

Request for Proposals (RFP)

The design and installation of an energy efficient essential oil steam distillation facility at the ARC Nelspruit site in Mpumalanga

RFP No. 944/05/03/2020

Date of Issue	Wednesday, 11 February 2021	
Closing Date	Friday, 05 March 2021	
Place	Electronically – tender@csir.co.za	
Enquiries	Strategic Procurement Unit	E-mail: tender@csir.co.za
CSIR business hours	08h00 – 16h30	
Category	Professional	

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SECTION A – TECHNICAL INFORMATION

1 INTRODUCTION

The Council for Scientific and Industrial Research (CSIR) is one of the leading scientific research and technology development organisations in Africa. In partnership with national and international research and technology institutions, CSIR undertakes directed and multidisciplinary research and technology innovation that contributes to the improvement of the quality of life of South Africans. The CSIR's main site is in Pretoria while it is represented in other provinces of South Africa through regional offices.

2 BACKGROUND

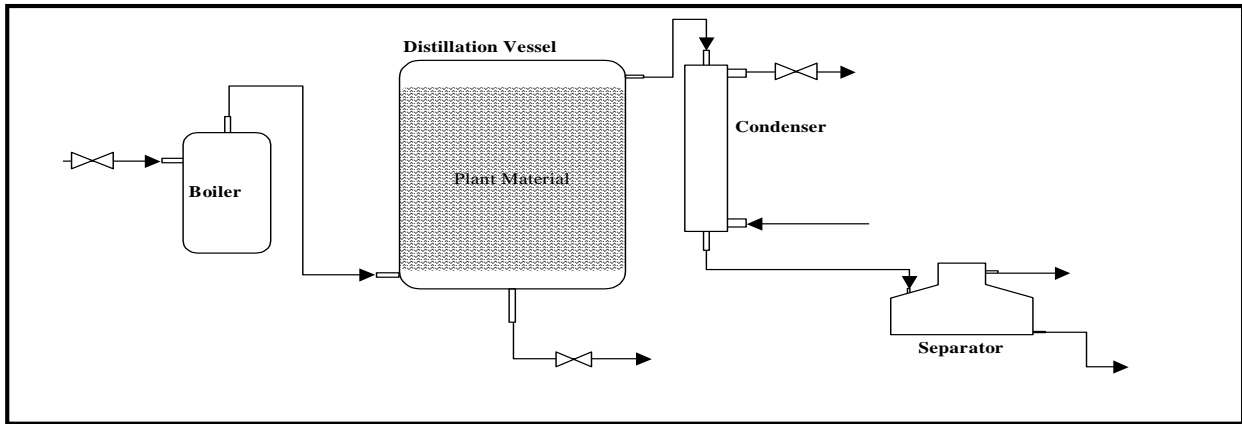
The CSIR is developing an essential oil project in collaboration with the Agricultural Research Council (ARC).

Essential oils are the volatile, fragrant constituents of aromatic plants extracted from the leaves, stems and flowers by a process of steam distillation. Essential oils are highly valuable products, used internationally in fragrance-related industries, key ingredients in perfumes, shampoos, soaps, aromatherapy, cosmetic and pharmaceutical products. Examples of common essential oils are Lavender, Rose geranium, Tea tree, Eucalyptus (blue gum), Citrus (orange and lemon) etc.

South Africa is well-positioned to contribute to this sector, as the country is richly blessed with fertile land, a diverse climate, resources, basic infrastructure and a strong tradition in agriculture. The development of this sector can provide opportunities to numerous small-scale farmers

Once the crops are harvested these need to be steam distilled to produce the essential oil. A specific requirement is for a simple, energy efficient and cost effective steam distillation facility to produce essential oil, from a cultivated area of 1 ha.

The purpose of this RFP is to invite suitably qualified and experienced suppliers to provide proposals for a complete, ready-to-operate steam distillation facility, to be delivered, installed and commissioned for the production of essential oils on-site at ARC Nelspruit in Mpumalanga.



Schematic diagram of the steam distillation process

The primary function of the distillation unit is to extract essential oil from the plant material so as to minimise damage to or contamination of the oil. The steam extraction process to achieve this is as follows:

- A distillation vessel is filled with plant material and sealed so that no steam can escape apart from through the outlet pipe.
- Steam is introduced at the bottom of the vessel and as it rises through the load it heats the material, causing the oil cells to rupture, the oil escapes and vaporises.
- The oil bearing steam enters the condenser where the vaporised oil and steam is cooled and returns to a liquid state of as a mixture of oil and water.
- The oil is then separated from the water.

3 INVITATION FOR PROPOSAL

Proposals are hereby invited for the supply and installation of an energy efficient essential oil steam distillation facility at the ARC Nelspruit site in Mpumalanga.

4 PROPOSAL SPECIFICATION

All proposals are to be submitted in a format specified in this enquiry. However, tenderers are welcome to submit additional / alternative proposals over and above the originally specified format.

The specifications include:

The Contractor must design and install an energy efficient essential oil steam distillation facility at the ARC Nelspruit site in Mpumalanga.

4.1 Background information

- The crop from which oil is to be extracted is Rose geranium, Lemon balm, Marjoram, Rosemary, Thyme and Yarrow. These will be cultivated on an area of 1ha in total at the ARC Nelspruit site, as part of an agronomic experimental trial.
- The crop will be hand harvested. Therefore, easy and safe material handling for loading and unloading of the distillation vessels must form part of the design.
- The operation of the distillation unit must be energy efficient, moreover operation and maintenance must be cost effective.
- The distillation unit will be operated and maintained by semi-skilled operators.

4.2 Equipment

The contractor needs to install a fully functioning energy efficient steam distillation unit comprising of:

- An appropriately sized biomass boiler (for steam supply), with a steam flow output of approximately 70 kg steam / hr, including a water softener
- An adequately sized water storage tank (to supply water to the boiler) – water supply to tank will be provided by the ARC
- 2 x stainless steel (grade 304) distillation vessels (approx. 250kg plant material capacity each)
- A heat exchanger capable of cooling vapour to a maximum of 40°C including a solar powered cooling system with a pump, dry cooler or evaporative cooler, solar panels, (battery power storage – for running lights and auxiliary equipment) and a control panel.
- Water storage if an evaporative cooler (to supply water to the cooling tower) is used
- An efficiently designed stainless steel oil separator, the capacity of which has to be specified in the proposal as part of the design

- All piping (water, steam) between components to allow for a fully operational process
- A suitable scale to weigh the plant material
- Necessary laboratory glassware including a scale for weighing the essential oil
- All electric components must be operated from solar power
- An appropriately sized back-up fuel generator will also be required
- Claims with respect to functional / energy efficiency and operational / maintenance cost savings of the system in comparison to traditional steam distillation systems should be substantiated.

4.3 Structure

The contractor will also need to install a simple structure to house the equipment, these include:

- An adequately sized concrete floor
- A simple, adequately sized steel frame structure with corrugated roof
- Measures to secure the equipment, such as a gate and fence attached to the steel frame structure. A lock is needed for the gate.
- Fluorescent or LED lighting powered by solar

4.4 Installation

The entire installation should be compliant with the Occupational Health and Safety Act. A neat installation is required. The Contractor must install the equipment in accordance with the following:

- Where possible, pipes, frames etc. must be horizontal, vertical or 45 degrees.
- The number of pipe joints must be kept to the minimum.
- All external metal surfaces that are not stainless steel, aluminium, brass, galvanised or plated, must be primed and painted with an epoxy paint
- Where corrosion is likely, securing devices and fasteners should be stainless steel or plated. Where stainless steel or plated devices are not used, they must be primed and neatly painted with epoxy paint.
- All pipes and the associated joints must be free from leaks.
- All unused sockets must be fitted with removable plugs.

- Bolts, screws and nuts must be fitted with washers. Nyloc nuts or equivalent must be used in all cold areas. Hot areas must make use of locking washers.

4.5 **Manuals and training**

In addition to the infrastructure, the Contractor must provide the following:

- A standard operating procedures manual for the distillation equipment in Microsoft Word format, including but not limited to:
 - Daily, weekly, monthly and annual maintenance (as applicable)
 - Use of protective clothing and equipment
 - Loading and unloading of plant material
 - Start up
 - Operations
 - Shut down
 - Emergency management.
- Training of distillation operators on the standard operating procedures, until the operators could operate the distillation equipment safely and efficiently on their own for a minimum period of a week.
- Boiler operation certification for distillation operators.
- Manuals of all commercially bought sub systems and components.
- An on-site maintenance manual and critical spares list.
- Contact details of off-site people or organisations that could perform maintenance or supply spare parts.

4.6 **Testing**

An acceptance test procedure must be performed by the Contractor in the presence of the CSIR before commissioning of the facility.

The contractor must make available suitable staff during a one day period during which the equipment will be tested. The contractor must immediately rectify any defects detected during this testing phase. All repairs and corrective work must be done in accordance with all relevant specifications outlined in this scope of work.

4.7 Deliverables

The Contractor must provide the following deliverables:

- A design of the energy efficient essential oil steam distillation facility with the structure and solar panels, against which progress and deliverables can be inspected, before the performance testing of the facility is conducted.
- An operational, demonstrated and commissioned fully functioning energy efficient essential oil steam distillation facility; all ancillary equipment; training of users; and operating and training manuals.
- Ensuring site safety and security during the site works, training, installation and commissioning, and adherence to all aspects of the Occupational Health and safety Act.
- Certification and inspection documents for registering the boiler with the Department of Manpower, if necessary.
- Clearing of the site of all scrap and excess material on completion of the delivery and installation.

4.8 Obligations of the CSIR

The CSIR together with the ARC will ensure:

- A location on-site for installing the distillation facility at the ARC premises in Nelspruit, Mpumalanga
- Un-inhibited access to the site.
- Supply of relevant information required by the Contractor.
- Details of the CSIR and on-site contact persons for communication purposes with the Contractor.
- Water for the distillation facility

4.9 Project Schedule

All Contractors to this RFP must provide a project schedule containing a list of key milestones and firm completion dates.

The work schedule should at least contain the following milestones:

- Commencement and completion of the distillation facility design

- Commencement and completion of manufacture of the distillation components
- Commencement and completion of the delivery and installation of all distillation components including the structure at the ARC Nelspruit site in Mpumalanga
- Commencement and completion of testing and commissioning of the distillation facility on-site.
- Commencement and completion of user training including the standard operating procedures
- Delivery of the maintenance manual.
- Project sign-off by CSIR.

4.10 Pricing Structure

- Prices must be quoted on a fully inclusive basis for services performed.
- The CSIR prefers a phase approach and the Contractor must provide a description and price for each phase.

4.11 Proposal Specification

The Contractor must provide a fully costed, detailed proposal covering all items in the scope of work, and containing the following:

- Sketches, drawings or descriptions of the proposed facility
- A technical description of the proposed facility
- Estimated facility throughput times
- The number of operators required to operate the facility
- A detailed description of the safety and regulatory requirements relating to the boiler and distillation equipment.
- All travel accommodation and subsistence expenditure of the Contractor's staff and sub-contractors.
- The guarantee and warranty, terms and periods, for the various equipment.

4.12 General

Respondents are required to supply the following supplementary information and comply with the conditions stipulated:

- A brief description of the Respondent's organisation and an outline of recent experience on assignments of a similar nature.
- A brief description of the Respondent's technical expertise on assignments of a similar nature
- The Respondent's must outline the after sales service and support that will be provided
- List of services, and facilities to be provided by the CSIR (if any).
- A description of the methodology and work plan for performing the assignment, based on experience and/or research undertaken by the Respondent.
- Any other information felt to be relevant to the final decision to be made by the Project team.

5 FUNCTIONAL EVALUATION CRITERIA

5.1 The evaluation of the functional / technical detail of the proposal will be based on the following criteria:

Functionality criteria	Weight	0	5	10
Feasibility of proposed solution(s) a. Yield efficiency of essential oil production b. Efficiency and effectivity of biomass boiler c. Efficiency of operation of the steam distillation facility	10%	Specifications not met (0)	Specification are adequately met but not optimal (5)	Specification optimally met on all technical requirements (10)
Compliance to all specified technical requirements: d. Biomass boiler (70 kg steam / hr) and water softener (15%) e. 2 x 250 kg distillation vessels (15%) f. A heat exchanger capable of cooling vapour to a maximum of 40°C including a	70%	Specifications not met (0)	Specification are adequately met but not optimal (5)	Specification optimally met on all technical requirements (10)

solar powered cooling system with a pump, dry cooler or wet cooler, solar panels and a control panel. (15%) g. Efficient oil / water separator (15%) h. All inter-component steam and water piping (5%) i. Frame structure with roof and fence (5%)				
Work plan, including delivery schedule: A work plan outlining the planned manufacturing, testing and commissioning schedule including illustrations and a bill of key equipment.	10%	Specifications not met (0)	Specification are adequately met but not optimal (5)	Specification optimally met on all technical requirements (10)
Relevant company experience: Relevant and suitable examples of expertise and experience as well as references from previous projects work of similar nature are provided	10%	0 Years of company experience (0)	5- 9 Years of company experience = 5	10 Years Plus of company experience = 10
	100%			

5.1 Proposals with functionality / technical points of less than the pre-determined minimum overall percentage of 70% and less than 50% on any of the individual criteria will be eliminated from further evaluation.

5.2 Refer to Annexure A for the scoring sheet that will be used to evaluate functionality.

6 ELIMINATION CRITERIA

Proposals will be eliminated under the following conditions:

- Submission after the deadline;

- Proposals submitted at incorrect email address
- Proposals that are out of scope or specifications presented in this document;
- Failure to submit a completed SBD1 and Local Content Declaration Form SBD 6.2 Annexure C,D and E
- Failure to submit completed Declaration by Tenderer
- Failure to submit COIDA
- Non-submission of CIDB certificate of 1SH or higher
- Provide a list of similar projects which indicates: description of works, client, year when the works were completed, and contact details of the responsible person of the client, for the project listed

7 NATIONAL TREASURY CENTRAL SUPPLIER DATABASE REGISTRATION

Before any negotiations will start with the winning bidder it will be required from the winning bidder to:

- be registered on National Treasury's Central Supplier Database (CSD). Registrations can be completed online at: www.csd.gov.za;
- provide the CSIR of their CSD registration number; and

provide the CSIR with a certified copy of their B-BBEE certificate. If no certificate can be provided, no points will be scored during the evaluation process. (RSA suppliers only)

SECTION B – TERMS AND CONDITIONS

8 VENUE FOR PROPOSAL SUBMISSION

All proposals must be submitted at:

- tender@csir.co.za
- all bids must be clearly marked with the bidders name, and the contents of the email.
- Emails may be sent in parts if exceeding 30MB per document.

9 TENDER PROGRAMME

The tender program, as currently envisaged, incorporates the following key dates:

- | | |
|-------------------------------------------------|------------------|
| • Issue of tender documents: | 11 February 2021 |
| • Last date for submission of queries: | 01 March 2021 |
| • Closing / submission Date: | 05 March 2021 |
| • Estimated contract duration (in months/years) | 3 months |

10 SUBMISSION OF PROPOSALS

10.1 All proposals are to be clearly marked with the RFP. Proposals must consist of two parts, each of which must be separately submitted:

PART 1: Technical Proposal: RFP No.: 944/05/03/2021

PART 2: Pricing Proposal, B-BBEE and other Mandatory Documentation:

RFP No.: 944/05/03/2021

10.2 Proposals submitted by companies must be signed by a person or persons duly authorised.

10.3 The CSIR will award the contract to qualified tenderer(s)' whose proposal is determined to be the most advantageous to the CSIR, taking into consideration the technical (functional) solution, price and B-BBEE.

11 DEADLINE FOR SUBMISSION

Proposals shall be submitted at the email address mentioned above no later than the closing date of **Friday, 05 March 2021** during CSIR's business hours. The CSIR business hours are between 08h00 and 16h30.

Where a proposal is not received by the CSIR by the due date and stipulated email address, it will be regarded as a late tender. Late tenders will not be considered.

12 AWARDING OF TENDERS

12.1 Awarding of tenders will be published on the National Treasury e-tender portal. No regret letters will be sent out.

13 EVALUATION PROCESS

13.1 Evaluation of proposals

All proposals will be evaluated by an evaluation team for functionality, price and B-BBEE. Based on the results of the evaluation process and upon successful negotiations, the CSIR will approve the awarding of the contract to successful tenderers.

A two-phase evaluation process will be followed.

- The first phase includes evaluation of **elimination** and **functionality criteria**.
- The second phase includes the evaluation of **price** and **B-BBEE** status.

Pricing Proposals will only be considered after functionality phase has been adjudicated and accepted. Only proposals that achieved the specified minimum qualification scores for functionality will be evaluated further using the preference points system.

13.2 Preference points system

The 80/20 preference point system will be used where 80 points will be dedicated to price and 20 points to B-BBEE status.

14 PRICING PROPOSAL

- 14.1 Pricing proposal must be cross-referenced to the sections in the Technical Proposal. Any options offered must be clearly labelled. Separate pricing must be provided for each option offered to ensure that pricing comparisons are clear and unambiguous.
- 14.2 Price needs to be provided in South African Rand (excl. VAT), with details on price elements that are subject to escalation and exchange rate fluctuations clearly indicated.
- 14.3 Price should include additional cost elements such as freight, insurance until acceptance, duty where applicable.
- 14.4 Only firm prices* will be accepted during the tender validity period. Non-firm prices** (including prices subject to rates of exchange variations) will not be considered.

**Firm price is the price that is only subject to adjustments in accordance with the actual increase or decrease resulting from the change, imposition, or abolition of customs or excise duty and any other duty, levy, or tax which, in terms of a law or regulation is binding on the*

contractor and demonstrably has an influence on the price of any supplies, or the rendering costs of any service, for the execution of the contract;

***Non-firm price is all prices other than “firm” prices.*

14.5 Payment will be according to the CSIR Payment Terms and Conditions.

15 VALIDITY PERIOD OF PROPOSAL

Each **proposal** shall be valid for a minimum period of three (3) months calculated from the closing date.

16 APPOINTMENT OF SERVICE PROVIDER

16.1 The contract will be awarded to the tenderer who scores the highest total number of points during the evaluation process, except where the law permits otherwise.

16.2 Appointment as a successful service provider shall be subject to the parties agreeing to mutually acceptable contractual terms and conditions. In the event of the parties failing to reach such agreement CSIR reserves the right to appoint an alternative supplier.

16.3 Awarding of contracts will be announced on the National Treasury website and no regret letters will be sent to unsuccessful bidders.

17 ENQUIRIES AND CONTACT WITH THE CSIR

Any enquiry regarding this RFP shall be submitted in writing to CSIR at tender@csir.co.za with ***“RFP No 944/05/03/2021 - The design and installation of an energy efficient essential oil steam distillation facility at the ARC Nelspruit site in Mpumalanga”*** as the subject.

Any other contact with CSIR personnel involved in this tender is not permitted during the RFP process other than as required through existing service arrangements or as requested by the CSIR as part of the RFP process.

18 MEDIUM OF COMMUNICATION

All documentation submitted in response to this RFP must be in English.

19 COST OF PROPOSAL

Tenderers are expected to fully acquaint themselves with the conditions, requirements and specifications of this RFP before submitting proposals. Each tenderer assumes all risks for resource commitment and expenses, direct or indirect, of proposal preparation and participation throughout the RFP process. The CSIR is not responsible directly or indirectly for any costs incurred by tenderers.

20 CORRECTNESS OF RESPONSES

20.1 The tenderer must confirm satisfaction regarding the correctness and validity of their proposal and that all prices and rates quoted cover all the work/items specified in the RFP. The prices and rates quoted must cover all obligations under any resulting contract.

20.2 The tenderer accepts that any mistakes regarding prices and calculations will be at their own risk.

21 VERIFICATION OF DOCUMENTS

21.1 Tenderers should check the numbers of the pages to satisfy themselves that none are missing or duplicated. No liability will be accepted by the CSIR in regard to anything arising from the fact that pages are missing or duplicated.

21.2 Pricing schedule and B-BBEE credentials should be submitted with the proposal, but as a separate document and no such information should be available in the technical proposal.

22 SUB-CONTRACTING

22.1 A tenderer will not be awarded points for B-BBEE status level if it is indicated in the tender documents that such a tenderer intends sub-contracting more than **25%** of the value of the contract to any other enterprise that does not qualify for at least the points that such a tenderer qualifies for, unless the intended sub-contractor is an exempted micro enterprise that has the capability and ability to execute the sub-contract.

22.2 A tenderer awarded a contract may not sub-contract more than **25%** of the value of the contract to any other enterprise that does not have an equal or higher B-BBEE status level than the person concerned, unless the contract is sub-contracted to an exempted micro enterprise that has the capability and ability to execute the sub-contract.

23 ENGAGEMENT OF CONSULTANTS

The consultants will only be remunerated at the rates:

- 23.1 Determined in the "Guideline for fees", issued by the South African Institute of Chartered Accountants (SAICA); or
- 23.2 Set out in the "Guide on Hourly Fee Rates for Consultants", by the Department of Public Service and Administration (DPSA); or
- 23.3 Prescribed by the body - regulating the profession of the consultant.

24 TRAVEL EXPENSES

- 24.1 All travel expenses for the CSIR's account, be it directly via the CSIR's travel agent or indirectly via re-imbursements, must be in line with the CSIR's travel policy. The following will apply:
 - 24.1.1 Only economy class tickets will be used.
 - 24.1.2 A maximum of R1400 per night for accommodation, dinner, breakfast and parking will be allowed.
 - 24.1.3 No car rentals of more than a Group B will be accommodated.

25 ADDITIONAL TERMS AND CONDITIONS

- 25.1 A tenderer shall not assume that information and/or documents supplied to CSIR, at any time prior to this request, are still available to CSIR, and shall consequently not make any reference to such information document in its response to this request.
- 25.2 Copies of any affiliations, memberships and/or accreditations that support your submission must be included in the tender.

25.3 In case of proposal from a joint venture, the following must be submitted together with the proposal:

- Joint venture Agreement including split of work signed by both parties;
- The original or certified copy of the B-BBEE certificate of the joint venture;
- The Tax Clearance Certificate of each joint venture member;
- Proof of ownership/shareholder certificates/copies; and
- Company registration certificates.

25.4 An omission to disclose material information, a factual inaccuracy, and/or a misrepresentation of fact may result in the disqualification of a tender, or cancellation of any subsequent contract.

25.5 Failure to comply with any of the terms and conditions as set out in this document will invalidate the Proposal.

26 CSIR RESERVES THE RIGHT TO

26.1 Extend the closing date;

26.2 Verify any information contained in a proposal;

26.3 Request documentary proof regarding any tendering issue;

26.4 Give preference to locally manufactured goods;

26.5 Appoint one or more service providers, separately or jointly (whether or not they submitted a joint proposal);

26.6 Award this RFP as a whole or in part;

26.7 Cancel or withdraw this RFP as a whole or in part.

27 DISCLAIMER

This RFP is a request for proposals only and not an offer document. Answers to this RFP must not be construed as acceptance of an offer or imply the existence of a contract between the parties. By submission of its proposal, tenderers shall be deemed to have satisfied themselves with and to have accepted all Terms & Conditions of this RFP. The CSIR makes no representation, warranty, assurance, guarantee or endorsements to tenderer concerning the

RFP, whether with regard to its accuracy, completeness or otherwise and the CSIR shall have no liability towards the tenderer or any other party in connection therewith.

DECLARATION BY TENDERER

Only tenderers who completed the declaration below will be considered for evaluation.

RFP No:

I hereby undertake to render services described in the attached tendering documents to CSIR in accordance with the requirements and task directives / proposal specifications stipulated in RFP No..... at the price/s quoted. My offer/s remains binding upon me and open for acceptance by the CSIR during the validity period indicated and calculated from the closing date of the proposal.

I confirm that I am satisfied with regards to the correctness and validity of my proposal; that the price(s) and rate(s) quoted cover all the services specified in the proposal documents; that the price(s) and rate(s) cover all my obligations and I accept that any mistakes regarding price(s) and rate(s) and calculations will be at my own risk.

I accept full responsibility for the proper execution and fulfilment of all obligations and conditions devolving on me under this proposal as the principal liable for the due fulfilment of this proposal.

I declare that I have no participation in any collusive practices with any tenderer or any other person regarding this or any other proposal.

I accept that the CSIR may take appropriate actions, deemed necessary, should there be a conflict of interest or if this declaration proves to be false.

I confirm that I am duly authorised to sign this proposal.

NAME (PRINT)
CAPACITY
SIGNATURE
NAME OF FIRM
DATE

WITNESSES	
1
2
DATE:	

28 ANNEXURE A

Functionality criteria	Weight	0	5	10
Feasibility of proposed solution(s) j. Yield efficiency of essential oil production k. Efficiency and effectivity of biomass boiler l. Efficiency of operation of the steam distillation facility	10%	Specifications not met (0)	Specification are adequately met but not optimal (5)	Specification optimally met on all technical requirements (10)
Compliance to all specified technical requirements: m. Biomass boiler (70 kg steam / hr) and water softener (15%) n. 2 x 250 kg distillation vessels (15%) o. A heat exchanger capable of cooling vapour to a maximum of 40°C including a solar powered cooling system with a pump, dry cooler or wet cooler, solar panels and a control panel. (15%) p. Efficient oil / water separator (15%) q. All inter-component steam and water piping (5%) r. Frame structure with roof and fence (5%)	70%	Specifications not met (0)	Specification are adequately met but not optimal (5)	Specification optimally met on all technical requirements (10)
Work plan, including delivery schedule: A work plan outlining the planned manufacturing, testing and commissioning schedule including illustrations	10%	Specifications not met (0)	Specification are adequately met but not optimal (5)	Specification optimally met on all technical requirements (10)

and a bill of key equipment.				
Relevant company experience: Relevant and suitable examples of expertise and experience as well as references from previous projects work of similar nature are provided	10%	0 Years of company experience (0)	5 Years of company experience (5)	10 Years of company experience (10)
	100%			

29 ANNEXURES FOR LOCAL CONTENT

Published as separate documents and should only be used for designated sectors