Scope of work for independent contractor
Power generation initiative – Technical assistance for Implementation
---

Country: Benin
Role: Technical Assistance for power generation initiative
Reports to: Chief of Party, BeninCajù
Liaise with: Cashew processing lead
Location: Cotonou/Remote
Anticipated start date: January 2019
EstimatedTotal Level of Effort: 140 working days (through July 2019)
Project Grant/Funding: BeninCajù (USDA011N)

I. About TechnoServe

TechnoServe works with enterprising people in the developing world to build competitive farms, businesses and industries. We are a nonprofit organization that develops business solutions to poverty by linking people to information, capital, and markets. Our work is rooted in the idea that given the opportunity, hardworking men and women in even the poorest places can generate income, jobs and wealth for their families and communities. With more than four decades of proven results, we believe in the power of private enterprise to transform lives.

II. BACKGROUND AND PROJECT PURPOSE

TechnoServe is implementing a 5-year USDA funded cashew value chain project. The overall objectives of the Project are :

- Increased productivity and income for 35,000 small-holder cashew farmers
- A strengthened, expanded and diversified cashew processing industry
- Increased capacity of key stakeholder support institutions
- Improved enabling environment
- Increased integration of the cashew sector into global markets
- Job creation, particularly in the expanded processing and by-product sector
- Increased value-added and economic returns throughout the value chain

Cashew processing in Benin at present is a viable and profit-making venture, though profits margins are thin, and can be wiped out at anytime with volatile market behavior. Benin has to improve its competitive position by taking advantage of byproduct processing. Cashew shell, a byproduct in cashew processing is so far just a waste with no economic value. A recent feasibility study on using cashew shell in producing electric energy showed that the industry could gain additional competitiveness of over $60/Mt of RCN processed. This is almost 50% of expected profits per Mt of RCN processed.

There are 7 processing plants which together process ~20,000mt of nuts currently, which is expected to increase to 25,000MT by 2019. Each year there are new investments taking place in cashew processing. By 2025 the country will be able to process more than 75% of its production locally. Recently processors have faced serious challenges to address handling cashew shell, concerning environmental hazards. Greater volumes are helping to find a proper way out by processing shell to extract CNSL(cashew nut shell liquid). One of the biggest processors today proceses cashew shell and soon will be able to buy all shell produced in the country which will not only generate extra income but also help mitigate environmental risks associated with this. Today this CNSL plant produces ~30mt of shell cake/day as a byproduct of shell processing which is accumulating and have limited market opportunity.

BeninCajù helped this large processor to develop their business plan on using this precious fuel in producing electricity and came out with an investment plan to install a Cogen power plant of 1.5MW capacity. This large processor is enthusiastic for the opportunity and investing in the plant and equipment. This investment is the very first investment in Africa of such nature, and there is very limited knowhow. Cogeneration of heat and power is one of the most obvious ways to improve fuel utilization in thermal power plants thereby significantly reducing primary energy consumption and carbon-dioxide emissions. In CHP plants, a 90%+ fuel energy utilization can be readily achieved.

Technical assistance is crucial for the success of this initiative.

III. OBJECTIVE

Technical assistance support to assist a large processor's power initiative in all phases of plant construction and system implementation all the way to final testing to make it a state-of-the-art energy producing unit in Benin, serving as a model to be replicated in other parts of Africa.

IV. SCOPE

To support a new turnkey plant, technical assistance can be divided into five major phases, each phase builds a base for the next phase, some phases will be implemented in parallel:

A. Phase I: Tendering and ordering plant

- **Technology procurement preparations**
  - Kick off strategic technical discussions
  - Development of technical specification of equipment for purchase enquiries
  - Preparing tender document
  - Enquiry to venders for technical quotes
- **Support TechnoServe and the large processor on procurement of equipment (Main equipment)**
  - Technical evaluations of the tender bids
  - Feedback on technical, requesting financial quotes
  - Financial evaluations of the tender bids
  - Negotiations and final order placement
- **Support TechnoServe and the large processor on procurement of equipment (Balance of plant)**
  - Preparing tender document
  - Enquiry to venders for technical quotes
  - Technical and financial evaluations of tender bids
  - Placement of order

B. Phase II: Review of technical documents, coordination with supplier and the investor

- **Plant Layout and civil drawings**
  - Existing proposed location and plant site specifications
  - Indicative master plan for plant and equipment
  - Receipt of project drawings from selected venders
  - Preparations of executable master plan
  - Compiling & integration of inputs & load data for civil structural design.
  - Civil structural drawings for main components
  - Vender drawing of BOP
  - Civil structural drawings for BOP
- **Civil work on site**
  - Site land development guidance
  - Technical review of Civil work - major equipment
  - Technical review of Civil work – BOP

C. Phase III: Pre shipment inspection and post arrival treatment, accessories installation

- **Equipment Installation**
  - Pre shipment inspections
  - Reception of equipment, main equipment
  - Reception of equipment, BOP
  - Installation of equipment, main equipment
  - Installation of equipment, BOP
- **Electrical and other conduit installation**

D. Phase IV: Pre-commissioning trials, commissioning and Environmental compliance support

- **Pre-commissioning and commissioning activities**
  - Availability of standby Utilities
  - Individual operation off rotary equipment
  - Collective operations of equipment at dead load
  - Slow firing of boiler
  - Chemical boiling of boiler - alkali bailout
  - Steam blowing
  - Connecting steam piping to steam turbine
  - Conformance from turbine vendor for installation
  - Mechanical run of turbine
  - Coupling of turbine to alternator
  - Setting up electrical safety
  - Final operation of turbine with alternator
- **Environment compliance support**
  - Workers safety compliance support
  - Environment protection compliance support

E. Phase V: Management capacity building / operational efficiencies support

- **Management/work force recruitment and training**
  - Onsite Project engineer job profile and recruitment
  - Project engineer job profile and recruitment

- Operation man power for pre commissioning and take over
- Main technical head's training - pre production
- Main technical head's training - post production, hands on
- Support workforce training - pre production
- Support workforce training - post production

V. ROLE AND RESPONSABILITIES

The consultant will work closely with BeninCajù Chief of Party or someone nominated by COP to perform on activities described above to achieve objectives of the assignments. The consultant will also work closely with the processing unit's cashew head or a person nominated by him on direct implementation of the project.

He/she will be responsible for the following:

- Performing tasks described in each phase closely in collaboration with BeninCajù as well as processor allocated teams
- Effective information sharing among project partners on activities timings, efficiencies, course of correction, delays or change in timeline on activities
- Address all environmental hazard, mitigation strategy or environmental footprint with proposed technologies/process
- Each phase reporting, mid-term work in progress as well as final report on completion of each phase
- Document all training programs, serve as reference for future

VI. DELIVERABLES AND PAYMENT TERMS

The Consultant is expected to deliver an in-depth report on implementation of each phase, an inception report for starting each phase and the final report on conclusion of each phase. Once all phases are concluded write final report with all lessons learned as well as recommendations.

Phases	Inception report	Final report
Phase I	Jan 2019	Feb 2019
Phase II	Jan 2019	Feb 2019
Phase III	Feb 2019	July 2019
Phase IV	April 2019	July 2019
Phase V	May 2019	August 2019
Final report		Sept. 2019

Payment terms are as follows:

- Expense reimbursement - Consultant will get reimbursement of expenses each month upon handover and approval of his expense reconciliation report. All expenses should be approved by TechnoServe in writing prior to them being incurred
- Consultancy payment – 40% of each phase at the start of the phase on inception report, 50% at the final report on conclusion of each phase, duly approved by BeninCajù technical lead as well as processor management
- 10% of each phase will be secured and paid upon satisfactory final report at the conclusion of all phases and contract activities

VII. QUALIFICATIONS

Skill requirements

- Engineering in mechanical/electrical/clean energy with minimum of 15 years of experience
- Excellent modeling and technical skills on power generation projects and its implementation
- Experience in the bio-mass handling and processing, knowledge of cashew shell or shell cake base power generation will be preferred.
- The ability to translate complex economic and financial models for use in evaluating options, producing forecasts, and business decisions into logically and concisely communicated deliverables for potential investors and public-sector stakeholders.
- The ability to work independently, and function effectively as a member of a team, and adhere to strict deadlines;
- Interactive skills and the ability to work with / influence business leaders.
- **Language:** Full English proficiency required, working French proficiency strongly preferred

Educational qualifications

- Bachelors Tech. or Masters Tech degree in Mechanical/Electrical/clean energy
- At least 15 years of experience in analytical and strategic roles within the private sector and/or development spheres on bio mass based power generation
- Excellent oral and written communication skills
- Willingness to travel throughout Benin, when required

VIII. Logistics

For work completed in Benin TechnoServe will directly cover travel-related costs including international airfare, in-country accommodation, in-country transportation, and per diem for living expenses. Any travel costs incurred outside of Benin must be pre-approved.

IX. Criteria for selection

The evaluation of each response to this TOR will be based on the requirements set out in the solicitation and any addenda thereto. At the sole discretion of TNS, the top proposals may be selected for follow-up questions or to provide an oral presentation.

The following weighting and points will be assigned to the proposal for evaluation purposes:

Technical Proposal –60% Project Approach/Methodology Quality of Work Plan Project Schedule Project Deliverables	 30 points (maximum) 10 points (maximum) 10 points (maximum) 10 points (maximum)	60 total points
Management Proposal – 30% Project Team Structure Staff Qualifications/Experience	 10 points (maximum) 10 points (maximum)	30 total points

Experience of the Firm	10 points (maximum)	
Cost Proposal – 10%		10 total points
TOTAL		100 points

TechnoServe reserves the right to award the contract to the consultant whose proposal is deemed to be in the best interest of and most advantageous to TNS and the Donor.

TechnoServe will not award a contract to any bidder where there is indication of a lack of business integrity.

The Organization with the winning proposal will be notified in writing. Those who were not selected may or may not be notified, at the sole discretion of TNS.

X. Terms and Conditions

1. The Request for Proposal is not and shall not be considered an offer by TechnoServe.
2. All responses must be received on or before the date and time indicated below in XVI. Schedule of Events. All late responses will be rejected.
3. All unresponsive responses will be rejected.
4. All proposals will be considered binding offers. Prices proposed must be valid for 60 days after the proposal deadline noted below in XVI. Schedule of Events.
5. All awards will be subject to TNS contractual terms and conditions and contingent on the availability of donor funding.
6. TNS reserves the right to accept or reject any proposal or cancel the solicitation process at any time, and shall have no liability to the proposing organizations submitting proposals for such rejection or cancellation of the request for proposals.
7. TNS reserves the right to accept all or part of the proposal when award is provided.
8. All information provided by TNS in this TOR is offered in good faith. Individual items are subject to change at any time, and all bidders will be provided with notification of any changes. TNS is not responsible or liable for any use of the information submitted by bidders or for any claims asserted therefrom.
9. TNS reserves the right to require any bidder to enter into a non-disclosure agreement.
10. The bidders are solely obligated to pay for any costs, of any kind whatsoever, which may be incurred by bidder or any third parties, in connection with the Response. All responses and supporting documentation shall become the property of TNS, subject to claims of confidentiality in respect of the response and supporting documentation, which have been clearly marked confidential by the bidder.
11. Bidders are required to identify and disclose any actual or potential Conflict of Interest.

XV. Form/Content of Response

All proposals shall:

1. Be in the English language.
2. Include an estimated budget, including the applicant's daily rate, required additional non-TechnoServe personnel, etc. Costs should be detailed in US Dollar, with applicable

Tax/Charges clearly identified.

3. Provide requested payment terms and conditions.
4. Describe the qualifications, experience and capabilities of the firm in providing the type of services being request by this TOR. Resumes or CVs of "key personnel" shall be submitted as an attachment.
5. Include a contact name, email address, and telephone number to facilitate communication between TNS and the submitting organization.
6. A brief outline of the organization and services offered, including:
    a. Full legal name, jurisdiction of incorporation and address of the company
    b. Full legal name and country of citizenry of company's President and / or Chief Executive Officer, and all other officers and senior managers of the company
    c. Year business was established
7. A descriptive of:
    a. Project Approach/Methodology
    b. Work Plan
    c. Project Schedule
    d. Project Deliverables
8. List of 2 references who can attest to the applicant's experience and expertise as it relates to this project and this ToR

XVI. Schedule of Events

Evaluators meeting the above criteria are invited to submit a proposal via email to TechnoServe at offresbenin@tns.org (Use the subject line "Application and Proposal for TNS Benin Power Plant TA").

1. Questions regarding this request must be received no later than December 7, 2018. Responses to questions will be distributed to all interested parties no later than December 14, 2018.
2. Proposals are due from interested parties that meet the requirements by December 21, 2018.

TechnoServe is an Equal Opportunity Employer of Minorities, Females, Protected Veterans and Individuals with Disabilities.