in Egypt, India, Jordan that are leading to significant results in terms of water and sanitation services. Additionally, innovations in corporate governance are also emerging that drive significant improvements in water and sanitation services. Examples of innovative programs in this area include Singapore's Public Utilities Board, Uganda's National Water and Sewerage Corporation, and Jordan's Aqaba Water Company.

##### **3) New Approaches to Serving the Poor**

A variety of new approaches to providing sustainable, high quality services to poor communities are emerging. Recent developments related to service expansion in poor areas indicate the importance of community involvement in service design and delivery,

---

<sup>1</sup> Asian Water Supplies: Reaching the Urban Poor, Asian Development Bank and International Water Association, ISBN: 971-561-380-2

the need for adequate cost recovery, and the benefits to tailoring the types of service, pricing and service levels to local conditions.

## **Urban Sector**

### **Background**

As many countries in the developing world decentralize fiscal and administrative responsibilities to the local level, cities are playing an increasingly important role in the provision of public services. Service delivery is the cornerstone of city governance and includes access to water, trash collection, solid waste disposal, wastewater collection and treatment, and electricity connection. The reliability, quality and cost efficiency of equitable services to all areas of the city -- wealthy and poor -- is the primary responsibility of local government, and is the most tangible result for which the community will hold their elected officials accountable. Currently, over 1.1 billion people lack adequate access to safe water, and nearly 2.5 billion people lack access to sanitation service; with decentralization, the responsibility for closing this substantial gap in service provision between the poor and the wealthy falls to municipal governments.

However, the public sector alone does not have the financial resources needed to bridge this gap in basic service provision to all un-serviced areas. Local governments will need to reach out to the local private sector and to citizens, particularly the poor, to explore how public-private partnerships can improve and expand service delivery.

While municipal entities may carry the largest burden in the provision of services, national governments continue to play a key role particularly in establishing an appropriate legal and regulatory framework to encourage good governance practices. The policy framework should create incentives for improved performance as well as disincentives for corruption and mismanagement. Regulatory bodies need the resources and capacity to enforce policies aimed at increasing transparency and accountability at the local level thereby ensuring that the national government carries out its role in providing oversight.

USAID Missions support improved urban management and service delivery to impact people's lives by among other things: (1) demonstrating the legitimacy of local, provincial and state governments and enhancing their capacity to deliver urban services to local populations; (2) strengthening democratic principles and practices at the local level; (3) promoting local economic development; and (4) improving access to and the quality of water and sanitation services.

### **Urban Sector – Somewhat Unique Factors**

Urban management programs utilize a cross-sectoral approach to address the range of local infrastructure and service delivery issues. USAID Missions may support improved urban management and service delivery as a means to achieve a range of development

objectives. Below is an illustrative list of approaches that may be taken to address the urban sector:

- 1. Urban Service Delivery:** Extending services to the urban poor requires a mix of approaches and solutions. Misaligned incentives, entrenched political interests, and misunderstandings about the needs and capabilities of the poor must each be addressed. As local governments struggle with providing services to new populations and maintaining existing facilities, various paradigms need to be considered, including the inclusion of private sector approaches as applicable. Municipal services range from water and sanitation, to solid waste management, education, or health. Many of these services have a specific infrastructure component, though some may not. All require sound planning and budgeting to effectively balance infrastructure and service delivery needs with priorities and real resource constraints.
- 2. Strategic Planning, Budgeting and Financial Management:** Developing a common vision about the city looking forward 10-20 years will help align stakeholder efforts and guide the use of local resources for development; this can be an incredibly powerful tool for city authorities. One way to achieve this shared vision is to develop a City Development Strategy (CDS) which is an action plan for equitable growth in the city and for improving quality of life for all. Budgeting then flows from the strategic plan. Programs aimed at strengthening local government planning, budgeting and broader financial management practices helps to create the necessary foundation for improved service delivery and can create the right environment to advance democratic principles at the local level.
- 3. Slum Upgrading:** Slum upgrading consists of physical, social, economic, and environmental improvements that are done in partnership with citizens, community groups, businesses, and local authorities. These improvements often focus on introducing or improving basic service provision, mitigating environmental hazards, regularizing security of tenure, providing incentives for community management and maintenance, and improving access to health care and education. Local and national governments can create an enabling environment to encourage slum upgrading through a variety of actors, the foremost being the urban poor themselves. Some key government actions that facilitate slum upgrading include explicit provision of secure tenure to slum residents; inexpensive, user-friendly system for land titling; community contracting to implement small infrastructure works in slums; or building code reforms to enable incremental building by slum dwellers.
- 4. Security of Tenure:** The urban poor often live in informal settlements treated as illegal by municipal authorities. The lack of legal recognition and the corresponding lack of tenure rights by the inhabitants can be a major hurdle to securing access to improved services. Solutions require innovation on the part of municipal governments and community involvement from the residents of the informal settlements. There are creative ways in which public authorities can grant recognition to informal communities aside from the formal process of titling which will create the right conditions for expanding and improving basic services.

5. **Housing Finance:** Studies have shown that as much as 20% of all microfinance lending is actually spent on home improvements; as a result, there is considerable interest in developing specific microfinance housing instruments. By recognizing the fact that many families build incrementally – a new cement floor one year and an additional room or utility hookup the next – financing instruments can be developed that have appropriate terms and tenor to match the need. Government can also play a role in increasing the affordability of housing by adjusting policies and regulations related to land development, housing construction, and tenure. By addressing policy issues, government can help reduce the overall cost of housing while also opening new doors for the urban poor in terms of accessing finance.
6. **Involving the Private Sector:** Greater involvement of the private sector in service delivery, through innovative approaches like public-private partnerships, may improve the institutional efficiency of service providers, as those with the incentive to make a profit are more likely to stress efficiency in service delivery. At the same time, the public sector partner may require greater accountability from the service providers to consumers and local government, leading to better overall service at a price more affordable to a greater percentage of the population.

### **Grants Management**

Funds may be made available for the award of grants within the scope of this contract. The contractor shall negotiate, award and administer sub-agreements. These grants will be secondary or minor to the overall work performed under the Task Order. Funds for sub-grantees will be provided on a pass-through basis, and profit/fee will not be applied to such funds.

Accordingly:

- A. USAID will have substantial involvement in establishing the selection criteria and in selecting the grant recipients, including, at a minimum, USAID approval of the selection of grantees prior to award;
- B. USAID will retain the ability to terminate the grant activities unilaterally in extraordinary circumstances;
- C. Relevant requirements which apply to USAID-executed grants will also apply to grants signed by the contractor in this small grants program; the contractor shall have the responsibility to determine that applicable requirements are included in each grant; and
- D. The contractor may not award such grants to non-U.S., non-governmental grantees in an amount to exceed \$100,000 per grant. There is no dollar limit on non-U.S., non-government grantees.

NOTE: A waiver is required by the Procurement Executive, in accordance with ADS 302 (formally CIB 94-23), for the execution and administration of grants for each Task Order issued under this contract.

### Gender & Strengthening disadvantaged groups

The lack of access to infrastructure can be a significant factor in the marginalization of women. To promote the full participation of women in these technologies, EGAT examines influences such as income, time constraints, literacy, education, language, and culture that limit women's access to facilities, training and employment in infrastructure areas. Specific interventions in policy, access, and content are considered to ensure that the technologies and services meet the needs of gender and disadvantaged groups. Effective infrastructure management takes account of the differential knowledge, abilities, and approaches that men and women apply to the use and conservation of energy, ICT, transport and water. Because gender issues vary greatly across communities and cultures, gender analysis is crucial for understanding resource access and control, decision-making, and participation in civil society. This understanding can then be applied to the design and on-going management of activities.

### Coordination with Other Activities

In many of the countries in which USAID works, there are USAID and other donor funded contractors and cooperators implementing ongoing assistance programs, either in the infrastructure sector or requiring effective infrastructure services to meet their development goals (e.g., electricity services for health clinics). The contractor shall get direction from the task order Cognizant Technical Officer (CTO) on how cooperation and coordination with these other programs shall be best enhanced and to ensure that efforts are not duplicated.

The contractor shall work under the technical direction of the task order CTO for each task order and shall cooperate with the task order CTO to assure that the expertise provided is appropriate to the needs of the activity and that contract resources are used in a cost-effective manner.

The contractor shall be expected to work closely with either host country governmental institutions (national, regional, and local) charged with decision-making responsibilities in infrastructure or indigenous NGOs, businesses, and civic associations having the potential to improve infrastructure development and use. Specific task orders may include providing transparency and expertise in policy formulation, and consumer education, protection and advocacy.

### Typical host-country stakeholders may include:

- Government officials at the national, municipal, and village levels;
- Legislators, including the opposition, with the concurrence of the U.S. Embassy;

- National and state regulators;
- Consumers: industrial, commercial, agricultural, and residential;
- Communities: those effected by infrastructure projects and/or living in urban slums or rural communities that are unserved or under-served by infrastructure services;
- Trade Associations and Chambers of Commerce;
- Professional associations, such as engineering societies;
- Non Government Organizations (NGOs) and other consumer groups;
- Labor unions, with the concurrence of the U.S. Embassy;
- Research institutes and universities;
- Other bilateral and multilateral donors;
- Other US Government agencies active in the country (e.g., the Millennium Challenge Corporation).

The contractor may need, depending on the specific provisions of individual task orders, to hire local consultants and subcontract work to local stakeholder institutions. In most USAID-assisted countries, there are highly capable local experts and institutions that can serve to enhance local acceptance of, and demand for, reform, and can also benefit from capacity building.

The contractor may also be required, depending on the specific provisions of an individual task orders, devise strategies for monitoring results, develop communications, and disseminate lessons learned.

### **Commodities/Equipment Procurement and Installation**

As part of the overall effort, the contractor may be required to purchase and install commodities and equipment, including refurbishing buildings in which the equipment might be installed. The procurement of commodities and equipment should support the provision of technical assistance, and not constitute the major portion of the Task Order.

Commodities/Equipment Procurement and Installation. Activities under this area can include, but are not limited to:

- Assessing, analyzing, developing specifications for, and installing commodities or equipment required by, public and private organizations working with USAID assistance; and
- Undertaking the procurement and/or installation of approved commodities and equipment for USAID partners according to USAID regulations, including refurbishing the buildings where the equipment will be installed if necessary.

This could include computer and office equipment, telecommunications equipment, testing and metering equipment, field and training tools, and other commodities, supplies, and equipment required for assistance.



## **Program Management and Support**

### **IQC Manager and Deputy IQC Manager**

The contractor shall designate an IQC Manager and Deputy IQC Manager to provide overall substantive, administrative and logistical management. These management responsibilities will include, as appropriate, coordinating Task Orders with other USAID-supported programs and partners. The IQC Manager and Deputy IQC Manager shall be ultimately responsible for the management of all Task Orders awarded under this contract. In the event the IQC Manager or Deputy IQC Manager should change, the USAID/W CTO shall be promptly notified and candidates of same or like credentials must be proposed.

## **Representative Labor Categories**

The following Section lists minimum qualifications of IQC Manager and Deputy IQC Manager.

### **Position Title: IQC Manager/Deputy IQC Manager**

Education: Master's degree or higher is required for the IQC Manager and Deputy IQC Manager positions.

Work Experience: The qualified candidates for the IQC Manager position must have: (a) at least 15 years or more of progressively responsible work experience in managing and implementing infrastructure programs; (b) substantial managerial and technical experience in infrastructure issues in developing countries (rebuilding country experience is preferred); and (c) demonstrated strong management and coordinating skills.

The qualified candidates for the Deputy IQC Manager position must have: (a) at least 10 years or more of progressively responsible work experience in managing and implementing infrastructure programs; (b) substantial managerial and technical experience in infrastructure issues in developing countries (rebuilding country experience is preferred); and (c) demonstrated strong management and coordinating skills.

NOTE: Because of the breadth of the Infrastructure IQC, it is imperative that the experience sets of the IQC Manager and the Deputy IQC Manager complement each other to the maximum extent possible.

Supervisory Experience: The IQC Manager and Deputy IQC Manager must have at least 10 years and 7 years, respectively, of progressively more responsible supervisory work experience including: (1) direct supervision of professional and support staff; (2) assembling teams of infrastructure professionals to respond to complex assignments; (3) quality evaluation of staff performance and deliverables; and (4) contract management.

Position Description: The IQC Manager/Deputy IQC Manager may be asked to carry out activities such as: (1) ensuring access to and recruitment of appropriate personnel to administer and respond to technical staffing needs specified in awarded task orders; (2) overall supervision of contractor's administrative and support personnel used on this contract; (3) supervision and coordination of appropriate technical backstopping services as needed to resolve administrative, technical, and personnel issues as they arise during the conduct of all awarded task orders; (4) monitoring all task order work plans to ensure quality control and timely delivery of all deliverables; (5) preparation, review, and delivery of all financial, logistical, and other documents as scheduled for this contract; (6) initiation and preparation of Task Order documentation, including recommendation of personnel; (7) attending monthly meetings at USAID with the Base Agreement CTO; and (8) serving as the primary contact point and liaison between the contractor and field CO/CTO, and between the contractor and Chiefs of Party in awarded task orders.