

TERMS OF REFERENCE FOR CONSULTANCY

FEASIBILITY STUDY, DETAILED ENGINEERING DESIGN, ENVIRONMENTAL AND SOCIAL ASSESSMENT AND TENDER DOCUMENTS

Including NEAT+ Screening and Preparation of an Environmental and Social Management Plan (ESMP)

DESALINATION WATER SUPPLY SYSTEM

Jubait Almaa'din Locality, Red Sea State, Sudan

World Vision Sudan | June 2026

Assignment	Consultancy for feasibility study, detailed engineering design, environmental and social assessment (including NEAT+ screening), preparation of an Environmental and Social Management Plan (ESMP), and tender documentation
Location	Jubait Almaa'din Locality, Red Sea State, Sudan
Client	World Vision Sudan
Duration	Four weeks, excluding unavoidable government approval time
Submission	Final documents in English and a concise executive summary in Arabic
Purpose	Government approval, donor engagement, budgeting, tendering and implementation planning

Prepared, Reviewed and Approved By

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Abbreviations and Acronyms

Acronym	Meaning
BOQ	Bill of Quantities
CAD	Computer-Aided Design
CAPEX	Capital Expenditure
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
GIS	Geographic Information System
GRM	Grievance Redress Mechanism
IDP	Internally Displaced Person
NEAT+	Nexus Environmental Assessment Tool
O&M	Operation and Maintenance
OPEX	Operational Expenditure
RO	Reverse Osmosis
SDI	Silt Density Index
TDS	Total Dissolved Solids
WASH	Water, Sanitation and Hygiene
WES	Water and Environmental Sanitation / relevant government water authority
WHO	World Health Organization

1. Background

Jubait Almaa'din Locality faces persistent water scarcity caused by limited freshwater sources, population growth, displacement, climate variability and high demand from households, institutions and livestock. World Vision Sudan intends to develop a reliable, affordable and climate-resilient water supply system for the locality.

A qualified consulting firm will assess the most suitable raw water source, compare desalination options, prepare the detailed design and safeguards documents, and produce a complete tender-ready package.

2. Objective of the Assignment

To provide World Vision Sudan with a technically sound, affordable and tender-ready design package for a sustainable desalination water supply system serving Jubait Almaa'din Locality.

3. Scope of Work

3.1 Inception and Work Planning

- Review available maps, population data, WASH information, hydrogeological records and government plans for Jubait Almaa'din.
- Submit an inception report with methodology, work plan, staffing, survey tools, sampling plan, stakeholder engagement and quality assurance arrangements.

3.2 Feasibility Study

- Assess existing water sources, infrastructure and service gaps in communities, schools, health facilities, markets, mosques and other public institutions.
- Estimate current and future demand for households, IDPs/host communities, institutions, businesses, livestock and system operations.
- Assess Red Sea seawater and available high-yielding boreholes as potential raw water sources.
- Undertake physical, chemical and bacteriological water quality testing required for treatment design, including salinity, TDS, conductivity, turbidity, Silt Density Index (SDI), boron, chloride and key health parameters.
- Compare suitable treatment options, including Reverse Osmosis, based on reliability, energy use, chemicals, brine management, spare parts, skills, CAPEX, OPEX and life-cycle cost.
- Assess plant sites, intake or borehole locations, transmission routes, storage, distribution, drainage, security, flood risk, land access and expansion potential.
- Assess grid, solar, generator and hybrid energy options and recommend the most practical arrangement.
- Recommend the preferred source, treatment process, system capacity, site, implementation approach and O&M/management model.
- Include a separately priced provisional item for pump testing of at least two boreholes if groundwater is found viable. Testing will proceed only upon written instruction from World Vision Sudan.

3.3 Detailed Desalination Treatment Engineering Design

- Prepare design criteria, calculations, process flow diagrams, hydraulic profiles and treatment plant sizing.
- Prepare civil, structural, mechanical, electrical/solar and instrumentation designs, including intake or borehole headworks and brine disposal where applicable.
- Design transmission, storage and distribution infrastructure, including public tap stands, institutional connections, animal troughs, donkey-cart filling points and tanker filling points where justified.
- Prepare drawings, hydraulic model, Bill of Materials, technical specifications, cost estimate, implementation schedule, testing and commissioning requirements, and a draft O&M manual.

3.4 Environmental and Social Assessment, NEAT+ Screening, ESMP, Stakeholder Engagement and Approvals

- Complete an Environmental and Social Assessment, including NEAT+ screening, and prepare an Environmental and Social Management Plan (ESMP), monitoring plan and grievance mechanism proportionate to the project risks.
- Assess key risks related to marine ecology and brine discharge, land, livelihoods, community safety, waste, chemicals, gender, disability inclusion, safeguarding and conflict sensitivity.
- Consult communities, local authorities, WES/relevant ministries, schools, health facilities, women, youth, livestock owners and vulnerable groups.
- Support World Vision Sudan to obtain the required technical, environmental, water abstraction and discharge approvals, as applicable.

3.5 Tender Documentation

- Prepare clear tender documents for construction, supply, installation, testing and commissioning of the approved system.
- Include bidder instructions, employer requirements, BOQs, drawings, technical specifications, quality assurance requirements and proposed technical evaluation criteria.

4. Deliverables and Timeline

No.	Deliverable	Minimum Content	Timing
1	Inception Report	Methodology, work plan, team, tools, sampling and stakeholder plan.	Week 1
2	Draft Feasibility Report	Demand, source and water-quality assessment, options, preliminary costs and recommended solution.	Week 2
3	Draft Design, Environmental and Social Assessment/NEAT+ Screening, ESMP and Tender Package	Calculations, drawings, BOQs, specifications, Environmental and Social Assessment/NEAT+ screening, ESMP, O&M outline and tender documents.	Week 3
4	Validation Presentation	Presentation of findings and recommendations to World Vision Sudan and key stakeholders.	Week 4
5	Final Approved Package	Final feasibility study, detailed desalination treatment design, Environmental and Social Assessment including NEAT+ screening, ESMP, BOQs, tender documents and approval/permit status.	Week 4
6	Arabic Executive Summary	Concise summary of the final design, key risks, mitigation and implementation plan.	Final

5. Consultant Team and Minimum Qualifications

The firm shall provide a competent multidisciplinary team. Roles may be combined where one expert clearly demonstrates the required qualifications and experience.

Key Expertise	Main Responsibility
Team Leader / Senior Water or Desalination Engineer	Overall coordination, feasibility, technology selection, process design and quality assurance.
Civil / Hydraulic Engineer	Survey interpretation, civil works, reservoirs, pipelines, hydraulic modelling and drawings.
Mechanical / Electrical / Solar Engineer	Pumps, plant equipment, power supply, controls, earthing and backup systems.
Environmental and Social / WASH Specialist	Environmental and Social Assessment, NEAT+ screening, ESMP, consultations, inclusion, safeguards, GRM and WASH demand assessment.
Hydrogeologist / Surveyor / GIS Support	Borehole assessment, pump testing if activated, topographic survey, mapping and route alignment.

- The firm must be legally registered and have demonstrated recent experience in feasibility studies, water treatment/desalination, detailed design, environmental and social assessment, ESMP preparation and tender documentation.
- Experience in Sudan or a comparable fragile/humanitarian setting is an advantage.
- Reports must be professionally written in English, with the final executive summary provided in Arabic.

6. Proposal Submission and Evaluation

6.1 Technical Proposal

- Understanding of the assignment, methodology, work plan and quality assurance approach.
- Team composition, roles, level of effort and CVs of key experts.
- Evidence of similar assignments completed within the last five years.
- Fieldwork, survey, laboratory, stakeholder engagement and approval-support approach.

6.2 Financial Proposal

- A complete itemized price covering professional fees, travel, logistics, surveys, laboratory testing, consultations, report production, taxes and overheads.
- A separate provisional cost for pump testing of at least two boreholes, including constant-rate testing for 48 hours, recovery of 3 hours monitoring and reporting.

6.3 Evaluation

Evaluation Area	Score / Status
Legal and administrative compliance	Pass/Fail
Relevant firm experience	25
Qualifications and availability of proposed team	35
Methodology, work plan and quality assurance	30
Resources, equipment, software and laboratory arrangements	10

Technical proposals will be scored out of 100. Final weighting will be Technical 60% and Financial 40%, subject to World Vision Sudan procurement procedures.

7. Payment Schedule

Stage	Payment	Milestone
1	40%	Upon satisfactory acceptance of the inception outputs and Draft Feasibility Study Report.
2	60%	Upon satisfactory acceptance of the final detailed design, Approved Environmental and Social Assessment report including NEAT+, BOQs, tender documents, English report and Arabic summary.

The provisional borehole pump-testing item will be activated and paid only if World Vision Sudan issues written instruction to proceed. No separate advance payment will be made.

8. Reporting, Standards and Document Ownership

- The consultant will report to the designated World Vision Sudan WASH focal person and participate in weekly progress meetings.
- All draft reports will be reviewed by World Vision Sudan before external submission unless otherwise agreed.
- The design shall comply with relevant Sudan standards, WES requirements, WHO drinking-water guidance, Sphere standards where applicable, and recognized engineering and environmental standards.
- The system shall prioritize safety, reliability, operational simplicity, affordability, climate resilience, gender and disability inclusion, and long-term sustainability.
- All data, reports, drawings, calculations, laboratory results, GIS files and other outputs produced under the assignment will remain the property of World Vision Sudan.

9. Minimum Final Submission Package

- Final feasibility study report in editable Word and PDF.
- Final detailed engineering desalination treatment design report, calculations and drawings in PDF and editable CAD format.
- Final Environmental and Social Assessment, including NEAT+ screening, ESMP, monitoring plan, consultation records and grievance mechanism.
- Original laboratory results with interpretation and treatment-design implications.
- BOQs and cost estimates in editable Excel and PDF.
- Tender documents in editable Word/PDF with supporting drawings and BOQs.
- Approval and permit status/evidence, including abstraction and discharge approvals where applicable.
- Arabic executive summary of the approved design, key risks, mitigation and implementation plan.