



Request for Prequalification (RFPQ): Supply of Liquid Oxygen (LOX) Equipment for Zambia

Reference	RFPQ/CHAIZM/LOX/001
Posting Date	December 08
Queries Deadline	December 12
Closing date	December 23

The Clinton Health Access Initiative (CHAI), with funding from FHI 360 under a United States Government (USG)-supported program, is working with the Government of Zambia to strengthen the national medical oxygen ecosystem. As part of broader market-shaping efforts, CHAI is supporting the establishment of a sustainable, high-capacity liquid oxygen (LOX) distribution hub to expand access to reliable, affordable oxygen for health facilities across the country.

The establishment of this hub requires procurement of high-quality cryogenic equipment—including bulk LOX storage tanks, road tankers, semi-trailers, prime movers, and associated oxygen transfer and safety systems—that meet international standards for cryogenic performance, transportation, and occupational safety. The successful implementation of this model is expected to improve national LOX availability, reduce dependence on fragmented supply channels, enable regional distribution **efficiency**, and contribute to long-term health system resilience.

Given the specialized nature of cryogenic equipment and the complexity of the required technical standards (including ADR, EN13530, and SANS 1518 compliance), CHAI is initiating a prequalification stage as the first step of a two-stage procurement process. The purpose of this prequalification is to assess the eligibility, manufacturing capability, safety standards compliance, financial stability, and relevant experience of firms before inviting them to submit full commercial and technical proposals.

- This approach strengthens transparency and reduces procurement risks by ensuring that only technically capable and compliant suppliers advance to the final bidding stage.
- Prequalification also improves efficiency for both CHAI and suppliers by limiting the submission of full proposals to a shortlist of qualified vendors, thereby enabling deeper technical verification, more focused evaluation, and higher-quality bidding.
- Most importantly, prequalification supports market-shaping objectives by identifying firms with the capacity to contribute to a competitive, reliable, and sustainable LOX supply and distribution system in Zambia.

Through this prequalification Request for Proposals (RFP-PQ), CHAI invites qualified firms to submit documentation demonstrating their capacity to meet the technical, operational, and compliance requirements outlined herein. Firms shortlisted through this process will be invited to participate in a restricted, final procurement stage where full proposals will be evaluated for consideration and eventual contract award.

Purpose of the RFPQ

The purpose of this RFPQ is to:

- Identify and shortlist qualified firms with proven capability in manufacturing, supplying, and delivering cryogenic LOX equipment.
- Confirm compliance with international standards (ADR, EN 13530-2, SANS 1518, ISO certifications).
- Assess organizational capacity, experience, and financial stability.
- Establish a credible list of suppliers eligible for the final restricted tender.

Please Note: This RFPQ will not directly result in a contract award. Only prequalified suppliers will be invited to participate in the next stage.

Scope of Prequalification

This RFPQ covers prequalification for the supply of the following items:

1. Cryogenic LOX Isotainers
2. LOX Road Tankers (27 t)
3. Semi-Trailer Chassis
4. Prime Movers Vehicle (400-450 HP)
5. Cryogenic Liquid Transfer Pumps
6. Auxiliary infrastructure and safety equipment

Suppliers may apply for one, several, or all categories.

Mandatory Eligibility Requirements

Firms must provide the following to be considered:

1. Certificate of incorporation or business registration
2. Manufacturer authorization letter, if not Original Equipment Manufacturers (OEM)
3. Evidence of ability to supply required equipment
4. Demonstrated experience supplying cryogenic equipment (minimum three similar contracts)
5. Compliance certifications:
 - ADR compliance
 - EN 13530-2
 - SANS 1518
 - ISO 9001 or equivalent
6. Financial statements for the past two years (2022-2023 & 2023-2024)
7. Proof of after-sales service capability
8. Signed Conflict of Interest and Anti-Fraud declaration

Failure to meet any of these mandatory requirements will result in automatic disqualification.

Submission Requirements

Interested Manufacturers must submit their RFP (electronically) to the email ID Zambia-tenders@clintonhealthaccess.org quoting RFP/CHAIZM/LOX/002 in the subject line not later than **December 23, 2025 at 11:59pm CAT**.

Technical Prequalification Submission (Mandatory)

- Company profile
- Technical team profile and resumes
- List of relevant past projects
- Copies of standards compliance certificates
- Detailed description of manufacturing and supply capacity

- Delivery lead times
- Authorizations, partnerships, or OEM agreements
- Health, safety, and quality management procedures
- Customer references and contact information

Administrative Documents

- Certificate of incorporation / registration
- Tax clearance certificate
- Financial statements (last two years)
- Signed Conflict of Interest and Anti-Fraud declaration

Submission Format

Submissions must be:

- In PDF format
- Not exceeding 25MB total
- Submitted via email with subject: “RFPQ - LOX Equipment - [Supplier Name]”
- Submissions received after the deadline will not be considered.

Clarifications and Questions

All questions must be submitted by email to:

- **Zambia-tenders@clintonhealthaccess.org**
Subject line: “RFPQ - LOX Equipment - Query”
- Deadline for questions: **December 12, 2025**
- Responses will be shared with all interested bidders.

Conditions of Prequalification

- CHAI reserves the right to reject any or all submissions.
- CHAI is not obligated to invite all applicants to the next stage.
- Submission does not guarantee prequalification.
- CHAI reserves the right to verify any information provided.
- CHAI may cancel the RFPQ at any time without liability.

Next Steps After Prequalification

The shortlisted firms will be invited to a Restricted Request for Proposals (RFP), which will include:

- Full technical specifications
- Detailed evaluation criteria
- Commercial proposal requirements
- Delivery schedules
- Contracting terms

CHAI code of conduct for suppliers

The CHAI code of conduct for suppliers is a minimum set of requirements that suppliers must meet to qualify to do business with CHAI and remain in good standing with the organization. Please read the document via this link: [Supplier Code of Conduct](#) and apply for this solicitation only if your organization can comply with these requirements.

Annex 1 - Specification of Equipment
1. Cryogenic Liquid Oxygen ISO Container

Item	Specifications	QTY	Unit Rate \$	Total \$
1	<p>Gross capacity:</p> <ul style="list-style-type: none"> • 20-24.5 m³ (~22-28 tonnes) • Total length <14.5 m • Width <2600 mm <p>Construction code:</p> <ul style="list-style-type: none"> • EN13530-2 (Annex C) • ADR 2023 compliant • South African AIA Declaration of Conformity • ADR load-case FEA report required for South African PREng approval <p>Notified body:</p> <ul style="list-style-type: none"> • Reputable international body (e.g., LRQA) <p>Design pressure:</p> <ul style="list-style-type: none"> • Minimum working pressure: 17 bar • MAWP: 20-22 barg • Suitable for pressure decanting <p>Design temperatures:</p> <ul style="list-style-type: none"> • Max design temperature: +40°C • Min design temperature: -196°C (cryogenic service) <p>Service fluid:</p> <ul style="list-style-type: none"> • Liquid oxygen (1.14 kg/L), oxygen-cleaned <p>Inner vessel material:</p> <ul style="list-style-type: none"> • Austenitic stainless steel 1.4301 (X5CrNi18-10) <p>Outer vessel material:</p> <ul style="list-style-type: none"> • X5CrNi18-10 / SA240 304 <p>Insulation:</p> <ul style="list-style-type: none"> • Multilayer insulation under high vacuum • Hot vacuum better than 5 Pa • DV-6R vacuum probe with isolation valve <p>Boil-off rate (NER):</p> <ul style="list-style-type: none"> • <0.25% per 24 hrs <p>Fittings, circuit & process equipment:</p> <ul style="list-style-type: none"> • Cryogenic pump with oxygen safety and cavitation protection (350 L/min at 15 bar) • Herose valves or equivalent • PBU sized for pump withdrawal rate • Wika level gauge • 2½" pneumatically actuated liquid shut-off gate valve on suction, interlocked with cabinet door • 4× PSVs and diverter with venting chimney • Optional Flowcom flowmeter <p>Safety:</p> <ul style="list-style-type: none"> • Trycock at 95% level • PSV redundancy • Bursting disc 	2		

2. Semi-Trailer Chassis

Item	Specifications	QTY	Unit Rate \$	Total \$
2	<p>Dimensions</p> <ul style="list-style-type: none"> • Total length <14.5 m • Width <2600 mm <p>Tare Weight</p> <ul style="list-style-type: none"> • <13,500 kg <p>Weight Distribution</p> <ul style="list-style-type: none"> • Compliant with South African Regulations • ~10 m from Kingpin to middle axle • ~24 ton on rear axle cluster • ~16 ton on Kingpin • Weight distribution calculation (centre of gravity) approved before manufacturing <p>Chassis Material</p> <ul style="list-style-type: none"> • Domex steel or equivalent, sandblasted and spray-painted <p>Suspension & Axles</p> <ul style="list-style-type: none"> • BPW air suspension or equivalent • BPW 2140 track with drum brakes or equivalent • Rear lift axle <p>Braking</p> <ul style="list-style-type: none"> • Knorr Bremse with EBS, RSS and auto slack adjusters or equivalent <p>Rims & Tyres</p> <ul style="list-style-type: none"> • 6× aluminium rims with Firestone 385/65 R22.5 tyres or equivalent • Hub odometer <p>Landing Legs</p> <ul style="list-style-type: none"> • Jost landing gear with swivel foot <p>Mudguards</p> <ul style="list-style-type: none"> • Rear: BPW plastic for single wheels or equivalent • Spray-suppressant mud flaps fitted to all rear plastic mudguards <p>Under-run Protection</p> <ul style="list-style-type: none"> • Rear removable aluminium bumper + dual aluminium rails on each side, per SANS 1518 <p>Lighting</p> <ul style="list-style-type: none"> • 2 LED combo (brake/running/indicator) lights in stainless-steel brackets • 2 high-mounted LED combo (brake/running/indicator) lights at rear of tanker • Number plate light • Reverse buzzer • 15-pin female plug with coiled 15-core connection cable and 15-pin male plugs (12V/24V) • Reflective tape per Road Traffic Act 	2		

3. Prime Mover

Item	Specifications	QTY	Unit Rate \$	Total \$
4	Engine Power <ul style="list-style-type: none">• 400-450 HP• Euro III or higher Drive <ul style="list-style-type: none">• 6×4 drivetrain Transmission <ul style="list-style-type: none">• ≥12-speed manual or AMT Fuel Tank <ul style="list-style-type: none">• ≥400 L Cab <ul style="list-style-type: none">• Sleeper cab with air conditioning• Ergonomic seats Safety Features <ul style="list-style-type: none">• ABS• Retarder• Fire extinguisher	3		

4. Cryogenic Road Tanker

Item	Specifications	QTY	Unit Rate \$	Total \$
2	<p>Gross Capacity</p> <ul style="list-style-type: none"> • ~27 - 20 tonne <p>Construction Code</p> <ul style="list-style-type: none"> • EN13530-2 (Annex C) and ADR 2023 • South African AIA Declaration of Conformity • ADR load-case FEA report required for South African PrEng approval <p>Notified Body</p> <ul style="list-style-type: none"> • Reputable international body, for example LRQA <p>Maximum Allowable Pressure</p> <ul style="list-style-type: none"> • MAWP: 20-22 barg • Suitable for pressure decanting <p>Design Temperatures</p> <ul style="list-style-type: none"> • Maximum design temperature: +40°C • Minimum design temperature: -196°C <p>Service Fluid</p> <ul style="list-style-type: none"> • Liquid oxygen (1.14 kg/L), oxygen-cleaned <p>Gross Capacity and Dimensions</p> <ul style="list-style-type: none"> • 26.5-27.5 m³ • Total length <14.5 m • Width <2600 mm <p>Trycock</p> <ul style="list-style-type: none"> • Set at 95% for oxygen service <p>Insulation System</p> <ul style="list-style-type: none"> • Multilayer insulation (MLI) under vacuum • Hot vacuum better than 5 Pa • DV-6R vacuum probe with Hoke isolation valve <p>Inner Vessel Material</p> <ul style="list-style-type: none"> • 1.4301 (X5CrNi18-10) <p>Outer Vessel Material</p> <ul style="list-style-type: none"> • X5CrNi18-10 / SA240 304 <p>Tare Weight</p> <ul style="list-style-type: none"> • Trailer weight <13,500 kg <p>Circuit and Process Equipment (including cryogenic transfer pump)</p> <ul style="list-style-type: none"> • Cryostar or equivalent cryogenic transfer pump, complete with oxygen safety features and cavitation protection, 350 L/min at 15 bar • Herose valves or equivalent • PBU sized for pump withdrawal rate • Wika level gauge • 2½" pneumatically actuated liquid shut-off gate valve on suction, interlocked with cabinet door • Four PSVs with diverter and venting chimney • Flowcom flowmeter (optional) 	3		

	<p>Boil-off Rate (NER)</p> <ul style="list-style-type: none"> • <0.25% per 24 hours <p>Weight Distribution (South African Regulations)</p> <ul style="list-style-type: none"> • ~10 m from kingpin to middle axle • ~24 ton on rear axle cluster • ~16 ton on kingpin • Centre-of-gravity calculation approved before manufacturing <p>Local Standards and Compliance</p> <ul style="list-style-type: none"> • SANS 347 • SANS 1518 • PER and applicable road regulations <p>Roadworthiness Requirements</p> <ul style="list-style-type: none"> • Compliant with hazardous goods transport and SANS 1518 <p>Cables and Electricals</p> <ul style="list-style-type: none"> • 20 m cable on hose reel inside cabinet • 15-pin plugs with coiled cable <p>Cryogenic Hose</p> <ul style="list-style-type: none"> • 5 m cryogenic hose with South African LOX fill flanges • Test certificate at 40 bar • Hose box entry from valve cabinet <p>Registration and Compliance Items</p> <ul style="list-style-type: none"> • Hazchem holder • Two fire extinguishers in plastic boxes • Two wheel chocks • NATIS registration • Roadworthy certification • Wheel alignment <p>Lighting and Electrical Safety</p> <ul style="list-style-type: none"> • Two LED combo brake/running/indicator lights in stainless-steel brackets • Two high-mounted LED combo lights at rear • Number plate light • Reverse buzzer • 15-pin female plug with 15-core coiled connection cable • 12V/24V compatibility • Reflective tape as per Road Traffic Act <p>Landing Legs</p> <ul style="list-style-type: none"> • Jost landing gear with swivel foot <p>Mudguards</p> <ul style="list-style-type: none"> • BPW plastic mudguards for single wheels • Spray-suppressant mud flaps on all rear plastic mudguards <p>Chassis</p> <ul style="list-style-type: none"> • Domex steel or equivalent, sandblasted and spray-painted <p>Running Gear</p> <ul style="list-style-type: none"> • BPW air suspension • BPW 2140 track axles with drum brakes • Rear lift axle 			
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	<ul style="list-style-type: none">• Knorr Bremse braking system with EBS, RSS and auto-slack adjusters• Six aluminium rims• Six Firestone 385/65 R22.5 tyres• Hub odometer <p>Under-run Protection</p> <ul style="list-style-type: none">• Removable aluminium rear under-run bumper• Dual aluminium side rails per SANS 1518			
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5. Cryogenic Transfer Pump

Item	Specifications	QTY	Unit Rate \$	Total \$
2	Cryogenic Hose <ul style="list-style-type: none">• 5 m cryogenic hose with South African fill flanges for liquid oxygen• Test certificate at 40 bar• Hose box entry from valve cabinet Electricals <ul style="list-style-type: none">• 20 m cable on hose reel inside cabinet• 15-pin plugs / coiled cable Safety <ul style="list-style-type: none">• 2 fire extinguishers in plastic boxes• 2 wheel chocks	1		

6. Summary Price Proposal

Item	Description	Units	QTY	Unit \$	Total \$
1.	Cryogenic Liquid Oxygen ISO Container		2		
2.	Semi-Trailer Chase		2		
3.	Prime Mover		3		
4.	Cryogenic Road Tanker		3		
5..	Cryogenic Transfer Pump		1		
	Sub Total				
	Less Discount				
	Total				