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USAID | **AFGHANISTAN**
FROM THE AMERICAN PEOPLE

ENGINEERING SUPPORT PROGRAM FINAL WORK PLAN

MARCH 14, 2010

This publication was produced for review by the United States Agency for International Development. It was prepared by Tetra Tech, Inc.

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TETRA TECH

March 14, 2010

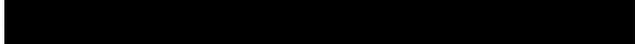


USAID – Office of Infrastructure, Engineering and Energy (OIEE-AESP)
Café Compound
U.S. Embassy
Great Masood Road Kabul, Afghanistan

**Re: Task Order 01 – EDH-I-00-08-00027-00
Final Work Plan**

Dear Sirs:

Tetra Tech is pleased to submit the Final Work Plan with your concurrence for the above referenced task order under the Afghanistan Engineering Support Program. We look forward to working with USAID on this Task Order.

Please feel free to contact me at  if you have questions or comments.

Very truly yours,



Chief of Party (OIEE-AESP)
Tetra Tech, Inc.

Cc:  CO (OIEE-AESP)

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AFGHANISTAN ENGINEERING SUPPORT PROGRAM FINAL WORK PLAN

MARCH 14, 2010

DISCLAIMER

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Acronyms and Abbreviations

A/E	Architecture and Engineering
AESP	Afghanistan Engineering Support Program
A/COTR	Alternate Contracting Officer's Technical Representative
ATVI	Afghanistan Technical & Vocational Institute
B&M	Branding & Marking Plan
BMP	Best Management Practice
CMU	Concrete Masonry Unit
CO	Contracting Officer
COP	Chief of Party
COTR	Contracting Officer's Technical Representative
CV	Curriculum Vitea
DCOP	Deputy Chief of Party
GW	GardaWorld
IQC	Indefinite Quantity Contract
IT	Information Technology
ISAF	International Security Assistance Force
JOFOC	Justification for Other than Full and Open Competition
LN	Local National
LOE	Level of Effort
LTTA	Long Term Technical Assistance
MIS	Management Information System
MoF	Ministry of Finance
MoFA	Ministry of Foreign Affairs
MEW	Ministry of Energy and Water
NGO	Nongovernmental Organization
OIEE	Office Infrastructure, Engineering and Energy
O&M	Operation and Maintenance
OSSD	Office of Social Sector Development
PMP	Performance Monitoring Plan
PRT	Provincial Reconstruction Team
QA	Quality Assurance
RMSI	Remote Medical Solutions International
R&R	Rest & Recuperation
RRB	Regional Rest Break
SET	SMART Engineering Team
SOW	Statement of Work
STTA	Short Term Technical Assistance
TBD	To Be Determined
TO	Task Order
USACC	US Afghan Consulting and Construction
USAID	United States Agency for International Development
USG	United States Government
WO	Work Order
WO-A	Work Order-Administrative
WO-LT	Work Order-Long Term

1.0 Introduction

1.1 Background

The purpose of the Afghanistan Engineering Support Program (AESP) is to provide quick response resident professional architect and engineering (A/E) technical services in the sectors of transportation, vertical structures, energy, water and sanitation, and water resources to United States Agency for International Development (USAID)/Afghanistan. The activities assigned under this Task Order (TO) will support USAID's objective of fostering sustainable development in developing countries.

1.2 Program Goals

Although much progress has been made, Afghanistan's infrastructure has not fully recovered from the devastation caused by the ravages of war, lack of regular maintenance and scant investment in physical infrastructure. The task of stabilizing and rebuilding Afghanistan is immense and requires the support of the donor community.

Activities performed under the AESP will complement and reinforce the activities and A/E expertise of USAID's Office of Infrastructure, Engineering and Energy (OIEE) staff in the following sectors.

- Vertical Structures (structural assessment and design of schools, clinics, government centers and other buildings, including temporary space). These services include, but are not limited to, the structural assessment, planning, design and construction of education, health, judicial, general government facilities, agriculture, industrial parks and other structures as required. These services also include training local nationals in vertical structures.
- Energy (generation, transmission, distribution and regulation). These services include, but are not limited to, the assessment, planning, design and construction of multiple power networks from generation to distribution, and regulation, small scale systems, renewable energy systems and hybrid systems. These services also include training local nationals in energy.
- Water and Sanitation (urban and rural water supply systems, sanitation facilities, hygiene behavior change, and irrigation). These services include, but are not limited to the assessment, planning, design and construction for water treatment, water conveyance, wastewater collection, and wastewater treatment systems. These services also include training local nationals in water and sanitation.
- Transportation (roads, rail and airports). These services include, but are not limited to, the assessment, planning, design and construction of transportation systems, primary and secondary roads, and bridges. The primary focus will be roads, however; additional activities may include: airports and rail. These services also include training local nationals in transportation.
- Water Resources\Dams. These services include, but are not limited to, the assessment, planning, design and construction for water resource management, urban and rural water systems, drainage basins and irrigation systems, dams and storage reservoirs, flood control programs, domestic and industrial water supply,

and the exploration and development of groundwater resources. These services also include training local nationals in water resources.

- Quality Assurance (QA). This activity includes the development of a Quality Assurance Plan and the implementation of those plans during the design and construction of the above described features. These services also include training local nationals in QA.

Under the AESP, Tetra Tech will provide A/E and technical support so that the OIEE can continue to provide the Mission with needed engineering expertise in order to construct safe, long-life and energy efficient transportation, vertical structures, energy and water and sanitation infrastructure, dams, and other related facilities in Afghanistan. It directly supports USAID strategic objectives relating to health, education, agriculture, economic growth, justice areas and infrastructure.

2.0 Program Approach

2.1 Introduction

The Tetra Tech Kabul office will provide engineering planning, design, and other technical support. Providing engineering technical assistance and collaboration will not only ensure competent engineering practice; it will also increase the technical expertise of project engineering staff and upgrade the quality of design and construction practices among participating engineering and construction companies in Afghanistan.

The work produced will be evaluated within the general performance standards: quality of work/compliance with specifications, cost control/effectiveness, timeliness, and client satisfaction.

The engineers are managed by an expatriate senior engineering lead for each sector and will receive additional engineering support through short-term engineering assistance. Additional program support will be provided as summarized below.

- Engineering technical support provided from home office engineers who will, as needed, provide support through e-mail correspondence, videoconference, technical consultations, or sharing of designs and issues through Web site access, review, and comments;
- Engineering design guidance and review provided by USAID OIEE; and
- Collaboration and active working relationships with USAID, government agencies, nongovernmental organizations (NGOs), and other stakeholders.

2.2 Planning Activities

The Tetra Tech team will provide high quality engineering and technical assistance and guidance in the planning of new OIEE activities requested, including conceptualization, analysis and approval documentation such as:

1. Preparation or review of studies, assessments, designs, and specifications for systems and equipment for facilities, statements of work (SOW) for associated services, cost estimates, requests for proposals, and invitations for bids;
2. Preparation or review of training programs, especially in the areas of plant or equipment start-up, operation, maintenance, testing, acceptance, and logistics procedures and efficiency;
3. Preparation, review, or assistance in development of statistical data on existing supply/demand and supply/demand forecasts. Development and interpretation for system usage data, forecasting future system requirements and estimating costs;
4. Preparation or review of pre-feasibility and feasibility studies; cost estimates; technical, financial and economic surveys; social soundness, management and financial analyses; organizational plans; and recommendations concerning technical and economic aspects of development;

5. Ensure that environmental and sustainability issues are considered in program design and in keeping with Agency practices in accordance with USAID's environmental procedures or "Regulation 216" (Title 22, Code of Federal Regulations, Part 216); and
6. Analysis of risks associated with natural disasters and the design of structures and services to appropriate building standards in order to better withstand such disasters; and analysis, evaluation and preparation of plans and procedures for maintenance and operations.
7. Preparation of Quality Assurance Plans for designated construction activities.

2.3 Design Activities

The Tetra Tech team will manage in a timely manner the preparation of detailed engineering studies, assessments, designs, plans, specifications and cost estimates for assigned OIEE programs and activities, and ensure that they comply with appropriate national and international standards and reflect Agency best practices including:

1. Design of complex activities in support of OIEE;
2. Provision of limited scope or short-term services involving preparation of preliminary or final drawings, sketches, plans, aerial photographs and other topographical or geological data used to plan and review projects; and
3. Analyze and evaluate designs, drawings, specifications, cost estimates, schedules and lists of equipment requirements to inform and make recommendations to USAID regarding assistance commitments for activities.
4. Prepare specific Quality Assurance Plans.

2.4 Technical Support and Oversight

The Tetra Tech team will provide project management oversight services for contracts/agreements in the sectors overseen. Thus, Tetra Tech will provide guidance to contractors/grantees in accordance with the terms of the contract/agreement including:

1. Provide technical advice and support to personnel working on USAID programs that are related to infrastructure, such as provincial reconstruction team (PRT) personnel;
2. Provision of technical advice to industrial and managerial personnel regarding design, and/or program modifications and structural repairs;
3. Provide expert technical oversight to implementer staff, keeping OIEE, PRT, Office of Social Sector Development (OSSD) and the contracting officer (CO) informed of work progress;
4. Provide technical support for procurement processes, including evaluation of others and contract modifications;
5. Prepare or review reports and recommendations regarding the general arrangements, viability and cost effectiveness of capital plans and processes as to validity and economy of work plans, and for changes, additions, or revisions in project activities;

6. Monitor adequacy and acceptability of delivered goods and services under approved activities including equipment installation, training activities through field inspections, reviewing contractor reports, and meeting project personnel and implementer representatives;
7. Develop solutions to complex project and program A/E issues unresolved by implementers;
8. Provide construction inspection and surveillance services in accordance with the approved Quality Assurance Plans;
9. Provide value engineering services;
10. Provide technical assistance to the COTR in responding to proposed changes in OIEE's Contracts, SOWs, the validity of claims, and the reasonableness of contract time extensions;
11. Provide appropriate technical assistance to the COTR in issuance and negotiations of change orders in accordance with procedures;
12. Perform administrative responsibilities including, but not limited to, activities such as drafting project implementation letters, preparing action memoranda and reports, estimating expenditures, reviewing payment vouchers, responding to audits, assessing claims, writing Justification for Other than Full and Open Competition (JOFOC) and performing other related activities; and
13. Provide quality assurance services, as required.

2.5 Quality Assurance Services

The Contractor will monitor the construction projects implemented by other contractors and grantees through site visits by qualified engineers. Monitoring will include ocular visual inspection of work at the site as well as inspection of the implementing partners' (IPs') testing facilities, procedures and results. The engineering monitors will check the IPs' work to ensure compliance with the approved Quality Control (QC) Plan, Quality Assurance (QA) Plan, and pre-determined technical standards and construction schedules.

QA tasks include but are not limited to the following:

1. Regular Inspections: The Contractor will conduct on-site inspections of projects. During the inspections, the Contractor will:
 - a. Verify and ensure that the quality of materials used meet contract specifications;
 - b. Verify the correctness of the quantities used;
 - c. Monitor sampling and testing procedures, including testing frequency, and report failed tests to concerned parties for corrective action;
 - d. Verify the quality of construction/installation work and ensure conformity to contract design plans, specifications and requirements;
 - e. Monitor progress of work against the approved construction schedule, report deviations and their causes, and recommend corrective actions;

- f. Report on the safety conditions on project sites, contractor's facilities, and identify violations of safety regulations;
 - g. Monitor safety violations and follow-up on corrective actions; and
 - h. Verify security incident reports, weather problems and any other events that could affect construction schedule in a timely manner.
2. Substantial Completion^[1] Inspection: Upon substantial completion of construction/rehabilitation activities, the Contractor with representatives from USAID and the relevant Ministry shall inspect the project and develop a punch list of items requiring remedial work before final inspection and acceptance.
 3. Punch List Verification Inspection. When the IP informs the Contractor that the punch list activities are completed, the Contractor, together with representatives from USAID and the relevant Ministry will conduct an Inspection and Verification of Punch List activities. During the inspection, all parties will either determine if the Punch List items have been corrected or require additional work.
 4. Final Inspection and Acceptance: After completion of all Punch List activities, the Contractor together with USAID and the relevant ministry representative will conduct a Final Inspection of all Project activities including the Punch List. If all parties are satisfied that the Punch List items have been completed, USAID and the GIROA sign the handover certificate.
 5. Final Warranty Inspection: When there is a warranty period, the Contractor, together with USAID and the relevant Ministry will conduct a Final Warranty Inspection of the Project. Following this inspection, responsibility will then be transferred to the relevant Ministry.

2.6 Capacity Building

USAID has a commitment to capacity development of Afghan organizations and individuals through their participation in USAID awards. To that end, Tetra Tech will include Afghan staff as program staff and Afghan organizations as subcontractors, as applicable. The expatriate staff will work with the Afghan staff to develop their skills including project management, project work flow, AutoCAD, construction, contracts, and technical writing.

Tetra Tech identified additional capacity building activities that could potentially be implemented as work orders. These include activities such as internships for university students, field trips to local construction sites to provide real world examples of engineering projects, and a professional society program. The development of a specific capacity building program will require an approved work order. See Section 5.5 for more discussion.

^[1] Substantial completion is defined as that performance of a [construction] contract which, while not full performance, is so nearly equivalent to what was bargained for that it would be unreasonable to deny the promise [contractor] the full contract price subject to the promisor's [owner's] right to recover whatever damages may have been occasioned by the promisee's [contractor's] failure to render full performance."

2.7 Collaboration/Coordination with Appropriate Stakeholders

The Tetra Tech team will collaborate and coordinate with appropriate stakeholders when directed by the COTR. Appropriate stakeholders include International Security Assistance Force (ISAF), U.S Military, key Afghan ministries (e.g. Ministry of Finance (MoF), Ministry of Foreign Affairs (MoFA), and Ministry of Energy and Water (MEW)), provincial elected officials, donors, NGOs, communities, and others as identified by requirements of the work.

3.0 Program Staffing

3.1 Overview and Management

The Tetra Tech team consists of hands-on professionals with a proven track record in implementing safe, long-lasting and energy efficient buildings and infrastructure in Afghanistan and other developing countries. The organization chart (Figure 3-1) shows the key personnel and Afghan mid- and junior-level staff assigned to the AESP and authorized by USAID. Long-term and short-term technical assistance (LTTA and STTA) and reach back support personnel will be used as necessary.

Additional expatriate technical staff will be added as the scope and nature of the work orders evolve and additional needs are identified. Figure 3-1 has identified five potential additional expatriate positions and two additional LN positions.

3.2 In Country AE Staff

1. Expatriate

The in country staff will be lead by the Chief of Party (COP) who has full authority to execute the program and respond to the needs of OIEE. As shown on Figure 3-1, there are leads for each of the five sectors. There will also be junior level expatriate engineering staff who will work closely with the Afghan engineering staff. Finally, there is a management information system (MIS) Manager/Technical Writer who will prepare the status reports and deliverables discussed in Section 6. The MIS Manager/Technical Writer will also help prepare documents associated with applicable work orders.

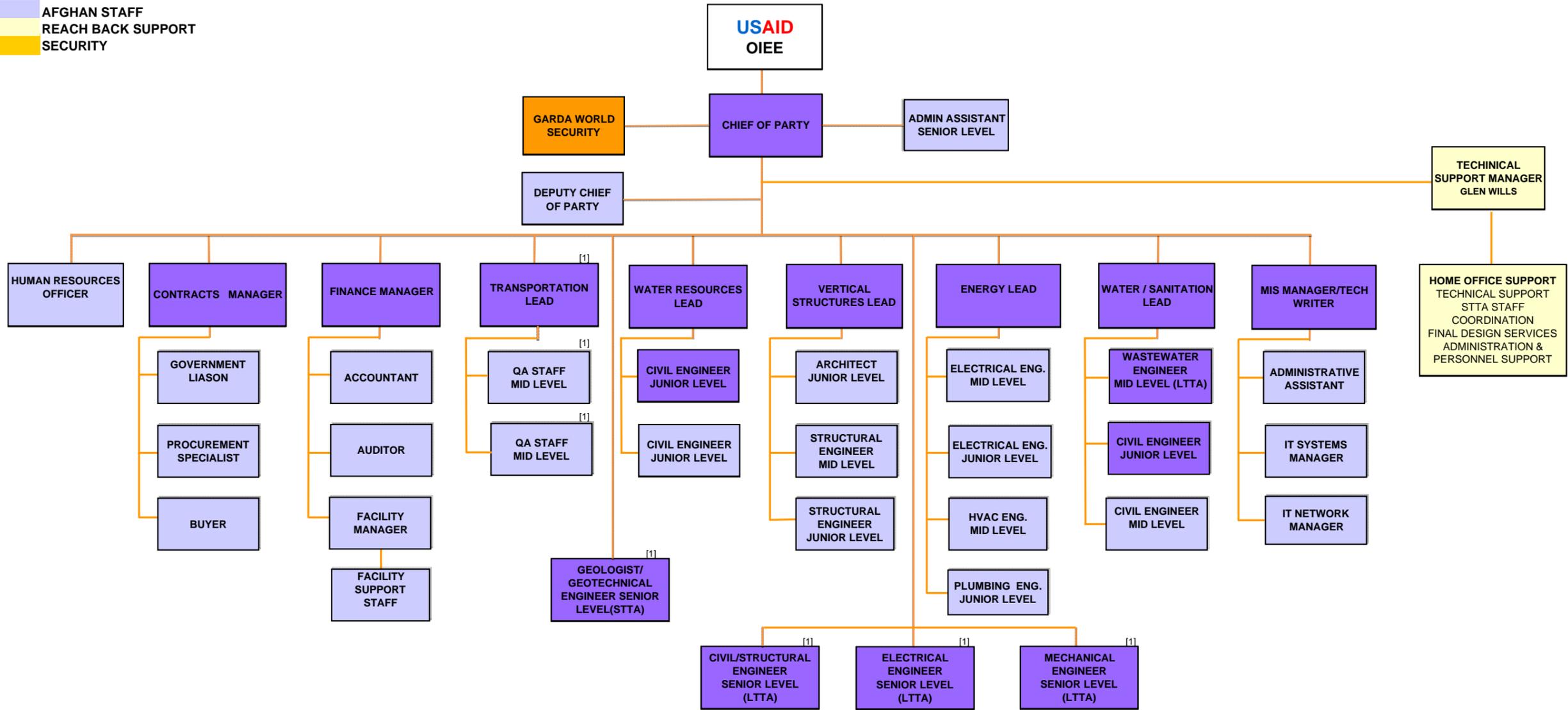
2. Local National

An important component of the AESP is partnering with Afghan firms both to develop much-needed local capacity and to better address local challenges. To that end, the Tetra Tech team partnered with SMART Engineering Team (SET) and US Afghan Consulting and Constructing (USACC).

SET is an Afghanistan-based civil, mechanical, and electrical engineering firm headquartered in Kabul with an additional six regional field offices. SET partnered with Tetra Tech on the design of an Agricultural High School in Farah, Afghanistan and is currently designing a large irrigation and dam project for the Afghan Ministry of Energy and Water in Kunduz and Baghlam Province along the Kunduz River.

USACC, an Afghan multi-disciplined engineering and construction services firm, brings a combination of professional consulting expertise in housing design and construction, transport and hydropower development and water resource management to the project. The company's prime objective is to provide engineering and construction opportunities for local Afghan engineers in Afghanistan.

EXPATRIATE STAFF
 AFGHAN STAFF
 REACH BACK SUPPORT
 SECURITY



[1] These positions to be filled as requested by Work Orders.

Figure 3-1: Tetra Tech AESP Team Organization Chart

SET and USACC will provide a source of qualified local Afghan engineers and support staff to our team and to the AESP.

Additionally, Kabul University Faculty of Engineering has agreed to partner with Tetra Tech to provide internship and co-operative agreement opportunities for students and graduates as well as the potential for using members of the faculty on special projects and issues. This partnership will enhance our Team's ability to ensure that local construction methods and cultural issues are fully addressed. A memo of understanding was included in the Tetra Tech response to USAID's RFP. A new memo of understanding is being prepared by the new Dean of the Faculty of Engineering and hopes to be complete in March 2010.

Tetra Tech has also made contact with Kabul Polytechnic to get them to partner with AESP within the same guidelines as Kabul University. The memo of understanding with Kabul Polytechnic should be complete in March 2010.

Tetra Tech is also committed to using the Afghanistan Technical & Vocational Institute (ATVI) to provide a source of technical staff to assist with building the capacity of the local Afghan supply chain and vendor community by providing training and opportunities for Afghans to use their new skills. A memo of understanding with ATVI was also included in Tetra Tech's RFP response.

We will work closely with USAID to mentor an Afghan engineer to assume the role of Deputy Chief of Party (DCOP) during the project.

3.3 In Country Support Services

In country support services consist of security, contracts and procurement, information technology (IT), and administration.

- Security for Tetra Tech is provided by GardaWorld (GW) as described in the Security Plan dated December 12, 2009 to ensure that our staff can safely complete work throughout the country.
- Contracts and procurement staff are provided to support the AESP program. After the A&E team is established, the contracts staff can be made available to USAID to:
 - Provide guidance to contractors/grantees as requested by OIEE;
 - Provide support for procurement processes, including evaluation of contracts, and contract modifications;
 - Provide assistance to the COTR in issuance and negotiating of change orders; and
 - Writing JOFOC.
- Tetra Tech IT staff provide appropriate technology solutions as required to support ongoing operations. The staff consists of two Afghan IT specialists, who bring a wide array of systems engineering, technical support, and network operations skills to the table. They were recruited in part for their familiarity with sound industry-standard procedures and will receive ongoing training throughout the project.
- Administrative staff assist the A/E staff with document production and other administrative tasks. They will also help coordinate travel plans.

3.4 Home Office

1. Technical Support

Home office technical reach back provides an effective means of efficiently accessing essential and unique engineering expertise (such as geology, seismology, environmental and structural engineering) needed for accurate and high quality project designs. Tetra Tech’s home office resource base consists of over 10,000 architects, engineers, and other technical support professionals spanning 50 technical and management disciplines. The home office technical support manager will provide day to day support to the COP on requirements for technical home office support and STTA staffing needs.

2. STTA Staff Coordination

STTA support staff provide resources for short term (2 to 6 weeks or longer) assignments by technical specialists from the US to augment the in-country team as required. The STTA support staff approach provides the ability to respond to a specific need and to focus on complex technical issues and staff surge requirements.

3. Administration and Personnel Support

Overall project administration and personnel support will be provided by the home office. This includes human resources for expatriate staff, deployment support, and financial management. LN personnel administration and support will be provided by the Tetra Tech office in Kabul. The COP will provide day-to-day project administration.

3.5 Assignment Staffing

Depending on the type of work, reach back support, STTA staff, or special local consultants may be required. Tables 3-1 to 3-5 present the anticipated source of staffing for the various types of activities described in Sections 2.2 to 2.6. To the extent practical, work will be completed by in country staff.

Table 3-1 Energy Sector Assignment Staffing

Activity	Activity Type	Sub-Activity	In-Country Staff	Tetra Tech Reach Back	Specialty Consultant Reach Back	STTA Technical Assistance	Special Local Consultant
A. Planning Activities							
	Energy Master Planning			x	x		
B. Design Activities							
	Support Vertical Structure Design						
		HVAC	x	x			
		Plumbing	x	x			
		Fire Protection	x	x			

Activity	Activity Type	Sub-Activity	In-Country Staff	Tetra Tech Reach Back	Specialty Consultant Reach Back	STTA Technical Assistance	Special Local Consultant
		Fuel and Gas Piping	x	x			
		Site Electrical	x	x			
		Power Distribution	x	x			
		Standby Power Systems	x	x			
		Solar Photovoltaic Systems	x	x			
		Interior Lighting	x	x			
		Site Lighting	x				
		Internal Building Telecommunications	x	x			
	Power Distribution						
		Medium Voltage Public Distribution			x	x	x
		Secondary Substations			x	x	x
	Generation and Transmission						
		High Voltage Transmission Lines			x		
		Primary Substations			x		
		Power Generation (Power Plants), Oil & Gas			x		
		Generation (Power Plants), Wind & Solar			x		
		Utility Management Practices, Tariff Analysis, Regulation		x	x		
		Economic Growth Analysis		x	x		
	Roadways						
		Roadway Lighting	x				
	Communication Infrastructure						
		Site Outside Plant		x			
		Local Communications Switch Facility		x		x	
		Communications Public Distribution		x		x	
C. Technical Support Oversight							
	General Technical Support in Energy		x	x			
D. Capacity Building							
	Development of Afghan Energy Organizations and Professionals		x				
E. Collaboration/Coordination with Appropriate Stakeholders							
	General Tetra Tech Collaboration/Coordination with Appropriate Stakeholders		x				

Table 3-2 Vertical Structures Sector Assignment Staffing

Activity ^a	Activity Type	Sub-Activity	In-Country Staff	Tetra Tech Reach Back	STTA Technical Assistance	Special Local Consultant
A. Planning Activities						
	Vertical Structures Master Planning					
		Site Utilization Studies	x	x		
		Site Master Planning	x	x		
		Land Use Study Agency Board Processing	x	x		
		Site Selection Studies	x	x		
B. Design Activities						
	Pre-Design Service					
		Project Programming	x			
		Project Development Scheduling	x			
		Agency Consulting and Review	x			
		Existing Facility Survey and Evaluation	x			
		Facility Planning Study	x			
		Feasibility Study	x			
	Architectural Design					
		Architectural Programming	x			
		Conceptual Design/Schematic Design	x			
		Design Development	x	x		
		Construction Documents	x	x		
		Construction Specification	x	x		
		Construction Cost Estimating	x			
		Landscape Design Coordination	x			
		Civil Engineering Design Coordination	x			
		Engineering Design Coordination	x			
		Code Compliance Study	x	x		
		Control and Phasing	x			
	Building Engineering Design ^b					
		Building Structural Design		x		
		Building Seismic Design		x		
		Building HVAC	x	x		
		Electrical	x	x		
		Plumbing	x	x		
		Fire Protection Design	x	x		
	Civil Engineering Design ^c					

Activity ^a	Activity Type	Sub-Activity	In-Country Staff	Tetra Tech Reach Back	STTA Technical Assistance	Special Local Consultant
		Sites up to 2-Acres	x			
	Bidding and Negotiation					
		Bidding Documents		x		
		Bidding Negotiation	x			
		Bid Evaluation	x			
		Construction Cost Assistance	x			
	Construction Administration					
		Construction Observation	x			
		Field Reports	x			
		Shop Drawings Review and Approval	x			
		Change Order Monitoring and Processing	x			
		Application for Payment Review and Approval	x			
	Post-Construction Services					
		Start up Assistance			x	
		Record Drawings	x			
		Warranty Review	x			
	Miscellaneous Services					
		Graphic Design	x			
		Rendering	x			
		3D Modeling and Presentation	x	x		
		Presentations	x			
		Color, Signing System and Graphics	x			
		Model Making	x			
C. Technical Support Oversight						
	General Technical Support in Architecture		x			
D. Capacity Building						
	Development in Afghan Architectural Organizations and Professionals		x			
E. Collaboration/Coordination with Appropriate Stakeholders						
	General Tetra Tech Collaboration/Coordination with Appropriate Stakeholders		x			

a. Includes vertical structures and vertical structure support activities

b. Depending on the size and complexity of the project, Tetra Tech reach back assistance may be needed in providing some of the Engineering Services

c. Sites larger than 2 acres will be assigned to Local Staff, but Tetra Tech reach back assistance may be needed.

Table 3-3 Water and Sanitation Sector Assignment Staffing

Activity	Activity Type	Sub-Activity	In-Country Staff	Tetra Tech Reach Back	STTA Technical Assistance	Special Local Consultant
A. Planning Activities						
	Water and Sanitation Master Planning					
		Water demand and wastewater generation estimates	x			
		Identification and yield analysis of water supplies	x			
		Raw water quality	x			
		Potable water standards	x			
		Wastewater treatment Standards				
		Service area delineation	x			
B. Design Activities						
	Water Treatment	Pre-treatment		x		
		Treatment		x		
		Disinfection		x		
		Storage		x		
		Instrumentation and controls		x	x	
		Plant start-up			x	
		O&M services			x	x
	Water Transmission & Distribution					
		Transmission mains	x	x		
		Distribution mains	x	x		
		Hydraulic modeling	x	x		
		Pump Stations	x	x		
	Wastewater Collection					
		Gravity Sewers	x	x		
		Force Mains	x	x		
		Pump Stations		x		
		Collection system modeling			x	
	Wastewater Treatment					
		Wastewater characterization		x		
		Flow monitoring		x		
		Pre-treatment		x		
		Secondary treatment		x		
		Tertiary treatment		x		
		Disinfection		x		
		Solids handling		x		

Activity	Activity Type	Sub-Activity	In-Country Staff	Tetra Tech Reach Back	STTA Technical Assistance	Special Local Consultant
		Instrumentation and controls			x	
	Wastewater Operation		x		x	
		Plant start-up			x	
		Training				
		O&M Services			x	
	Construction Support		x			x
		Construction Administration	x			x
		Field Inspection	x			
		RFIs				
		Design Certifications	x			
		Record Drawings (As-Builts)	x			
C. Technical Support Oversight						
	General Technical Support in Water and Sanitation		x			
D. Capacity Building						
	Development in Afghan Water and Sanitation Organizations and Professionals		x			
E. Collaboration/Coordination with Appropriate Stakeholders						
	General Tetra Tech Collaboration/Coordination with Appropriate Stakeholders		x			

Table 3-4 Transportation Staffing Assignment Sector

Activity	Activity Type	Sub-Activity	In-Country Staff	Tetra Tech Reach Back	STTA Technical Assistance	Special Local Consultant
A. Planning Activities						
	Transportation Master Planning					
		Traffic Studies		x		
		Road/Interstate Analysis		x		
		Aviation Facilities Analysis		x		

Activity	Activity Type	Sub-Activity	In-Country Staff	Tetra Tech Reach Back	STTA Technical Assistance	Special Local Consultant
		Railroad Analysis		x		
		Pedestrian Traffic Analysis		x		
		Multi-Modal Transit Analysis		x		
B. Design Activities						
	Road/Inter-province Analysis					
		Inter-province Design		x		
		Local Roadway Design	x			
		Intersection & Widening Improvements	x			
		Site Ingress/Egress Design	x			
		Site Circulation Design		x		
		Reconstruction and Improvements	x			
		Roundabout Design		x		
		Signal/Signage & Striping Design		x		
	Traffic Studies	Demand Forecasting Modeling		x		
		Site Circulation & Access Studies		x		
		Congestion Management Studies		x		
		Downtown/Urban Studies		x		
	Aviation Facilities	Public		x		
		Military		x		
	Railroad Analysis	Road Crossing/Intersection Design		x		
		Rehabilitation Design - Track/Bridges/Terminals			x	
		Signal Design			x	
		Terminals			x	
	Pedestrian Traffic Analysis	Traffic Flow Analysis		x		
		Site Circulation Design		x		
	Design for Construction	Traffic Control Plans	x			
		Site Inspections	x			
	Intelligence Systems	Operation/Safety & Efficiency Designs			x	
	Pavement Management	Survey of Conditions	x			x
		Life Cycle Cost Analysis		x		
		Alternative Strategies & Costs		x		
	Capital Improvement Plans	Development of budgets & Prioritization	x			
		Program Implementation & Management	x			
C. Technical Support Oversight						
	General Technical Support in		x			

Activity	Activity Type	Sub-Activity	In-Country Staff	Tetra Tech Reach Back	STTA Technical Assistance	Special Local Consultant
	Transportation					
D. Capacity Building						
	Development in Transportation Organizations and Professionals		x			
E. Collaboration/Coordination with Appropriate Stakeholders						
	General Tetra Tech Collaboration/Coordination with Appropriate Stakeholders		x			

Table 3-5 Water Resources and Dams Sector Assignment Staffing

Activity	Activity Type	Sub-Activity	In-Country Staff	Tetra Tech Reach Back	STTA Technical Assistance	Special Local Consultant
A. Planning Activities						
	Water Resources Master Planning					
		Water Quality Assessments	x			
		Floodway Studies	x	x		
		Sediment Transport	x			
		Water Storage/Dam Studies		x		
		Stormwater Management/Master Drainage Studies	x			
		Source Water Protection	x	x		
		Designated Uses and Water Quality Standards	x	x		
		Disaster Prevention and Contingency Planning		x		
		Agricultural Runoff Assessments	x	x		
		Erosion Control Planning	x	x		
		Ground and Surface Water Hydrology	x	x		
		Wetlands Delineation		x		
B. Design Activities						
	Stormwater Management					

Activity	Activity Type	Sub-Activity	In-Country Staff	Tetra Tech Reach Back	STTA Technical Assistance	Special Local Consultant
		Erosion Control Design/Best Management Practices (BMPs)	x			
		Agricultural Runoff Control	x			
		Flood Control		x		
		Infiltration Controls	x			
	River and Stream Restoration					
		Stream Channel Restoration	x			
		Habitat and Ecosystem Restoration				x
		Flow Control Structures	x	x		
	Water Storage Dam Design					
		Water Storage Volume		x		
		Watershed Area	x	x		
		Sediment Volume		x		
		Structure Design	x	x		x
		Spillway Design		x		
		Risk Assessment		x		
		Existing Dam Stabilization				
	Wetlands					
		Engineered Wetlands Design	x	x		
C. Technical Support Oversight						
	General Technical Support in Water Resources		x			
D. Capacity Building						
	Development in Water Resources Organizations and Professionals		x			
E. Collaboration/Coordination with Appropriate Stakeholders						
	General Tetra Tech Collaboration/Coordination with Appropriate Stakeholders		x			

4.0 Deployment

4.1 Tasks and Procedures

The deployment for Tetra Tech will be managed from our office in Kabul under the direction of the COP. Primary support will be provided by Tetra Tech's Framingham office. The COP will be responsible for mobilizing the team in Kabul, securing office and living spaces, and outfitting the office and residence.

Staff deploying to Kabul will be required to do the following:

1. Present a valid passport and fill out the required visa application, 1420 paperwork, and CV;
2. Obtain extra passport size photos;
3. Undergo a pre-deployment physical;
4. Attend pre-deployment training that includes:
 - a. Project overview,
 - b. Human resources overview including explanation of insurance benefits and Remote Medical Solutions International (RMSI) services
 - c. Expense reporting,
 - d. Time keeping requirements,
 - e. IT training and contract requirements,
 - f. Travel procedures,
 - g. HEAT training,
 - h. First aid training,
 - i. Cultural awareness,
 - j. Rest and recuperation (R&R) and regional rest break (RRB) overview; and
5. Sign a Deployment Assignment Agreement.

4.2 Schedule

The staffing deployment plan provided in Table 4-1 illustrates Tetra Tech's intent for deployment to fulfill the obligations of the TO in the first year. Tetra Tech quarterly reports will outline actual staffing required for future work orders and will supersede the illustrative information in this section.

Table 4-1 Expatriate Staff Deployment Plan AESP/OIEE

Position	US Deployment Date	Workdays Ordered					
		Y1	Y2	Y3	Y4	Y5	Total
Chief of Party	11/18/09						
Finance Manager	11/18/09						
Vertical Structures Lead	12/4/09						
Energy Lead	12/4/09						
Water/Sanitation Lead	12/21/09						
Water Resources Lead ^a	2/17/10						
Transportation Lead ^b	TBD						
Contracts Manager	12/11/09						
MIS Manager	12/21/09						
Civil Engineer	12/21/09						
Civil Engineer	2/17/10						

a. Anticipated to be 70% of full sector lead LOE

b. Anticipated to be 30% of full sector lead LOE

5.0 Work Orders

5.1 Overview

Tetra Tech's point of contact with USAID is the project COTR (or alternate contracting officer's technical representation (A/COTR) when the COTR is unavailable). Likewise, USAID's point of contact with Tetra Tech is the project COP. To ensure smooth and strategic implementation of the project, it is critical that the USAID and Tetra Tech always have and share the same information and decision making processes. To achieve this, we will keep our communication channels open but limited to this single point of contact. The Tetra Tech team will communicate with USAID and other US Government (USG) entities through and in collaboration with the COTR. Communication to Tetra Tech from USAID and other USG entities will be channeled through our COP. This will facilitate collaborative and focused planning that prioritizes and allocates resources consistent with the project mandate and the needs of the USG.

5.2 Work order Process Flow

Work order (WO) requests will be initiated by USAID through the COTR or A/COTR. The COTR (or A/COTR) will advise the COP of a WO request. There are two types of WOs described in this TO, Administrative Work Orders (WO-A) and Long Term Work Orders (WO-LT). Refer to Figure 5-1 for an illustration of the anticipated WO process flow.

1. Administrative Work Order (WO-A)

A WO-A is a work order related to energy, water, wastewater, buildings, or transportation with the anticipated total level of effort (LOE) less than or equal to 18 man days (144 man hours). WO-As will include, but are not limited to, conducting site visits, review of plans and designs, logistical support for visits, drafting concepts, presentations, correspondence, and providing technical analysis. The COTR (or A/COTR) will request work under a WO-A to the COP. Tetra Tech will confirm the WO request in writing to the COTR and A/COTR before commencing work as shown in Figure 5-1.

2. Long Term Work Order (WO-LT)

A WO-LT is a work order related to energy, water, wastewater, buildings, or transportation with the anticipated total LOE greater than to 18 man days (144 man hours). To implement a WO-LT, the COTR (or A/COTR) will submit a WO request to the COP. The WO request will include a brief description of the requirements including the project background, objective, tasks, deliverables, timeframe, proposed LOE and proposed skill sets required.

Upon receipt of the WO request, the COP will designate a project Technical Lead. From the WO Request, the project Technical Lead will prepare a WO Proposal that includes all the elements of the WO Request and/or any modifications proposed by Tetra Tech. The WO proposal will also include staffing and budget projections for expatriate staff, LN staff, sub-contractors, and reach back assistance. Upon review and approval from the COP, the WO proposal will be transmitted to the COTR and A/COTR.

Notes:

- [1] PM and RBM to review and advise if added reach back funding is required.
- [2] Contracts Manager to track if there are comments from OIEE CO and advise COP
- [3] All use of reach back resources to be coordinated by Technical Support Manager (TSM)
- [4] Use of Special Local Consultant and STTA will require OIEE CO & COTR approval
- [5] COP or MIS Manager shall attend all meetings with USAID-OIEE

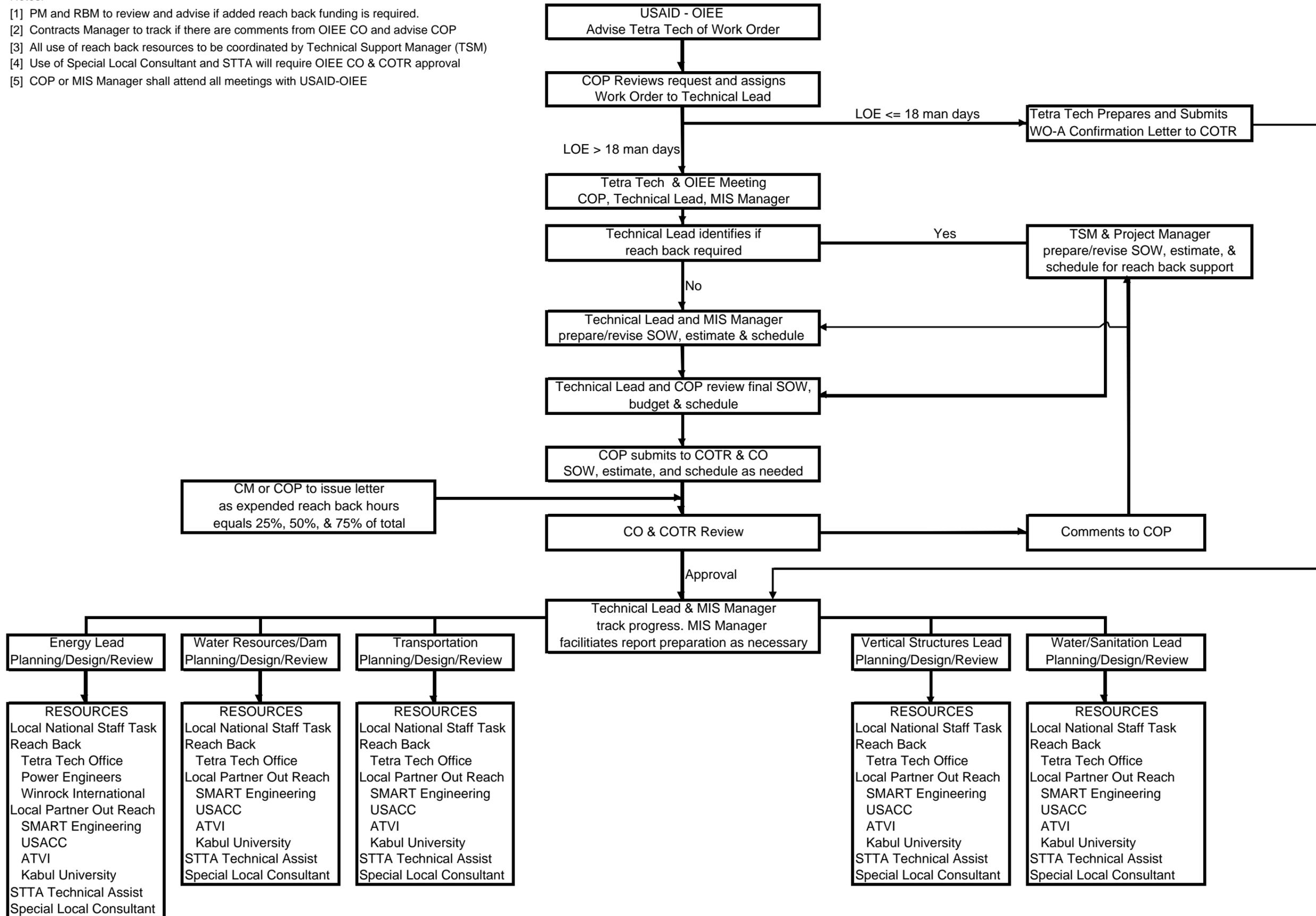


Figure 5-1: Work Order Process Flow Chart

The COTR (or A/COTR) will review the WO proposal. Upon written approval of the WO proposal, the WO-LT will be assigned a number for tracking purposes and work will commence.

5.3 Additional Scope Requests

If a WO Request is received that may be outside the SOW as described in Sections C.3 and C.4 of the Task Order, it will be reviewed with the CO and COTR so a WO-A or WO-LT can be authorized as required.

5.4 Tracking

Per the TO, it is the joint responsibility of OIEE and Tetra Tech to track the budget over the course of the project. To aid in tracking, Tetra Tech will assign a number for each WO starting with 0001. WO-A's will be numbered WO-A-0001, WO-A-0002, etc. Similarly, WO-LTs will be numbered WO-LT-0001, WO-LT-0002, etc. In order to facilitate the compilation of the LOE for related WOs, letters will be added after the WO number (e.g. WO-LT-0001A) when a modification or extension to an existing WO is issued.

Tetra Tech will track progress and budget for each WO in an agreed upon format with OIEE and submit updates to the COTR on a weekly basis. An example of the WO tracking sheet is provided in Appendix A. Additionally, Tetra Tech will track hours, subcontractor costs, and expenses on each open WO and report them in the quarterly and annual reports.

5.5 Tetra Tech Recommendations for Work Orders

Tetra Tech identified the following activities for potential work orders during Year 1. These activities support the mission of the AESP. WOs associated with Sections 5.5.1 to 5.5.7 are anticipated to be WO-As.

1. University Internship Program

Tetra Tech proposes to establish a cooperative education program with Kabul University Faculty of Engineering, Kabul Polytechnic, and ATVI. Each semester three or four students could come into the Tetra Tech office a few afternoons a week to work with the engineering staff and get hands on experience. The schedule would be coordinated with the universities so the internship would not conflict with the student's academic schedule.

2. Women in Engineering

Tetra Tech proposes a gender specific capacity building program where Tetra Tech's female engineering staff visit Kabul University and Kabul Polytechnic and host a series of informal teas for mentoring the female students to discuss issues in the engineering profession. For each tea, a report summarizing the number of attendees and topics discussed will be prepared and submitted to OIEE.

3. Networking Workshops

Tetra Tech suggests hosting monthly meetings for the COPs of OIEE programs and OIEE staff. This will allow for information sharing and technology transfer between the various USAID OIEE programs so programs can benefit from each other's experience. There should be no facilities rental cost for this program.

4. Technical Academic Resources

Tetra Tech proposes that the Deans of the Kabul University Engineering School, Kabul University School of Agriculture, and Kabul Polytechnic be invited to individually address USAID and the various COPs at the above noted networking workshops. This would give the universities and an opportunity to present their academic programs and discuss what they can offer in the way of training assistance, testing, and research. Inviting ATVI to address the workshops is also a possibility.

5. Professional Society Program

Tetra Tech proposes to develop a written plan to establish an Afghanistan Society of Architects. The first year would involve preparing the written plan, gathering support, and compiling a list of possible members.

6. Engineering Field Trips and Demonstrations

Tetra Tech proposes to develop training programs such as field trips to local construction and infrastructure sites to provide real world examples of engineering projects. Examples for potential field trip destinations include roadway construction projects, wastewater treatment or power plants.

Moreover, a construction demonstration program could also be developed collaboratively with ATVI to provide training on construction techniques, construction QA, and methods. A potential project would be to construct a demonstration CMU wall.

6.0 Reporting and Deliverables

Tetra Tech will provide accurate and timely reporting to USAID as specified in the TO and summarized below.

6.1 Work Plan

This document serves as the required work plan for the entire TO with specific focus on the first year. It is intended to be a ‘living document’ that will be reviewed and modified as the AESP develops. It includes items such as arrival dates, work activities, and long- and medium-term postings. It also includes a description of the Tetra Tech management structure, work flow, and overall program approach. The finalized work plan will become part of the TO as a modification to the TO.

6.2 Security Plan

The Security Plan provides information on the personnel and physical security for the TO. The Security Plan was submitted for review and approval by the COTR under separate cover on December 12, 2009. With OIEE concurrence, the Final Security Plan was submitted on February 23, 2010. The Security Plan will be updated and refined as local conditions change and as the project’s security needs require refinement.

6.3 Performance Monitoring Plan

In accordance with the TO, a Performance Monitoring Plan (PMP) will be submitted to the COTR approval within 90 days of the Contract award. The PMP will establish performance indicators to measure the program’s progress and accomplishments. The submittal of the PMP will depend on a timely approval of the PMP preparer by USAID.

6.4 Weekly Meetings

The Tetra Tech team will hold weekly meetings with the COTR to discuss the AESP progress and resolve problems as required. The Tetra Tech COP will prepare meeting minutes including a list of the issues discussed and action items for each meeting and send them to the COTR for concurrence.

6.5 Quarterly Progress Reports

Quarterly progress reports will be submitted 10 days after the end of the reporting period. Submission will follow the USG reporting schedule, which begins October 1. A fourth quarter report is not required as that information will be submitted in the annual report as noted in Section 6.7. Thus, reports will be submitted on or before January 10, April 10, and July 10 of each year.

The quarterly reports will summarize the progress of major activities during the period of performance, indicate if problems were encountered, and propose remedial actions as appropriate. The quarterly reports will also include status updates for the WOs and the amount of in-country and reach back hours that have been utilized to date by WO and in total.

The Tetra Tech COP will notify the CO and the COTR of problems, delays, or adverse conditions, which materially impair the team’s ability to meet the requirements of the TO.

6.6 Reach Back Hours

USAID will be notified when 25%, 50%, and 75% of the authorized total of reach back hours have been expended. In Year [REDACTED] man days have been authorized. There are a total of [REDACTED] man days authorized under the Task Order.

6.7 Annual Work Plans

Annual work plans will be prepared that detail the work to be accomplished during the upcoming year. The 2nd year, 3rd year, 4th year and 5th year work plans will be finalized 60 days prior to the end of the current year according to the USG reporting schedule.

Accordingly, the annual work plans will be submitted by August 2. These annual work plans may be revised, as needed, to reflect changes on the ground and with the concurrence of the COTR.

6.8 Annual Report

An annual report of each fiscal year will be submitted 30 days after the end of the fiscal year on September 30. Thus, annual reports will be submitted on or before October 30 each year. The report will combine the activities of the four quarters and provide an assessment of the progress in achieving the annual objectives set forth in the annual work plans.

6.9 Final Project Report

At the end of the contract Tetra Tech will prepare a final project report. The final report will be drafted to allow for incremental improvements in the process, both generally within USAID and specifically with respect to this TO. The final report will contain the following information:

1. Specific objectives of the program;
2. Activities undertaken to achieve program objectives;
3. Results achieved by objective, including life-of-program reporting according to the Performance Monitoring Plan;
4. Cost of efforts by sector;
5. Actions taken to leverage resources and to ensure the continuation and sustainability of program objectives and the effectiveness of these actions;
6. Recommendations regarding unfinished work and/or program continuation; and
7. Lessons learned over the course of the program and recommendations for other related programs.

6.10 Other

The Tetra Tech team will prepare periodic success stories and other outreach materials that can be utilized by Tetra Tech and USAID as appropriate.

Tetra Tech staff may shadow the OIEE local staff as determined appropriate.

Appendix A
Work Order Tracking Sheet

WORK ORDER STATUS

Afghanistan Engineering Support Program
 IQC: Task Order 01 - EDH-I-00-08-00027-00
 USAID Technical Office: USAID/Office of Infrastructure, Engineering, and Energy (OIEE)
 Revised 14 March 2010

Work Order Number	Program Type ⁽³⁾	Tetra Tech Lead	Description	Assigned By	Technical POC	Status ⁽⁴⁾	Work Order Issue Date	Work Order NTP Date	Modification Date	Scheduled End Date	Completed Date	Estimated Cost (ROM)	In Country Cost to Date ⁽⁶⁾	Reach Back Cost to Date ⁽⁶⁾	Total Cost to Date ⁽⁶⁾	Funding Source	Outstanding Items	Other Notes
WO-A: Administrative Work Orders⁽¹⁾																		
WO-A-0001	Water/Sanitation		Review Kabul Water Study			Complete	12/21/2009	12/28/2009		1/15/2010	1/17/2010							Extension of work anticipated based on JJS meeting with KfW
WO-A-0001A	Water/Sanitation		Review of Kabul Water MTP-1 Bid Docs			Open	2/1/2010	2/2/2010	2/21/2010	3/15/2010								Scope amended to include assessment of bid docs in accordance with USIAD procurement processes
WO-A-0002	VS, E, & W/S		Review of AUAF Master Plan Infrastructure			Complete	12/10/2009	12/28/2009		1/4/2010	1/6/2010							
WO-A-0002A	VS, E, & W/S		AUAF Master Plan Rev & SOW/ROM			Complete	1/25/2010	1/25/2010		2/6/2010	2/6/2010							Extension of WO-A-0002 for scoping of WO-LT-
WO-A-0003	Water/Sanitation		GBHS Sanitation			Complete	1/11/2010	1/13/2010		2/28/2010	2/22/2010							Finalized revisions based on USAID comments
WO-A-0004	Energy		GBHS Electrical			Open	1/12/2010	1/13/2010		2/28/2010	2/15/2010							Review of electrical panel submittal being performed under this WO
WO-A-0005	Water/Sanitation		GBHS Water Supply			Complete	1/13/2010	1/13/2010		2/28/2010	2/22/2010							Finalized revisions based on USAID comments
WO-A-0006	Water/Sanitation		Sardar GHS Sanitation			Complete	1/14/2010	1/16/2010		2/28/2010	2/22/2010							Only initial site visit performed, future work to be under LT WO
WO-A-0007	Energy		Sardar GHS Electrical			Complete	1/14/2010	1/16/2010		2/28/2010	2/15/2010							Work to be performed under LT WO
WO-A-0008	Water/Sanitation		Sardar GHS Water Supply			Complete	1/14/2010	1/16/2010		2/28/2010	2/22/2010							Only initial site visit performed, future work to be under LT WO
WO-A-0009	Energy		Integration of Nangarhar into NEPS			Open	1/29/2010	1/30/2010	2/23/2010	3/31/2010								
WO-A-0010	Professional Activity		Review of BS-25 Draft Position			Complete	1/29/2010	2/2/2010		2/5/2010								Draft memo submitted 2/6/10, waiting for USAID comments
WO-A-0011	Energy		Feasibility for Tarakhil Power Plant			Open	1/29/2010	2/3/2010	3/6/2010	3/31/2010								Report submitted 2/27/10. Need to answer additional questions.
WO-A-0012	Professional Activity		Position Advertisements			Complete	2/15/2010	2/15/2010		2/25/2010	3/7/2010							
WO-A-0013	Energy		Final Part of MEP Review of IOM 20 Bed Hospital			Complete	2/15/2010	2/17/2010	3/3/2010	3/15/2010	3/14/2010							
WO-A-0014	Professional Activity		Construction Equipment Costs			Complete	2/22/2010	2/23/2010		3/4/2010	2/25/2010							
WO-A-0015	Energy		OT Electrical			Open	3/4/2010	3/4/2010		4/30/2010								
WO-A-0016	Vertical Structures		AUAF Board of Trustees Support			Open	3/4/2010	3/6/2010		3/31/2010								
WO-LT: Long Term Work Orders⁽²⁾																		
WO-LT-0001	Vertical Structures		DC, TC, Government Building Concept Design			Open	12/14/2009	1/5/2010		3/26/2010						DG		DC removed, SOW Amendment required
WO-LT-0002	VS, E, & W/S		AUAF Concept Design			Open	12/14/2009	2/18/2010		4/4/2010						OSSD		Draft Concept Plan w/in 45 days of NTP
WO-LT-0003	Vertical Structures		Prototype Garage 100% Design			Void	12/14/2009	NA		NA	NA					NA		2/10/10 Repricing of SOW/ROM
WO-LT-0004	Water/Sanitation, Energy		MoPH Geotechnical and Test Well			Pending Approval	2/8/2010			4/15/2010								TT submitted SOW and ROM 3/3/10
WO-LT-0005	Water/Sanitation, Energy		Utility Construction Documents			Pending Approval	2/15/2010			3/31/2010								TT submitted SOW and ROM 3/3/10
WO-LT-0006	Water/Sanitation, Energy		Utility Construction Documents			Pending Approval	2/15/2010			3/31/2010								TT submitted SOW and ROM 3/3/10
WO-LT-0007	Transportation		QA Oversight SPR - Southern & Eastern Afghanistan			Pending TT Response	2/23/2010									R		Meeting with OIEE roads scheduled for 3/17/10
WO-LT-0008	Transportation		LAMPs for Maimana & Faizabad Airport			Pending TT Response	3/1/2010											Meeting with OIEE roads scheduled for 3/17/10

Notes⁽⁶⁾:

- (1) Work Orders with anticipated level of effort of 18-mandays or less
- (2) Work Orders that are planned to equal more than 18-mandays
- (3) Program Type: Professional Activity, Contracts Assistance, Energy, Transportation, Vertical Structures, Water/Sanitation or Water Resources
- (4) Status: Pending Approval, Open, or Complete
- (5) Assigned with [redacted] knowledge
- (6) Labor, expenses, OH, GA, and fee as of March 5, 2010. Does not include Power Engineering costs.

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