## Annexure 1: Specification for the Search and Rescue Equipment, 2016-2017

## **Important Note**

This BOQ must be filled for the quoted items. Sample with Original colour printed catalog or Brochure with technical specification should be submitted for all the quoted items.

Quotes without samples or Original company colour printed brochure will be rejected.

Quotes for Sub-Standard items will not be accepted.

all the quoted products/items should be EN or CE or NFPA certified or approved

the bidder should also clearly mention the specification in the Price schedule Supplied products will be rejected if:

- 1) item supplied are different items from the samples submitted or
- 2) items supplied have different specification then quoted item
- 3) if samples are of sub-standard quality

THE PRICE QUOTED MUST BE EXCLUSIVE OF THE SALE TAX AND CUSTOMS DUTY (approved by Ministry of Finance on Fire, Search and Rescue Equipment vide approval letter no DRC/STD(FI)4/2013/175 dated 22nd July, 2013)

Item No	Particulars	Description of Goods	Remarks	Approximate Quantity Range. (the final quantity will be determined by the purchaser based on the unit price and budget availability)
1.	Hard hat	<ul> <li>ABS injection molded shell</li> <li>Assembled without rivets or screws</li> <li>Fast and easy to disassemble for washing and cleaning</li> <li>Spider suspension framework offers exceptional comfort and ventilation</li> <li>4 burly headlamp holder clips</li> <li>Strong and durable size adjustment wheel</li> <li>4 colors and 2 sizes (54-62 cm &amp; 48 -56 CM)</li> <li>EN 12492 certified</li> </ul>	Sample should be submitted	45-55

2.	Spine Board	Ten X-ray translucent, polycarbonate speed-clip pins for variety of strapping configurations.  183 x 41 x 5 cm, rated capacity 159 kg, brightly colored. Should include ten-point, five-strap system (Velcro strap) for quickly and effectively secures patients to backboards.	Sample should be submitted	5-15
3.	Basket Stretcher	Basket stretcher for multiple rescue situations, including helicopter operations. Should be constructed of High density cross-linked polyethylene that will not splinter or crack, will not absorb blood or petroleum products and is easy to disinfect. Should have a non-absorbent orange colour, will not corrode, and is resistant to effects of chemicals and Temperature extremes. Molded-in runners and handholds. Built-in brass grommets providing four strategically positioned Lifting points to ensure a safe and effective means of raising or lowering the patient. Quick-release patient restraints hold the patient securely. Dimensions: 2.170 x 620 x 185 mm. Maximum load: 273 kg. Total weight: 11 kg.	Sample with original catalog should be submitted	1-5
4.	Lifting bridle for basket stretcher	Brightly colored, with adjustable strap and buckle, should have high KN carabineer at the end of four legs to connect with basket stretcher. Four legs should be connected with heavy duty (high KN) O-ring or Delta Quit Link. Each legs should be independently adjustable. Color coded legs for fast set up will be preferred.  Minimum breaking strength of 32 KN. It Should be compatible with Ultra-medic Basket Stretcher available with the Department of Disaster Management and Dzongkhags.	Sample should be submitted	25-30
5.	Safety belt for basket stretcher	Six-point belt for basket stretcher to quickly and safely secure patients in extreme rescue situations.  Should be compatible with Ultra medic Basket stretcher available with Department of Disaster Management and Dzongkhags	Sample should be submitted	5-10

6.	Figure of 8 (descender):	Steel made, should accommodate ropes from 8-13 mm. Minimum breaking strength of 30 kN.	Sample should be submitted	45-55
7.	Tandem Loop Prusik (in pairs)	Diameter 8mm, Shorter loop prusik should be minimum of 60 CM in circumference, Longer Loop Prusik should be minimum of 120 CM in circumference.  Both loop should have a minimum Breaking strength 25KN	Sample should be submitted	20-25
8.	Prusik Cord (100 mtrs roll )	Diameter: 8mm, 100 M roll, Minimum Breaking strength: 20KN	Sample should be submitted	2
9.	Dynamic Rope (100 m roll)	10.5 mm Diameter, with minimum breaking strength of 12 KN must have: -dynamic elongation should be over 30 percent, - minimum no of falls should be over 8	Sample should be submitted	4
10.	Tape Sling	soft and flexible, 100 meters roll with width of 16 mm and minimum breaking strength of 22 KN	Sample should be submitted	2
11.	Double Sheave Pulley	Clean design, should have two parallel pulley with movable flanges, should accommodate ropes up to 15mm. Should be made of aluminum alloy (both wheels and flanges).  Minimum Breaking Strength of 30 KN	Sample should be submitted	8
12.	Traingular Evacuation Harness	light and compact with four (4) adjustable loops with attachment point.	Sample should be submitted	4
13.	Full Body Harness	with thick and wide padding, minimum three steel/webbing loop for attachment and two rubber loops for hanging accessories, one attachment loop in the front and two at	Sample should be submitted	4

		the side of the harness, easy to wear with adjustable buckles.  Minimum breaking strength of 20 KN		
14.	Ascend, Descend , fall arrester and Belay device	Auto locking single rope descender and belay device. Should have two locking positions which should engage by under or over extension of the release handle. Should accommodate 11 mm ropes. Maximum working load of 150 Kg	Sample should be submitted	4
15.	Wet Suit	full coverage suit, Made of 3 mm nylon coated Dupont neoprene, semi flexible, strong and durable, preferably with Zippers at Wrist and Ankles.	Sample should be submitted	15-25
16.	Easy Evacuation Stretcher	fabric made, light, non-rigid, sturdy with minimum 6 handle, Minimum load capacity of 100 kg. inclusion of Accessories such emergency blankets, gloves etc will be added valued for the bid.	Sample should be submitted	18-20
17.	Resue Ascender (in Pairs)	Rescue Ascenders (Jummer) in Pairs (Left and Right), Aluminum alloy or Steel made, should accommodate ropes ranging from 8-13 mm,  Should have: -cam should have minimum 15 teeth - insulated Handle, -two action locking and closing system	Sample should be submitted	8
18.	Anchor Plate	Aluminum alloy or Steel made, with 8 anchor points.  Minimum breaking strength of 45 KN	Sample should be submitted	4

19.	Static Rope (100 roll)	11mm Diameter: black in color, -minimum breaking strength of 28 KN, -Static elongation up to 2 percent, made of outer Sheath and inner core with following percentage: -sheath not more than 40 %, - Core not less than 60 %	Sample should be submitted	4
20.	Seat Harness	with thick and wide padding, easy to wear with adjustable buckles. harness should have minimum three steel loop for attachment and two rubber loops for hanging accessories, one attachment loop in the front and two at the side of the harness. should be convertible to full body harness with attachment of chest harness.  Minimum breaking strength of 20 KN	Sample should be submitted	32
21.	Search Light	Search Light (chargeable with minimum of 12 thousand candle lights)	Sample should be submitted	8
22.	Water Rescue Throw Bags	Bright colour standard throw bag with floating lines of 9.5mm rope. Rope length should be 50 ft long.  (Rope should float and will be tested during evaluation)	Sample should be submitted	25-35
23.	Screw Carabineer for normal duty such as rock climbing and rappelling	Aluminum alloy or steel made, oval or D shaped with minimum breaking strength of 28kN, dimension 108 x 58 mm EN 362	Sample should be submitted	80-90
24.	Carabineer screw (D shaped) for heavy rigging and hauling	Steel made D shaped Screw Lock carabineer, should have minimum breaking strength of 72 kN, 100mm length with opening gate of 28 mm	Sample should be submitted	50-60
25.	Rope Gloves	Leather made, gloves should have double palm layers, elastic nylon on back for flexibility, rubber inserts in all	Sample should be	

		finger for finger protection, cuff with Velcro closure. EN 388	submitted	45-55
26.	Life Vest	Light and bright color high flotation jacket with a universal fit that wraps easily around anyone's torso while offering excellent mobility during a water rescue, should have four front buckles to make entry, exit, and adjustment simple and quick. Six side and two shoulder adjustments to hold it securely in place. Should have flotation collar to protects head.  (will be tested for quality and buoyancy)	Sample should be submitted	35-45
27.	Adjustable extrication neck collar	Extrication collars to be used in conjunction. Should be adjustable allowing one collar to fit a wide range of patient sizes from No-neck to tall.	Sample should be submitted	55-60
28.	Ambu Bag- Manual Resuscitator	Clear and Transparent should have one way vlave (air flows only in one direction) soft air cushion for leak-free performance	Sample should be submitted	50-60
29.	Tripod Rescue System	Tripod system with telescoping legs, should have minimum four connection points. With working load capacity of 500 kg. Breaking strength: 22 kN. Height should be adjustable from 147 to 229 cm.  Should include: Rescue lifting Device 25M Steel cable rescue system to use with the Tripod system Automatic blocking brake and winch with sturdy steel handle.  Should come with a pulley for the tripod and a shock absorber. Maximum working load: 140 kg. and galvanized steel cable: 6.3 mm diameter.	Sample should be submitted	1-3
30.	USAR Knee Pads ( Pairs)	Lightweight with a full half inch of foam padding knee pads for heavy rescue operation. Should have rubber caps grip to prevent sliding, with easy-to-use buckle fastening system.	Sample should be submitted	30-35
31.	USAR elbow pads (Pairs)	Elbow pads having non-slip, rubber caps that grip the surface allowing faster movement when crawling for rescue operations.  Should have elastic straps fastening system.	Sample should be submitted	30-35

32.	Easy Anchor Webbing:	Polyester made high strength. 160 CM x 44 mm. should have two steel rings at the two ends of the webbing, Breaking load: 35kN, EN 795/B certified. Lanyard certified should be EN 354.	Sample should be submitted	15-20
33.	Easy Anchor Cable:	200 cm x 7 mm Zinc- plated steel made cables with eyelets at the ends and covered with a 15 mm plastic protection tube. 32 kN. EN 795/B- EN 354	Sample should be submitted	25-30
34.	Tandem Double Sheave Pulley for Travers line/ Zip line on Rope	Should have steel pulley wheels and steel or Aluminum sheaves mounted on self-lubricating bushings. It should accept minimum of three carabineers to facilitate maneuvers.  Should Accommodate ropes from 9-13 mm.  Minimum Breaking strength of 20 KN and Minimum working load of 10 KN	Sample with original catalog should be submitted	25-35
35.	Rescue Circular Saw	Should cut concrete, cast iron, stone etc.	Sample with original catalog should be submitted	
		should be powered by fuel operated air cooled engine of 5 HP and 3.7 kW power  Displacement: 4.5 cu in (74cc) Maximum Blade Speed (No Load): 5400 RPM  Power: 5 hp (3.7 kW)  Fuel Level indicator (shows fuel level at a glance: Standard Air filtration system: should have active air filtration for delivery of cleanest air possible to the carburetor in all cutting conditions with filter wraped around filter to protect it in wet cutting operation, Water kit: Dust handling system-standard  Should operate with cutting blade of 300- 350 mm	if the quoted item is selected the bidder will be asked to demonstrate the functionality of the product quoted during delivery	2 to 5
		diameter and 12-14 inches thickness  Cutting depth of minimum: 125  Cutting blade: Cutters Edge Black diamond blade is		

36.	Cutting blades for	standard Should have standard Reflective labels Should Weight: 9 to 12 kg  Should be compatible with quoted Rescue circular saw (		3 to 5
30.	Rescue Circular Saw	item No. 18)	Sample should be submitted	
37.	Hydraulic Rescue Combi Cutter and Spreader tool	Rescue Combi tool Spreader/Cutter (Low pressure) with detachable jaws and Connex flat face connector.  Should cut and create space  maximum cutting opening 257 mm  Maximum cutting force range of 488 kN/49.7 ton / 54.8 US tons  Maximum spreading opening 320 mm  Maximum spreading force 76.5kN/6.5 ton / 7.2 US tons  The average power to weight ratio for both spreading and cutting must be more than 1.9 ton per kg. The spreading capacity must not be less than 62.3 kN on the jaw.  - The combi-tool must be manufactured compliant to the NFPA 1936 and EN 13204 standards.  - The combi-tool must have a quick detachable jaw.  - Combi-tool must be able to operate with various pressures 350-630-720 bar without loosing power.  - Working pressure must not exceed 350 bar. At the highest working pressure the fluid should not be compressed more than 2% for impact free cutting.	Sample with original catalog should be submitted if the quoted item is selected the bidder will be asked to demonstrate the functionality of the product quoted during delivery	1 to 2

		<ul> <li>- Wrap around carrying handle must be fitted for ease of use in any position according to health and safety regulations. For minimal stress in the hand, the carrying handle must have a diameter bigger than 30 mm and less than 40 mm.</li> <li>- Insertion height of the central bolt must not exceed 110 mm.</li> <li>- The dead-man handle must have the possibility to allow either thumb or twist control with not more than 4 positions for the thumb and must be able to control proportionally.</li> <li>- The connector must be a flat face style in order to prevent dirt going into the system. In order to clean easily and therefore prevent dirt.</li> <li>- The connector must have a dual acting locking mechanism by push and pull, to prevent accidental release.</li> <li>- The connector assembly must be compact and not be fitted through the handle as this will enlarge the length of the tool.</li> <li>Safety factor should be at least 8:1. The female connector must have a protection rubber sleeve.</li> <li>Should come with hose of 10 Meter</li> </ul>		
38.	Power Unit for hydraulic rescue equipment	Power unit with 3 stage.  Nominal pressure: <u>Ultimate pressure TM 350 Bar.</u> Dimensions⊗ 440-445)x(30-35)x(510-515). Operational weight: 25-30 Kg.  Should be powered by 2.1kW (2.8 HP) 4- Stroke petrol engine  Minimum Total hydraulic fluid capacity should be 3.5  Should come with 10 Meter hose  Power unit should be compatible with the Hydraulic Rescue combi cutter and spreader tools (item No. 20) and Hydraulic Ram (item no 22)	Sample with original catalog should be submitted if the quoted item is selected the bidder will be asked to demonstrate the functionality of the product quoted during delivery	1
39.	Hydraulic RAM	- The ram must be manufactured compliant to the NFPA	Sample with	

		Working pressure of 350 bar.  - Maximum opening must be at least 1250 mm  The ram must have a capacity of at least 110 kN and weight 10-15 kg.  Safety factor should be at least 8:1  - A carrying handle must be fitted for ease of use in any position according to health and safety regulations. For minimal stress in the hand, the carrying handle must have a diameter bigger than 30 mm and less than 40 mm.  - The dead-man handle must have the possibility to allow thumb control with not more than 4 positions for the thumb and must be able to control proportionally.  - The connector must be a flat face style in order to prevent dirt going into the system. In order to clean easily and therefore prevent dirt.  - The connector must have a dual acting locking mechanism by push and pull, to prevent accidental release.  - The hose must be flexible (small radius) and best not fitted to control handle The female connector must have a protection rubber sleeve.  Should come with hose 10 Meter	original catalog should be submitted if the quoted item is selected the bidder will be asked to demonstrate the functionality of the product quoted during delivery	1 to 2
40.	Search Camera for collapsed Structure search and rescue	device should come in 1 transport case:  Should be powered by inbuilt rechargeable Battery Minimum Camera length should be 3 feet Should have additional extension cable of 3 Feet Should minimum 2.5" LCD Screen Camera head should have adjustable LED lights for dark space operation camera should take both picture and video Camera should have good resolution and minimum 3X zoom Should support SD card for storage of picture and video should include carry case	Sample with original catalog should be submitted if the quoted item is selected the bidder will be asked to demonstrate the functionality of the product quoted during delivery	1 to 2

41.	Petrol Driven Jack Hammer	The multi-purpose Petrol Driven Jackhammer for Breaking concrete and Cutting asphalt  Should Weight between 18-25 Kg Length: 70-75 cm  full speed: 2700 bpm minimum Penetration rate of 20 – 30 cm/min Maximum drilling depth: 190-200 cm Drill rotation speed: 250 rpm Should be powered b 1 cylinder, two-stroke 2kW engine Cooling System of the engine should be Fan cooled Starter System: standard recoil pull Fuel Type: Petrol, 90-100 octane unleaded Oil type: two-stroke oil or similar  Lifting bags should be oval in shape	Sample with original catalog should be submitted if the quoted item is selected the bidder will be asked to demonstrate the functionality of the product quoted during delivery	1 to 3
42.	accessories set:	Should include 2 Nos. of oval shaped lifting bags (Bag 1 and 2) with max lifting capacity of 20-25 Ton and 55-58 Ton respectively  Both big should have Operating pressure should be 10 bar  Both airbags Should be Puncture resistant and have Safety factor: 4:1  Specification of lifting bag 1  Airbag 1's Minimum lifting height when fully inflated should be minimum of 275 mm and Maximum lifting capacity of 20-25 ton and minimum lifting capacity (when fully inflated) should be 4-5 ton  Thickness of airbag should be 30-35 mm  Space/ height for airbag Insertion should be 10-35 mm  Weight (kg): 4-7 kg  Power to weight ratio: 4.0	Sample with Original company printed catalog should be submitted.  if the quoted item is selected the bidder will be asked to demonstrate the functionality of the product quoted during delivery	1

Max. lifting height (cm): 270-275 mm **Specification of lifting bag 2** Airbag 2's Minimum lifting height when fully inflated should be minimum of 440-445 mm and Maximum lifting capacity of 55-60 ton and minimum lifting capacity (when fully inflated) should be 6 ton Thickness (mm): 45-50 mm Space/ height for airbag Insertion should be 10-50 mm Weight of air back 2 (kg): 15-17 kg Power to weight ratio: 4.5 Max. lifting height (cm): 440 - 450 mm Should include following accessories: 6 liter 300 bar air cylinder 6 Air pressure regulator and connector Handheld controller Plate Plug Minimum 12 bar Delivery rubber hoss of minimum 8 meters length Shut off Hose 12 bar Delivery rubber hoss of minimum 8 meters length two air bag quick connector Connector key point load plate (if applicable to brand quoted) Point load plate plug (if Point load plate is available) 2 Airbag storage cases Accessories storage case Any other accessories depending on the brand quoted.

43.	Crib Block set to use with Rescue lifting bags	Made of Durable plastic material.	Sample with Original company printed catalog should be submitted.	Will depend on budget availability
44.	Confine Space Rescue Stretcher	Made from a heavy sheet of special plastic, should have handles and straps to allow the stretcher to be transported by carrying, lifting (vertically or horizontally) by rope systems or helicopter, or towed with the stretcher sliding on the smooth bottom surface.  Stretcher should come complete with the stretcher, Cordura® nylon backpack/towing harness, two straps, horizontal lift slings, vertical lift sling, one large steel carabiner, and four removable web handles. Storage bag. Should come with lightweight aluminum side-release buckles to meet the needs of securing a patient into a stretcher without the danger of breakage.	Sample with Original company printed catalog should be submitted.	2 to 4
45.	Self Contained Breathing Apparatus (SCBA) Set	SCBA set should have:  1) 1 lightweight 6.8 liter carbon composite fiber cylinder of 300 bar pressure and minimum nominal duration of 45 minutes.  2) Carrying system: back plate should have antistatic and corrosion resistant metal components and harness should have fire retardant materials.  3) Full face mask made of neoprene and equipped with impact and scratch resistant polycarbonate full view visor. The facemask/facepiece should have speech diaphragm for superior speech reproduction and only two opening, lens and front port connector to minimize leakages. pressure reducer with integrated pressure relief valve consisting of balanced piston assembly. Lung Demand valve of balance type and	Sample with Original company printed catalog should be submitted.	5 to 8

46.	Spare 300 Bar cylinder for SCBA	a button. 4) Pneumatic pressure gauge with luminous dial calibrated in Bars and low pressure whistle warning unit should be present which should sound alarm when air pressure goes below 40-50 Bars  It should be 6.8 liters and 300 bars cylinder made of composite fiber with minimum of 45 minutes nominal	Sample should be submitted	5 to 8
47.	Emergency Lighting Tower	Inflatable emergency lighting tower system Tower height and weight: 4- 5 meters / Weight: 40- 45 kg Engine: Petrol 1.2 KVA rated, 4 stroke Tank capacity: 8 ltrs Lighting source: 400- 500 Watt metal halide which should illuminates and area of around 10,000 sq ft Brightness: 40000- 45000 lumen	Sample with Original company printed catalog should be submitted.  if the quoted item is selected the bidder will be asked to demonstrate the functionality of the product quoted during delivery	1 to 2
48.	VHF Handset	VHF 136 to 174 MHz and UHF of 400-470 MHz analogue Handset with minimum 16 Channels  Should have the following features:  • Analog Voice Communications  • Dual Capacity Direct Mode • Digital Mobile Radio (DMR) Standards Compliant  • Narrow banding Compliant • IP54 Rated High Capacity Li-ion (1700- 2500 mAH) Battery with minimum 10 hours of life  Receiver / Transmitter Channel spacing: 12.5 kHz / 20 kHz / 25 kHz2 Operating Temperature1: -30°C / +60°C Dust and Water Intrusion: IEC60529 - IP54 Should include battery, charger, adapter, belt clip,	Sample with Original company printed catalog should be submitted.  The BICMA approval certificate should be submitted mentioning the brand and model of the quoted communication	Depends on the budget availability with the Department and Dzongkhags

		antenna and user manual VHF 136 to 174 MHz and UHF of 400-470 MHz analogue Handset with minimum 16 Channels	equipment	
49.	VHF Mobile Radios for Vehicle	VHF 136 to 175 MHz Mobile Radio with minimum 160 CH Should have the features of:  • Analogue / Digital Voice Communications Dual Capacity Direct Mode  • Voice Announcement  • Digital Mobile Radio (DMR) Standards Compliant • IP54 Rated Receiver / Transmitter Channel spacing 12.5 kHz / 25 kHz Operating Temperature1: -30°C / +60°C Dust and Water Intrusion: IP54, MIL-STD* Should include vehicle mountable 3 dbi gain magnetic antenna	Sample should be submitted along with original catalog or brochure  The BICMA approval certificate should be submitted mentioning the brand and model of the quoted communication equipment	10 to 15
50.	VHF Base Station	Should have the features of: Features • Analogue / Digital • Voice Communications • Canned Text Message • Dual Capacity Direct Mode • Transmit Interrupt (decode only) • Digital Mobile Radio (DMR) Standards Compliant • IP54 Rated Receiver / Transmitter Channel spacing 12.5 kHz / 25 kHz Operating Temperature1: -30°C / +60°C Dust and Water Intrusion: IP54, MIL-STD* Should include 6 dBi gain omni direction fiber glass antenna, Power Supply Unit, lighting arrestor, 30 meter coaxial cable, 2 Nos RF connectors	Sample should be submitted along with original catalog or brochure  The BICMA approval certificate should be submitted mentioning the brand and model of the quoted communication equipment	5-15
51.	Sledge Hammer	Should come with handle, weight 3.5 kg 500 mm long	Sample should be	

			submitted	10
52.	Digging Shovel	Forged steel blade, round point with turned step. Should come with handle. Weight 2.4 kg	Sample should be submitted	10
53.	Jacket	Reflective jacket with water proof>5000mm breathability>5000g/m 24h windproof provides breathable comfort and durably waterproof protection with detachable inner laying/feather good quality	Sample should be submitted the selected firm should print Dept.of Disaster Mangt Logo on the jacket, Logo will be available from DDM Office	30-50
54	Tent	Four-Person Center-and-Side Pole pitched-roof tent easily sleeps four across, with full stand-up vertical space. With exterior rip-stop nylon fly sheets for 100% water-proofing. An easily removable rain fly makes this a four-season tent on any continent.	Sample should be submitted	5-6`
55	Work Boot (Water Proof)	Material (inner): Urethane back cloth, Urethane lining cloth, Foot Width: 2E & 3E (Size 2E & 3E are wide), Material (Sole): Synthetic rubber, Material (Skin): rubber, Color: Black	Sample should be submitted	30-50
56	Digital Camera	Minimum 10 megapixel high sensitivity CCD Sensor 5X Optical zoom Minimum 2.8 inch LCD Screen Manual Exposure Control should have HD quality video recording should have Optical image stabilizer	Sample should be submitted	5
57	LED Screen	55 inches colour LED TV Screen should have USB and HDMI Port should support HD quality picture	Sample should be submitted	5
58	HDMI cable	10 meters in length	Sample should be submitted	5

59	Plain paper telefax and Copier	should support plain paper should photocopy Auto receive incoming fax should provide delivery report	Sample should be submitted	5
60	Head phone with Speaker	head phone with speaker	Sample should be submitted	15