


### ANNEX B - Technical Specification Form

No	Equipment	Required Technical specifications	Reference Pictures	Offered Technical specifications	Supplier to indentify detail of Products (Country of Origin, Brand, Model, etc)
1	Boat	<ul style="list-style-type: none"> <li>• Around 6 feet x 20 feet x 2 feet,</li> <li>• Body made of aluminium</li> <li>• Flat workspace in the boat's bottom (e.g. for ease of storing equipment) and with roof.</li> <li>• Must be able to operate in water as shallow as 0.7m</li> <li>• Must have mounting point for outboard motor</li> <li>• Sides of the boat have to be strong enough to mount a crane and winch capable of lifting 60 kg</li> <li>• Warranty: 1 year from hand over</li> <li>• Installation: No</li> <li>• Training: No</li> <li>• Deliver to: 1 to Lao PDR (see delivery address details below)</li> </ul>			
2	Boat engine	<ul style="list-style-type: none"> <li>• 80 or 85 HP</li> <li>• Minimum fuel capacity 80 litres</li> <li>• Warranty: 1 year from hand over</li> <li>• Installation: No</li> <li>• Training: No</li> <li>• Deliver to: 1 to Lao PDR (see delivery address details below)</li> </ul>			


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3	Handheld GPS unit	<ul style="list-style-type: none"> <li>• Hand held GPS.</li> <li>• Waterproof.</li> <li>• Touchscreen</li> <li>• 2 AA batteries.</li> <li>• Screen ~160 x 240 pixels Resolution.</li> <li>• Memory: Internal (at least 4 GB).</li> <li>• Interface: high-speed USB and/or NMEA 0183 compatible.</li> <li>• Waypoints/favorites/locations: at least 2000.</li> <li>• Routes: at least xs200.</li> <li>• Track log: ~10,000 points, 200 saved tracks.</li> <li>• Languages: Thai/ English.</li> <li>• Accessories: USB cable</li> <li>• Includes map of Lao downloaded onto device</li> <li>• Warranty: Minimum one year from hand over</li> <li>• Installation: not needed</li> <li>• Training: not necessary</li> <li>• Deliver to: 2 to Lao PDR (see delivery address details below)</li> </ul>			
4	Horizontal Van Dorn Bottle	<ul style="list-style-type: none"> <li>• Horizontal Van Dorn Bottles:</li> <li>• Designed for trace metal sampling.</li> <li>• May be used for organic sampling to concentrations of mg/L.</li> <li>• Include bottle, carried case, messenger (45-B10)&amp;100 ft. Lie(62-C15).</li> <li>• 5 litre capacity and a minimum of a 30 metre line.</li> <li>• Warranty: Yes – at least one year from hand over</li> <li>• Installation: No – this is a mobile piece of equipment</li> <li>• Training: No</li> <li>• Deliver to: 1 to Lao PDR</li> </ul>			

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5	Logging WQ meter	<ul style="list-style-type: none"> <li>• Manual Water Quality Logger</li> <li>• Capable of recording a set of measurements every 5 minutes for 24 hours, with:</li> <li>• Probes for Dissolved Oxygen, pH, Turbidity, temperature (0°-50°), conductivity and ORP (oxidation reduction potential)</li> <li>• Each probe with 10m cables.</li> <li>• Warranty: Yes – at least one year from hand over</li> <li>• Installation: No</li> <li>• Training: Yes</li> <li>• Deliver to: 1 to Lao PDR (see delivery address details below)</li> </ul>			
6	Portable field radiometer	<ul style="list-style-type: none"> <li>• Portable field radiometer:</li> <li>• With submersible spherical sensor for measuring photosynthetically active radiation (PAR)</li> <li>• With 20m cable.</li> <li>• Warranty: Yes – at least one year from hand over</li> <li>• Installation: No</li> <li>• Training: Yes</li> <li>• Deliver to: 1 to Lao PDR (see delivery address details below)</li> </ul>			
7	Field fluorimeter	<ul style="list-style-type: none"> <li>• Field fluorimeter with probe and 20m cable</li> <li>• Capable of measuring total chlorophyll a and distinguishing "class" level contributions in algae from at least: (i) chlorophyta, (ii) cyanobacteria, (iii) diatoms and (iv) cryptophyta (all in vivo).</li> <li>• Must have a simple calibration process</li> <li>• Should have high sensitivity</li> <li>• Must provide training and 2 years after sales service</li> </ul>			

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8	Narrow ban spectrophotometer	<ul style="list-style-type: none"> <li>• Laboratory spectrophotometer</li> <li>• With narrow band (pass) width (0.5 to 20 nm)</li> <li>• Capable of reading absorbance at 750, 665, 664, 647 and 630 nm.</li> <li>• For measuring chlorophyll</li> <li>• Warranty: Yes – at least one year from hand over</li> <li>• Installation: No</li> <li>• Training: Yes – probably about 1 day on the equipment</li> <li>• Deliver to: 1 to Lao PDR</li> </ul>			
9	Camera and tripod	<ul style="list-style-type: none"> <li>• Waterproof</li> <li>• GPS</li> <li>• Preferably at least 12 mega pixels</li> <li>• Fits tripod with minimum 1.2metre height</li> <li>• Accessories: USB cable, manual, tripod (that can extend to at least 1.2metres height)</li> <li>• Warranty: Minimum one year from hand over</li> <li>• Installation: not needed</li> <li>• Training: not necessary</li> <li>• Deliver to: 2 to Lao PDR 1 to Cambodia (see delivery address details below)</li> </ul>			
10	ADCP unit	<ul style="list-style-type: none"> <li>• 9 (transducers) - Dual 4-beam 3.0 MHz/1.0 MHz</li> <li>• Echosounder</li> <li>• Depth range: at least 60metres</li> <li>• Bottom tracking: Yes</li> <li>• Software should be able to collect a loop test and post process the run to establish bed load movement</li> <li>• Ideally ICEM would like to preview software</li> <li>• Warranty: Minimum one year from hand over</li> <li>• Installation: not needed</li> <li>• Training: No but may require refresher on software and specific instrument details from supplier</li> <li>• Deliver to: 1 to Lao PDR 1 to Thailand (see delivery address details below)</li> </ul>			

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11	USGS D-96 Sediment Sampler	<ul style="list-style-type: none"> <li>• Depth-integrated collapsible-bag suspended-sediment/water-quality sampler capable of collecting a 3-liter sample</li> <li>• Warranty: Minimum one year from hand over</li> <li>• Installation: not needed</li> <li>• Training: No</li> <li>• Deliver to: 1 to Lao PDR 1 to Thailand (see delivery address details below)</li> </ul>			
12	Automatic Winch	<ul style="list-style-type: none"> <li>• Consists of three parts (a crane, sounding reel and variable speed drive).</li> <li>• To be mounted on a 20' x 6' boat</li> <li>• Must be capable of raising and lowering at least 60kg at a rate of 1m/s off the edge of a boat.</li> <li>• Warranty: Yes – at least one year from hand over</li> <li>• Installation: No – this will be mounted on a boat</li> <li>• Training: No</li> <li>• Deliver to: 1 to Lao PDR 1 to Thailand (see delivery address details below)</li> </ul>			
13	Bed grab sampler	<ul style="list-style-type: none"> <li>• Can be deployed in 30 metres of water that is flowing at 2 or more metres/second.</li> <li>• Warranty: Yes – at least one year from hand over</li> <li>• Installation: No</li> <li>• Training: No</li> <li>• Deliver to: 1 to Lao PDR (see delivery address details below)</li> </ul>			

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14	2030 mechanical flow meter	<ul style="list-style-type: none"> <li>• Can measure flow rates of 0.1 – 7 metres per second</li> <li>• Is suitable for attaching to bongo and conical nets</li> <li>• Warranty: Yes – at least one year from hand over</li> <li>• Installation: No</li> <li>• Training: No</li> <li>• Deliver to: 5 to Lao PDR 1 to Cambodia (see delivery address details below)</li> </ul>			
15	Microscope	<ul style="list-style-type: none"> <li>• Fish larvae microscope with light source</li> <li>• Large objective lenses to maximise light intake</li> <li>• Stereozoom microscope with zoom 0.7 - 7x</li> <li>• Camera port</li> <li>• Connectable to computer</li> <li>• Warranty: Yes – at least one year from hand over</li> <li>• Installation: No</li> <li>• Training: No</li> <li>• Deliver to: 1 to Lao PDR 1 to Cambodia (see delivery address details below)</li> </ul>			
16	Bongo nets	<ul style="list-style-type: none"> <li>• mouth opening 100cm diameter</li> <li>• net length 5 metres</li> <li>• mesh size 1mm</li> <li>• shape of the net is cylindrical, however the end of the net should be tied to a collecting bottle, and this makes it a conical shape when in use</li> <li>• Warranty: Yes – at least one year from hand over</li> <li>• Installation: No</li> <li>• Training: No</li> <li>• Deliver to: 5 to Lao PDR 1 to Cambodia (see delivery address details below)</li> </ul>			

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17	Fish larvae sampling nets for impoundments	<ul style="list-style-type: none"> <li>• mouth opening 60cm diameter</li> <li>• net length 1.8 metres</li> <li>• mesh size 1mm (for 120cm length at net opening end) and 330microns (60cm length at cod end)</li> <li>• shape of the net is conical.</li> <li>• there should be two nets mounted side by side (see image to right)</li> </ul> <ul style="list-style-type: none"> <li>• Warranty: Yes – at least one year from hand over</li> <li>• Installation: No</li> <li>• Training: No</li> <li>• Deliver to: 5 to Lao PDR 1 to Cambodia (see delivery address details below)</li> </ul>			

#### Address for delivery in each country

<b>Lao PDR:</b>	MRC-GIZ Cooperation Programme Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH GIZ Office Vientiane Watanak Nyai Road, House #247/ unit 19, Thaphalanxay Village, Sisattanak District P.O. Box 9233 Vientiane Capital Lao PDR
<b>Cambodia:</b>	MRC-GIZ Cooperation Programme Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH GIZ Office Phnom Penh # 17, Street 306 Boeung Keng Kang 1 P.O. Box 81 Phnom Penh Cambodia
<b>Thailand:</b>	C/- Mrs.Chanthana Lakawattana 398/4 Chai khong Road, Chiang Khan Sub district, Chiang Khan District, Loei 42110 Tel: +66847292388

Date

Sign and stamp by supplier