TERMS OF REFERENCE
REQUEST FOR QUOTATIONS

PROVISION OF AN IMMIGRATION PATROL COMMUNICATION CENTRE IN SOMALIA (DHOBLEY AND DOLLOW LAND POSTS)

1) Introduction:

Since 2007, the International Organization for Migration (IOM) has been assisting Somalia in strengthening its immigration and border management in order to promote safe migration and mitigate security threats. In partnership with Departments of Immigration in Somalia, IOM has been supporting the upgrade of infrastructure and equipment at the various ports of entry, review of immigration legislation and policy, organization capacity development, support to Inter-agency /regional cooperation and Border Management Information Systems (BMIS) through installation of Migration Information and Data Analysis Systems (MIDAS).

The MIDAS has been designed by IOM to enable States with no or inadequate data capture system to equip themselves and have the operational means to take up the challenge of enhanced migration management. The system enables to collect, process and store travellers' information, including bio-data, at entry and exit border points, for the purpose of idenfication, authentication, data collection and analysis. It contributes to better monitor border movements but also to shape reactive migration and border management policies. To date fifteen ports of entry in Somalia have the system installed with an increased need to reach more ports of entry additionally,Six mobile immigration border patrol vehicles fitted with mobile kits and VHF/HF communication systems have been deployed across the land borders in Dhobley and Dollow to ensure enhanced migration management and surveillance of Somalia borders for detection and response to any irregular or immigration crime related incidences thereby mitigating any security threats.

To achieve this IOM, wishes to engage the services of a competent company with the right technical and financial capability to install an immigration patrol control communication centres in Dhobley and Dollow land borders to ensure seamlessly communication and monitoring of mobile patrol units undertaking immigration and border surveillance in countering any immigration crimes within the territorial boundaries of Somalia.

Note:

The project duration should be 90 Working days upon contract issuance.

2) System Description:

The proposed solution includes:

- Digital HF radio communication based on codan technology equipped with GPS tracking system for use in mobile units and tracking system to be based at the command centre(s) for real time communication.
- For the short distance communication ensure the use of VHF Motorola Digital Mobile radio and network coverage complemented by solar powered repeater equipment.
- Install appropriate repeaters in location(s) (which is within the technically specified distances where applicable).
- Install the radio rooms in the location(s), of operations and also provide GPS tracking system for the mobiles in the respective location(s).
- Provide training for the support staff

3) Technical Overview – Network Architecture:

The Global Positioning System (GPS) consists of a network of satellite transmitters in orbit around the earth. Each of the satellites continuously broadcasts a reference signal. A ground-based GPS receiver can accurately determine its position on the earth if it receives a signal from these GPS satellites.

Using GPS, Codan Digital High Frequency (HF) technology provides a viable and cost-effective option for managing the effectiveness of field missions.

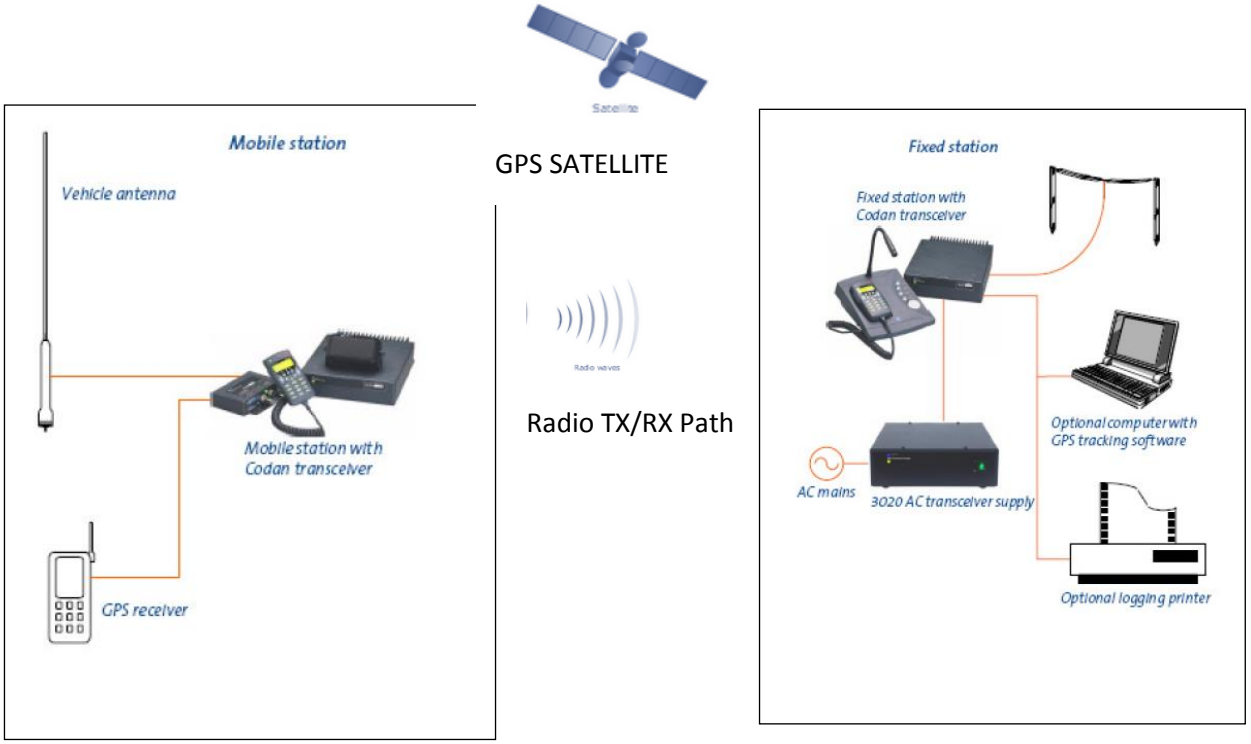
The GPS application must have the following advantages:

Features

- Location reporting and logging
- Transceivers in a HF network can use the GPS to report their current position to the base station or other transceivers.
- Occupational health and safety: Know where your people are.
- Fleet management: Track and coordinate your fleet.
- Security: Protect your valuable cargo.
- Field coordination: Maximise efficiency and effectiveness.
- Transceiver to transceiver: Each transceiver can independently report its location to another transceiver or request the positions of other transceivers. As HF transmissions are free to air, the technology offers considerable price advantages over satellite communications systems, which usually charge a time-based fee

- The command centres functions are performed via the computer control port on the transceiver allowing online real time monitoring. In the event of an emergency, an emergency call, which includes the current position, can be sent to other transceivers or tracking base stations. The GPS system is configured so that the base station keeps track of the current location of all of the transceivers in a network.

4) Network Lay-out



5) Equipment List and pricing

a) Digital HF radio and GPS:

QTY	Description	Item Cost(US$)	Total
4	Codan ENVOY-X1 Mobile Radio GPS enabled Complete with Codan 3040 Antenna Features: • A true software-defined radio (SDR) • With Ethernet and USB connectivity, • A large high-resolution colour display • multi-language user interface • Clear and dependable High Frequency (HF) digital		

	Voice communication. • IP capable • 100 Channel capacity		
2	Codan Envoy X1 Base package GPS enable Comprising: - • RF Unit, 2210 Envoy X1 • Console, 2230 • Microphone , Gooseneck Electret 2230 • Cable, Console to RF-Unit, 2230 6m • Base HF antenna • Feet, Rubber Self Adhesive 15,7mm • TCVR Getting Started Guide, Envoy • TCVR Quick Reference Card, Envoy • Cable, Coax assy (RG58 UHF) 30m • Tcvr Supply, 3020 c/w packaging • Cable, 3C Blk Mld IEC-EU 2m • Earth Braid • Cable Kit, Standby Batt • Cable, Coax assy (RG58 UHF) 6m		
2 2	Dell OptiPlex 9020 - Core i5 4570 3.2 GHz - 4 GB - 500 GB Intel Core i5 (4th Gen) 4570 / 3.2 GHz TV Display screen 32” LG Digital Smart Full HD 32 Inch LED TV (32-LF-580-V)		
6	Codan GPS Receivers		
2	10 user Internav CHF GPS tracking software (10 user license per site)		
SUB TOTAL : A (inclusive of Freights charges to Somalia)			

b) Digital VHF radios

QTY	Description	Item cost (US$)	Total
2	Motorola Digital Mobile DM4601 Radio – (base) MDM28JQN9KA2AN Frequency Range: 136-174 MHZ HP GPS & Bluetooth, and RMN5127 IMPRES Keypad Microphone TRBO		

2	Base Radio antenna - 108-174 MHz Dipole Antennas		
4	Motorola Digital Mobile DM4601 Radio – (Mobile) MDM28JQN9KA2AN Frequency Range: 136-174 MHZ HP GPS & Bluetooth and KEYPAD MIC		
SUB TOTALS B: (inclusive of Freights charges to Somalia)			

c) Digital VHF hand held radio

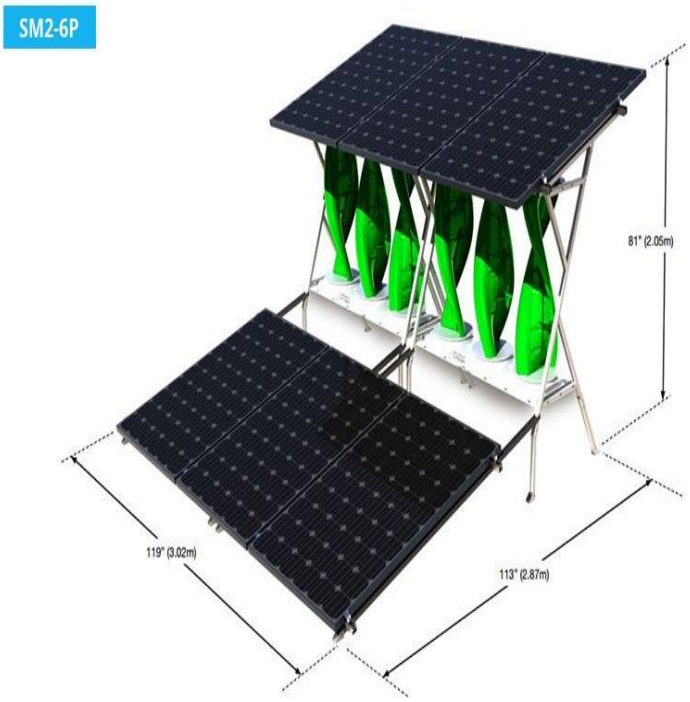
QTY	Description	Item Cost (US$)	Total
14	MDH56JDN9JA1AN DP4801 VHF Radio, Frequency: 136-174MHz, GPS & Bluetooth, 5W, Full Keypad Portable Radio and a spare battery and charger, 2.5" Belt Clip, In-box Documentation	1,250	
SUB TOTALS C: (inclusive of Freights charges to Somalia)			

d) Digital VHF Repeaters

QTY	Description	Item Cost (US$)	Total
2	SLR5500 MOTOTRBO Repeater, SLR 5500 136-174M 50W FA309B Including dB222 TX/RX repeater antenna *Features* • Operates either in analogue or digital mode • Clear LED indicators on front panel indicate operating mode • Repeater disabled • TX/RX status per slot • Rack or wall-mount • Integrated power supply • Interface for battery back-up and charge • Repeater Diagnostics and Control • Digital Conventional, IP Site Connect, Capacity Plus, Linked Capacity Plus, Connect Plus • Analog Conventional, MPT 1327 compatible • • Application developers kit (to enable 3rd parties to develop applications which interface to the repeater) *Technical Data* • VHF (136-174MHz);		

	• 64 channel capacity • 1-50 Watts power • 100% duty cycle at full power • 1U form factor		
SUB TOTAL D: (inclusive of Freights charges to Somalia)			

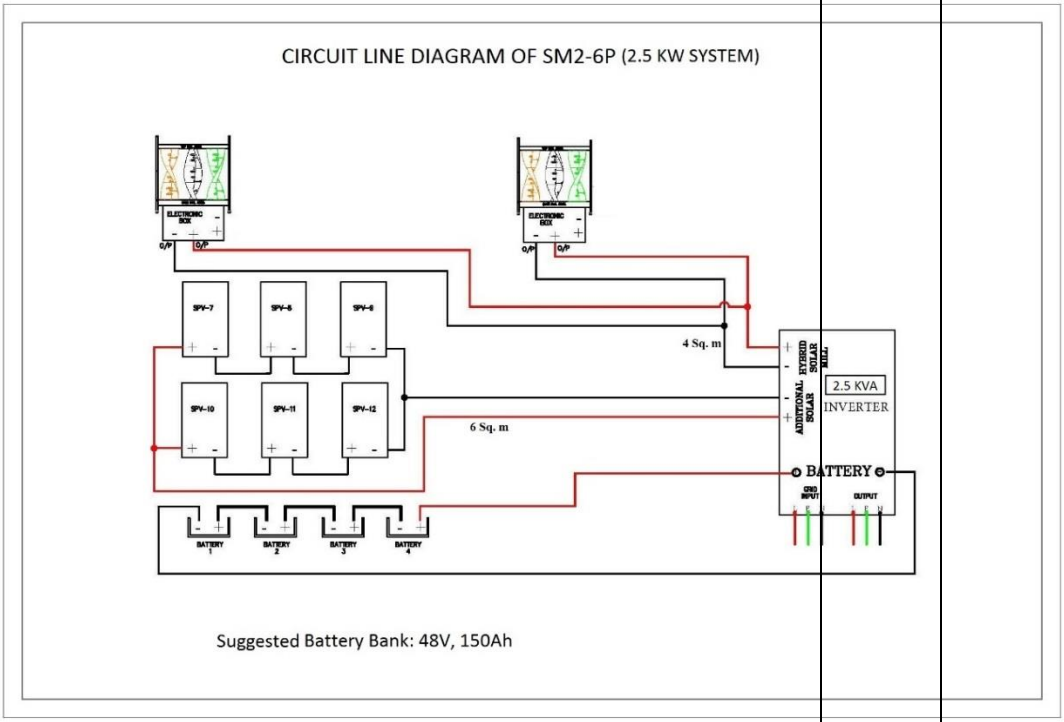
e) Solar power system backup for the control centres:

QTY	Description	Item cost (US$)	Totals
2	<u>ONE SET OF WINDMILLS SIX TURBINES AND SIX PIECES OF SOLAR PANELS (SM2-6P)</u> <u>2.5 KW WITH GRID TIE AUTO INVERTER</u>  SolarMill®: SM2-6P Performance Advantages • Roof-Top Wind & Solar Hybrid Energy System. • Stable 24-hour power production capability. • Maximizes energy density. • Scalable power generation.		

- Mechanical braking at high-speed winds beyond 18.5 m/s.
- Appropriate for on or off grid applications.
- Offsets peak energy pricing for grid-tied systems.
- Online tool for power generation monitoring.
- Power generation starting at 2 m/s wind speed.

BACK UP POWER SUPPLY

CIRCUIT LINE DIAGRAM OF SM2-6P (2.5KW HYBRID SOLAR SYSTEMS)



Features

- Low profile Vertical Axis Savonius Wind Turbines. Cut-in wind speed – 2 m/s & Cut-out wind speed – 18.5 m/s.
- Scalable to user defined KW need – interconnection cables provided.
- Integrated Maximum Power Point Tracking
- (MPPT) with “smart” bus logic control technology – 48vDC.
- Easy assembly and maintenance.

	• Minimal running maintenance required. • Custom colors available. • Temperature sensing electronics for thermal protection. • Able to withstand temperature ranges from -30°C to 50°C. **Installation Benefits** • Easy to mount on any structure. • Flexible Installation - ballasted or roof penetration. • Visually engaging design. • Environment-friendly, silent operation.		
SUB TOTALS E: (inclusive of Freights charges to Somalia)			

f) Radio room towers

QTY	Description	Item cost (US$)	Total
2	18 metres communications guyed towers and all accessories.(turn buckles, cable ties, grounding, guy ropes bolts and lightening arrestors)		
3	Polyphaser RF lightening arrestors		
2	Rolls of RG213U radio frequency cables		
2	Transportation to the site		
2	Installation and civil works		
SUB TOTALS F : (inclusive of Freights charges to Somalia)			

6) INSTALLATION AND TRAINING.

The firm will deploy a team to carry-out installation and commissioning of the equipment, provide tools for installation and software for network optimization and also fine tune the network for the best GPS connectivity and provide training, documentations, and all handovers and ensure activities of the project are completed with the specific timeline.

For the control centres, it will require the installation of communications towers for supporting the radio base antennas, design and install the tower in all two locations.

The vehicles installations and configuration will be done from each location, before deployment. The staff training will be conducted from each location depending on agreed mode of deployment.

g) Equipment installation Charges:

QTY	Details	Total Cost (US$)
2	Installation of control centres with HF /VHF radio bases, Solar power backup and staff training and GPS tracking	
4	Installation of HF & VHF radios, GPS tracking systems in vehicles units and user training.	
1	Consultant fees from start-up to end of project and hand over	
SUB TOTALS G :		

7) Service / Warranty

All the equipment should be covered by manufacturer warranty for one (1) year

8) PROJECT GRANT TOTAL:

The summary project total cost for the entire project is:

No.	**Details/descriptions**	**Total Cost (US$)**
a	Summary Total A	
b	Summary Total B	
c	Summary Total C	
d	Summary Total D	
e	Summary Total E	
f	Summary Total F	
g	Summary Total G	
SUMMARY PROJECT TOTAL H :		

9) **Data, Local Services, Personnel and Facilities to be provided by IOM**

a) IOM Somalia Nairobi Co-ordination offices will conduct a briefing to Service Provider/Consulting Firm at the beginning of the contract.

b) IOM will facilitate visas for Somalia for the Service Providers/Consulting Firms' staff assigned to the assessment upon request from the Service Providers/Consulting Firms accompanied with the scanned copies of the valid passports of the individuals concerned.

c) IOM will facilitate booking of UNHAS flights to Somalia if/when the use of commercial flights are not possible or is deemed to compromise the schedule of the assessment due to their flight availability, upon request from Service Provider/Consulting Firm. Service Providers/Consulting Firms must sign a letter of invitation by IOM, with understanding that cancellation of the travel must be notified to IOM at least 48 hours before the scheduled flight or bear the cost of no-show.

d) IOM will provide local transports necessary for assessment in Somalia.

e) IOM will arrange accommodation of the personnel of Service Providers/Consulting Firms assigned to the assessment.

f) IOM will only cover the costs of Service Providers/Consulting Firms personnel modest accommodation(bed and breakfast, Lunch and Dinner), Flights and local Transport while undertaking the assignment in Somalia .The consultant is required to share with IOM their travel plan well in advance upon signing the contract to allow for better planning.

g) Any additional expenses incurred by the consultant outside of the Modest Flight, local transport and Accommodation costs will be fully charged to the consultant. Incase IOM has shouldered such costs through facilitation then it will be deducted from the consultants professional fee