

Terms of Reference (TOR)
for the
Feasibility Study for the Establishment of a Commercial Sweet Sorghum Plantation
and a Sweet Sorghum Syrup Processing Plant in the Philippines

1. BACKGROUND/RATIONALE

1.1. Contracting Authority

The General Appropriations Act (GAA) for 2014 has allocated the amount of Four Hundred Million Pesos (Php400,000,000.00) for the conduct of feasibility studies (F/S) to be administered by the National Economic and Development Authority (NEDA). Thus, the Philippine National Oil Company - Alternative Fuels Corporation (PNOC-AFC) submitted the subject proposal to NEDA for consideration and inclusion under the said fund.

NEDA shall be the Executing Agency while PNOC-AFC shall be the Implementing Agency. The proposed project is consistent with PNOC-AFC's major programs/projects/activities (PPAs).

1.2. Relevant Country/Sector Context

In line with the Philippine Development Plan (PDP) 2011-2016, the establishment of the first sweet sorghum syrup production system is envisioned to boost economic activity and employment. The establishment of sweet sorghum commercial production and syrup processing at the community level is aimed to support the bioethanol distilleries in the country. One way is to provide a complementary supply of raw material together with sugarcane in order to increase the total capacity of distilleries, hence increasing the total bioethanol production of the country also consistent with the strategy under the PDP to promote the use of alternative fuels. In this way, the competitiveness of bioethanol industry in the Philippines can be significantly enhanced.

Furthermore, the agricultural sector in the region can be diversified and promote dedicated production areas specific for sugar industry and/or bioethanol industry separately. Sweet sorghum is only utilized for juice extraction to produce syrup. Another major component is actually the grains. About 6 tons per hectare of grains can be harvested that can have many uses such as planting material, feeds, or food ingredients. The bagasse can also be used as fodder for the cattle industry.

1.3. Current State of Relevant Sectors

Republic Act 9367 – Biofuels Act of 2006

As part of the national development plans, bioethanol industry is consistently developed to become competitive against foreign market. In 2013, a pricing mechanism was established providing a competitive and guaranteed price for the produced bioethanol by our local distilleries. On top of that, the local supply enjoys a captured market with a priority dispatch to

all oil companies to blend a 10% by volume of bioethanol to all petroleum gasoline. However, despite of the attractive business opportunity for bioethanol industry, investors are hesitant, while others are having a hard time in project implementation. One of the major issues can be traced back to feedstock supply.

Currently, the Philippines is committed to achieve around 380 million liters of bioethanol supply for the domestic requirement. However, the current local capacity can produce as much as 120 million liter only. The country is just 30% sufficient to produce the total bioethanol demand. For more than six years, only four (4) bioethanol distilleries were established. In the next years, bioethanol demand will significantly increase as the blending requirement will be elevated up to 20%.

By taking account the existing total distillery capacity of 120 million liters per year, the country requires 9 additional distilleries in 2013 and 2015. This capacity is almost tripled by 2020, requiring 25 distilleries and 30 distilleries by 2030.

Increasing Domestic Bioethanol Supply

There are two practical ways to increase the domestic bioethanol supply. One is to establish additional distilleries. There are committed investors that started construction; however, the establishment of a single distillery would be ideally completed within three years minimum. While waiting for additional distilleries, second option is to further increase the capacity utilization of existing bioethanol distillery. The standard distillery operates for 300 days in a year. The 60 days or 3 months is a window for additional operation which can virtually expand plant's capacity by at most 18%. This would mean an additional 5 million liters per year (MLPY) of bioethanol for a standard distillery capacity of 30MLPY.

Currently, distilleries utilize sugarcane for bioethanol. The sugarcane can be harvested after 9 to 11 months. This is one of the reasons why distillery cannot operate more than 300 days in a year, of course other days are meant for maintenance and repair. The challenge is to explore a complementary feedstock that will extend the feedstock supply of distilleries year-round. In this aspect, the sweet sorghum becomes the best complementary feedstock for sugarcane.

Sweet Sorghum, increasing farmers' income and distillery capacity

Sweet sorghum is a short-duration crop. It can be harvested within a period of around 90-120 days. It is well suited to be a rotation crop for sugarcane. Within a period of 3-4 months, sweet sorghum can produce an average of 50 tons/ha of stalks which is translated into a bioethanol potential of 50 Liters per ton stalks. This means that for every hectare, the bioethanol potential of 2500 Liters can be achieved. Aside from its agronomic viability, sweet sorghum can provide fast income for farmers. Within just 3-4 months, the income from stalks at PhP 800-1000/ton and seeds at PhP 13-15/kg can reach up to PhP 30,000 to PhP50,000. In fact, the stalks can still be bought at PhP 1200/ton, giving farmers estimated income of PhP 70,000 in just 3 months time.

Impact on Agrarian Reform Beneficiaries (ARB)

Farmers who were granted with agrarian reform lands are actually having difficulties in establishing decent income from 1 to 3 hectares. The introduction of sweet sorghum can significantly provide ARBs with decent income while increasing land productivity. For two croppings per year, ARBs can enjoy at least PhP 80,000 net income per hectare from stalks (at PhP 1000/ton) and seeds (PhP 13/kg). For a 3-hectare land, ARBs can enjoy as much as PhP 240,000 net income in a year.

Satellite Syrup Production System

To further involve farmer groups, ARBs and cooperatives, a satellite system of sweet sorghum syrup production can be employed. Syrup production is an integral part of the bioethanol process prior to fermentation and purification into anhydrous bioethanol. A village-scale evaporator system can be deployed which can involve cooperatives or local government units. The facility will consolidate farmer's produced stalks and process it into syrup at 65 Brix (unit of sugar content). In this manner, storage capacity can be enhanced when sweet sorghum stalks can be converted into syrup. This scheme will also be beneficial for existing bioethanol distilleries. By converting sweet sorghum stalks into syrup in the village-levels, the distillery can incur huge savings by doing away with the milling and evaporation process, which are very energy intensive processes. The syrup from the village-scale facility will be bought by the distillery and can be transported through tank trucks to the distillery for further processing into bioethanol.

1.4. Related Project/Programs

- a. Commercial Sweet Sorghum Plantation and Bioethanol Processing in Collaboration with San Carlos Bioenergy Incorporated and Local Government Units of Northern Negros – Conducted by the University of the Philippines Los Banos (UPLB) and funded by the Department of Agriculture (DA)-Bureau of Agricultural Research (BAR) in September 2011-March 2012, the study was based mainly on research and development (R&D) data and therefore results were not optimized. On the other hand, the proposed feasibility study will be derived from operational data.
- b. Technology Piloting of Sweet Sorghum Through the Use of Marginal Lands in the Region of Panay: An Initiative Towards Increasing Farmer's Income and Land Productivity – This study conducted by UPLB and funded by DA-BAR in November 2011 – April 2013 focused mainly on yield, agronomic performance and production cost of sweet sorghum plantation.
- c. Supplementary Research on Large-Scale Production of Quality Sweet Sorghum Syrup using the Facilities of Organic Producers in the Island of Negros Multi-Purpose Cooperative (OPTION-MPC) – This study was conducted by UPLB and funded by DA-BAR with a project duration period of May – December 2012. It was based mainly on research and development (R&D) data and therefore results were not optimized. On the other hand, the proposed feasibility study will be derived from operational data.
- d. Sweet Sorghum Validation Trials in collaboration with Ethanol Players in Negros Occidental -This study was conducted by UPLB and funded by DA-BAR with a project duration period of August 2010 – October 2011. It aimed to generate information on yield, agronomic performance and production cost of sweet sorghum plantation.
- e. Feasibility Study for an Integrated Anhydrous Alcohol Production Plant Using Sweet Sorghum as Feedstock – This study was conducted by the International Society for Southeast Asian Agricultural Sciences (SSAAS), Inc. in 2007 where at the time of data gathering, only estimates were available for deriving the operating expenses for ethanol production which was sourced from the Indian National Research Centre. Likewise, all prices used in the study need to be updated.

2. OBJECTIVE & EXPECTED RESULTS

The project aims to provide a detailed feasibility study (F/S) which covers potential site identification, determination of technical and financial viability, preliminary engineering design, and analysis of the different components of the supply chain (i.e. intermediate products, pricing, labor requirements, etc.) of sweet sorghum from plantation, processing and marketing.

The F/S will integrate value analysis (VA) or options analysis considering different scenarios for both the plantation and the processing plant of sweet sorghum. The F/S shall look at alternative options including its associated costs, benefits and risks involved of delivering the project or components of the project (may include new available technology which can be used to deliver the project or component/s of the project), and selecting the best configuration and/or project components that would most appropriately respond to the project objectives and output, and yield the highest VfM, e.g., lowest lifecycle/whole-of-life costs. The F/S will also be extended towards legal mechanisms, market study, social acceptability, and environmental impacts of sweet sorghum syrup production. Potential problems prior to project implementation up to product utilization will also be identified and analyzed.

The results of the feasibility study should be able to determine the viability of sweet sorghum for bioethanol production and guide policy makers on the next steps for the bioethanol sector.

3. SCOPE OF WORKS

The scope of works shall cover but not be limited to the conduct of a plantation study, processing study, environmental study, social study, marketing study, financial study and legal study. Value/option analysis including risk analysis will be integrated into the plantation, processing and financial studies. During the contract period, conduct coordination meetings with PNOC-AFC and NEDA to: (a) discuss the progress of the work and preliminary output; (b) give the Government the opportunity to make comments and suggestions on a timely basis; and (c) resolve problems and issues that may be encountered. The government may assign counterpart personnel to the study for purposes of transfer of technology and capacity building. The Consultant shall provide for the required office space for the government counterparts.

3.1. Plantation study

This will cover the technical aspect of the plantation, which is basically sub-divided into plantation area selection, land preparation, planting, maintenance, harvesting and logistics, while incorporating value/options analysis for site selection and plantation/farming methods/technique schemes. The agronomic performance of the pre-selected cultivars and hybrid will be validated on a certain area at the potential site.

The study should provide comprehensive information to include the following: sweet sorghum cropping cycles, plantation scheduling, agricultural input application, seed selection, and maintenance practices like weeding, hilling-up, and off-barring. Production scenarios shall describe growth performance and yield of sweet sorghum plantation. Pest and disease control and the application of chemicals or bio-control elements shall be included for every plantation technique or scheme to optimize plantation yield.

The study shall determine the appropriate chemical and biophysical capacity of the soil in relation to different variety of sweet sorghum and its possible growth performance. Results will be used for the GIS study in providing suitable and available locations with geographical coordinates, which will be coupled with the studies on water sources, topography or elevation and climate pattern.

Different farming methods and techniques such as in plowing or harrowing, logistical strategies during planting, harvesting and schedule plan will also form part of the study. Labor requirements, management, energy usage and machineries needed shall also be included. The area of coverage initially identified is Batangas, Philippines as there are already several ethanol processing plants within said province which can also benefit from the additional feedstock supply of sweet sorghum syrup. However, options analysis will still be undertaken to determine the best site location. Stakeholder workshops will also be conducted in Negros Occidental and Isabela to augment the data previously gathered in these sites for inclusion in the FS.

3.2. Processing study

Process flow diagrams, indication of areas and equipment with instrumentations and control, and determination of different parameters that would affect the technical and financial performance of the facility will be covered in the study.

Options for engineering layout, material process flow, material and energy balances and equipment capacities (based on commercial availability) will be analyzed, along with projected cost of operation for each option to determine the best design and configuration of the plant. The components of the preliminary engineering design should incorporate industry and government standards on safety and environment.

3.3. Environmental study

The study shall identify environmental implications of any segment in the life cycle of both plantation and processing plant starting from the plantation up to product utilization. Carbon and water footprint shall be included in this study.

The waste generation of the plantation and processing plant as well as any operation within the supply chain will be fully accounted. Recommended waste treatment technologies shall be included with technical and economic components. Areas of byproduct disposal, in accordance to local government laws, guidelines and policies, should also be identified in this study.

3.4. Social Study

The social acceptability, impact and awareness of the project will be developed and implemented in this study. Continuing programs that will be utilized during and after farming and plant construction should also be formed and recommended for further action to ensure harmonious acceptance of the project to surrounding communities.

3.5. Marketing study & Business Models

Studies on socio-economic demography, supply and product market analysis, and market competition shall be focused on this study. A value-chain analysis of the sweet sorghum syrup

production will be ultimately established. Different marketing agreements and financial projections will also be prepared based on several business models.

3.6. Financial study

In this study, financial assumptions, investment requirements, financial projections, production cost and selling price, income projections, and determination of financial viability parameters such as ROI, IRR, NPV and payback will be presented. Sensitivity and other financial analysis for multi-case scenarios for the project will also be done. Value analysis of options for financing such as internal cash generation, Official Development Assistance from International Financing Institutions or other mixed forms of financing will be conducted. Potential fiscal incentives will also be identified.

3.7. Legal study

The legal steps and requirements in establishing the plantation and processing plant and for conducting marketing and other related activities will be presented in this study. Steps for financing and possible fiscal incentives shall also be identified in this study.

4. TIMELINES AND DELIVERABLES

4.1. Commencement Date and Period of Implementation

The Study shall be completed within a period of nine months, commencing from the date of receipt of the Notice to Proceed (NTP). Refer to Annex A for the table expected outputs.

4.2. Table of Deliverables

A *detailed Work and Financial Plan* shall be submitted by the Consulting Firm to PNOC-AFC for review (copy furnished NEDA for monitoring purposes and payment processing) within five (5) working days from the date of commencement as indicated in the NTP.

The deliverables for the subject study as enumerated below shall be submitted by the Consultant in four (4) hard copies to PNOC-AFC for review and two (2) hard copies to NEDA for monitoring purposes. An electronic/soft copy shall also be submitted to PNOC-AFC and NEDA.

Deliverable	Timeline
Draft Inception Report and Work and Financial Plan	One (1) month from receipt of NTP
Final Inception Report	15 calendar days after receiving comments from PNOC-AFC
Monthly Progress Reports	Monthly until the end of the seventh month (excluding the fifth month), within seven (7) calendar days from end of agreed month-period
Interim Report	Five (5) months from the receipt of NTP
Draft Final Report	Eight (8) months from receipt of NTP
Final Report	Nine (9) months from receipt of NTP

The *Inception Report and Work and Financial Plan* shall include, among others, the detailed work program for the scope of the study, as well a detailed schedule for all work, including field work related to applicable tasks. The Inception Report shall also include the fulfillment of the study conditions listed in this TOR as well as approached and methodologies to be utilized in the development of the study.

The *Monthly Progress Reports* shall include updates on the physical and financial accomplishments of each of the activities under the Work and Financial Plan, including the difficulties encountered and measures taken to overcome them.

The *Interim Report* shall include the results of the plantation study including results of the Value/options analysis done under the plantation study, and results of the environmental study, marketing study and business models, financial (including results of the financing options analysis) and legal study, as well as the status of implementation of processing study and social study, in relation to the scope of work including the value/options analyses.

The *Draft Final Report*, which shall be submitted to PNOC-AFC for final approval, will consist of the completed F/S including the results of the Value/options analysis for the processing study.

5. EXPERTISE REQUIREMENTS

5.1. Key Experts

The consultants comprising the study team should meet the following qualifications:

SENIOR CONSULTANTS

	Expertise/Skills/Requirements	Minimum Requirement
Project Manager & Biofuels Expert	Years of expertise in handling sweet sorghum plantations and processing operations;	2 years
	Years of experience in commercial implementation of sweet sorghum in the Philippines;	1 year
	Educational Degree in related fields	MS or equiv.
	Number of led or managed biofuel projects	5 Projects
	Years of experience in the conduct of Value/options analysis and/or other work related thereto	5 years
Agronomist	Years of expertise in identifying and implementing necessary conditions for optimum sweet sorghum production;	1 year
	Educational attainment in related field	MS or equiv.
	Number of agronomics projects involvement	5 Projects
Soil Scientist	Years of experience in establishment of sweet sorghum plantations;	1 year
	Educational attainment in Related fields	MS or equiv.
	Number of agronomic projects involvement	5 Projects

Pest and Disease Expert	Years of expertise in entomology and plant pathology;	1 years
	Educational attainment in Related Fields	MS or equiv.
	Number of agronomic projects involvement	5 Projects
Agricultural Engineer	Years of expertise in harvesting and post-harvest technologies and practices;	3 years
	Years of experience on large-scale plantation operations,	3 years
	Educational attainment in Engineering/Related fields	MS or equiv.
	Number of post-harvest/plantation projects involvement	5 Projects
Market Study/Value Chain Expert	Years of expertise on product market development, business incubation	5 years
	Years of expertise on supply chain and value chain analysis and small to medium scale enterprises	5 years
	Educational attainment in related field	MS or equiv.
	Number of market/value chain projects/business incubation involvement	3 Projects
Financial and Financing Expert	Years of expertise on economic and financial studies and implications;	5 years
	Years of expertise on the evaluation of financial projections and sensitivity analyses of agricultural systems	3 years
	Educational attainment in related field	MS or equiv.
	Number of feasibility projects involvement	3 Projects
Waste Management Specialist	Years of expertise in providing optimum design specification and consideration on different wastewater treatment systems	2 years
	Years of expertise on biofuels/related industry waste processing and management	1 year
	Educational attainment in related field	MS or equiv.
	Number of biofuels projects involvement	2 Projects
Environmental Impact Consultant	Years of expertise in preparation of environmental impact analysis	1 year
	Educational attainment in related field	MS or equiv.
	Number of sweet sorghum projects involvement	2 Projects

JUNIOR CONSULTANTS AND RESEARCH ASSOCIATES

	Expertise/Skills/Requirements	Minimum Requirement
GIS Expert	Years of experience on agricultural land mapping and topographical site survey;	3 years
	Years of expertise on climate and soil patterns for agricultural systems	3 years
	Educational attainment in related field	MS or equiv.
	Number of GIS projects involvement	2 Projects

Legal Consultant	Years of practice on legal requirements facilitation	5 years
	Lawyer	
	Number of agricultural projects involvement	1- 2 Projects
Mechanical Engineer	Years of experience on Design and economics of mechanical works and provisions, installation and maintenance;	3 years
	Licensed Mechanical Engineer	
	Number of project involvement with sweet sorghum processing system	1- 2 Projects
Electrical Engineer	Years of experience on Design and economics of electrical lay-out, installation and maintenance;	3 years
	Licensed Electrical Engineer;	
	Number of project involvement with electrical process system	1- 2 Projects
Civil Engineer	Years of experience on Biofuels Plant Design and economics of construction, civil works, and maintenance ;	1 years
	Licensed Civil Engineer;	
	Number of project involvement with biofuels or related processing system	1- 2 Projects
Chemical Engineer	Years of experience on design, optimization, installation and maintenance	2 years
	Licensed Chemical Engineer;	
	Number of project involvement with sweet sorghum processing system	1- 2 Projects
Process Engineer	Years of experience in developing process flow diagrams and instrumentation design	2 years
	Licensed Chemical Engineer;	
	Number of project involvement with sweet sorghum processing system	1- 2 Projects
Development Communication Specialist	Years of experience on conducting IECs and other marketing and informational services of agricultural products	2 years
	Communication/ Development communication graduate	BS or equivalent
	Number of projects involvement with Biofuels or related industry	1- 2 Projects
(2) Research Associates	B.S. Graduate of Agriculture, Engineering, Economics, or any courses related to environmental, economics, social sciences and engineering;	

5.2. Criteria for the Selection

Prospective bidders must have/submit the following:

- a. At least five (5) years of relevant experience;
- b. Copies of Certificate of Satisfactory Service/Project Completion and Acceptance from their previous related studies/projects within the past ten (10) years;

- c. Company profile, including list of on-going and completed consultancy projects and/or feasibility studies and related studies for the last ten (10) years; and
- d. Curriculum Vitae (CV) of Key Experts highlighting their relevant work experience.

Note: Related experiences/studies include conduct of pre-F/S and/or F/S and relevant work experience as stated in the table above. The Key Experts are requested to indicate 1) their role in a specific project, 2) the exact duration that they have worked on the project, 3) a brief description of the tasks that they have carried out (e.g., experience in the conduct of VA or options analysis).

The Consulting Firm shall be selected using the Quality-Cost Based Selection procedure under RA 9184 (Government Procurement Reform Act) and its Revised Implementing Rules and Regulations (IRR) and shall be based on the following criteria: eighty percent (80%) Technical and twenty percent (20%) Financial.

The prospective Consulting Firms shall follow the *Guidelines in the Preparation of Eligibility Requirements*, attached as ANNEX C.

6. SOURCE OF FUNDS

The source of funds for this undertaking is the Feasibility Studies Fund of NEDA.

7. INSTITUTIONAL SET-UP/RESPONSIBILITIES

7.1. Executing Agency (EA)/NEDA

- 7.1.1 Shall be the Executing Agency (i.e. representative of the Government in the Contract Agreement with the consultant)
- 7.1.2 Shall, through its NEDA Bids and Awards Committee (NBAC), be responsible for facilitating the bidding and tendering of the consultancy services in compliance with Republic Act 9184 and its Implementing Rules and Regulations (IRR) with the Implementing Agency as end-user;
- 7.1.3 Shall be responsible for the disbursement of the fund for the conduct of the F/S once the contract becomes executed;
- 7.1.4 Shall reimburse or pay in behalf of the Consulting firm for amounts paid on account of all taxes, duties, fees, levies and other impositions under the laws and regulations of the Philippines or any political subdivision or agency thereof (other than personnel who are citizens or permanent residents of the Philippines, in respect of any payment made to the Consulting Firm in connection with the carrying out of the services;
- 7.1.5 Shall be responsible for the preparation and submission of financial reports as required by the Department of Budget and Management (DBM) and other reportorial requirements regarding the F/S Fund administration; and
- 7.1.6 Shall have the option to detail counterpart technical personnel to the project for the purpose of on-the-job capacity building/technology transfer.

7.2. Implementing Agency (IA)/PNOC-AFC

- 7.2.1 Shall be the beneficiary/end-user of the consultancy services;
- 7.2.2 Shall be responsible for the contract implementation and management, including ensuring the quality of outputs. Further, PAFC shall be responsible for the

- monitoring and evaluation of the progress of the study and approval of reports to ensure delivery of outputs as specified in Sections 2,3 and 4 of this TOR;
- 7.2.3 Shall provide assistance in coordination with other agencies related to the study;
- 7.2.4 Shall warrant that the Consulting Firm shall have free and unimpeded access to all lands and properties required for the effective execution of the services. Likewise, it shall be responsible for any damage to such land or any property thereon resulting from such access (unless such damage is caused by the willful default or negligence of the Consulting Firm or its Staff.
- 7.2.5 Shall provide office space during the conduct of the study, as may be necessary;
- 7.2.6 Shall provide the necessary information and if available, copies of previous related studies to the Consulting Firm;
- 7.2.7 Shall evaluate all request for payments/billings and endorse to NEDA upon determination of the acceptability/correctness of the same; Shall report to NEDA the progress (physical and financial) of the study on a quarterly basis; and
- 7.2.8 Shall have the option to detail counterpart technical personnel to the project for the purpose of on-the-job capacity building/technology transfer.

7.3. Consulting Firm

- 7.3.1 Shall be responsible for the conduct of the study and the timely delivery of results/outputs as indicated under Sections 2, 5 and 6 of this TOR;
- 7.3.2 Shall be responsible for the provision of the necessary office space which shall be within close proximity to NEDA, for their project staff as well as the Government's detailed personnel including the necessary office equipment (i.e. computers, printers, office supplies, etc.) for the conduct of the study. All equipment procured or used in the development of the project shall be transferred to the government at the end of the project;
- 7.3.3 Shall shoulder all expense required in the conduct of the study, including travel costs and lodging of detailed Government personnel during field visits, except for their salaries; and
- 7.3.4 Shall (a) carry out the services with sound engineering theories and practices to ensure that the final works will provide the most economical and feasible development for the study, (b) accept full responsibility for the consulting services to be performed under this TOR for which the Consulting Firm is liable to PNOC-AFC, (c) perform the work in an efficient and diligent manner and shall use its best effort to keep reimbursable costs down to the possible minimum without impairing the quality of the services rendered, and (d) comply with, and strictly observe any laws regarding workmen's health and safety, workmen's welfare, compensation for injuries, minimum wage, hours of labor and other labor laws;
- 7.3.5 Shall (a) keep accurate and systematic records and accounts in respect of the services in such form and detail as is customary and sufficient to establish accurately that the costs and expenditures under this TOR have been duly incurred, and (b) permit the duly authorized representatives of the Government from time to time to inspect its records and accounts as well as to audit the same;
- 7.3.6 Shall not assign nor sub-contract any part of the professional engineering services under this TOR to any person or firm, except with prior written consent of PNOC-AFC. The approval by the Government to the assignments of any part of said services or to the engagement by the Consulting Firm of sub-contractors to perform any part of the same shall not relieve the Consulting Firm of any obligations under this TOR;
- 7.3.7 Shall, during or after the conclusion or termination of the study, limit its role under the project to the provision of the services and hereby disqualifies itself and any other

- contractor, consulting engineer or manufacturer with which it is associated or affiliated, from the provision of goods and services other than the services herein, except as NIA may otherwise agree;
- 7.3.8 Shall prohibit full-time foreign staff during his assignment under this TOR to engage, directly or indirectly, either in his name, or through the Consulting Firm, in any business or professional activities in the Philippines other than the performance of his duties or assignment under this TOR;
- 7.3.9 Shall not any time communicate to any person or entity any information disclosed to them for the purpose of the services, nor shall the Consulting Firm make public any information as to the recommendations formulated in the course of or as a result of the services, except with the prior consent of PNOC-AFC;
- 7.3.10 Shall agree that nothing contained herein shall be construed as establishing or creating between the Government and the Consulting Firm, the relationship of employer and employee or principal and agent, it being understood that the position of the Consulting Firm and anyone else performing the services is that of an independent contractor;
- 7.3.11 Shall hold the Government free from any liabilities, suits, actions, demands, or damages arising from the death or injuries to persons or properties, or any loss resulting from or caused by said personnel incident to or in connection with the services under this TOR. The Consulting Firm shall agree to indemnify, protect and defend at its own expense the Government and its agents from and against all actions, claims and liabilities arising out of acts done by the Consulting Firm or its staff in the performance of the services including the use or violation of any copyrighted materials, patented invention, article or appliance;
- 7.3.12 Shall provide on-the-job training to the NEDA and/or PAFC technical support staff in the conduct of the study.

8. APPROVED BUDGET FOR THE CONTRACT

The ABC for the proposed study is **NINETEEN MILLION NINE HUNDRED SEVENTY ONE THOUSAND PESOS ONLY (PhP 19.971 Million)**, inclusive of all applicable government taxes and charges, professional fees, and other incidental and administrative costs which shall be paid on a reimbursement basis (e.g., travel expenses, communication expenses, office supplies, office space, and other expenses deemed necessary for the project as certified by the Executing Agency). Attached as ANNEX D is the breakdown of the ABC.

Please note that this consulting contract shall be a fixed price contract. Any extension of contract time shall not involve any additional cost to the Government.

All equipment, materials, item acquired for the study shall be turned over to NEDA at the conclusion of the study.

9. PAYMENTS SCHEME/SCHEDULE

- 9.1. Billing for *reimbursable items* shall be on a monthly basis based on *actual expenses incurred* and supported by *official receipts/documents*, including the monthly progress reports.
- 9.2. Billing for *non-reimbursable items, including professional fees*, shall be in accordance with the following delivery schedule, *upon recommendation and endorsement of PNOC-AFC and NEDA*, subject to the usual government accounting and auditing requirements.

Upon acceptance of the Inception Report and Work Plan	-15% of total cost for non-reimbursable items
Upon submission of the Interim Report	-15% of total cost for non-reimbursable items
Upon submission of the Draft Final Report	-40% of total cost for non-reimbursable items
Upon acceptance of the Final Report	-30% of total cost for non-reimbursable items
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100%	

- 9.3.** An advance payment shall be made to cover mobilization costs, but shall not exceed TEN PERCENT (10%) of the contract amount, subject to the posting of an irrevocable standby letter of credit issued by an entity acceptable to NEDA and of an equal amount to the advance payment. The advance payment shall be repaid by the Consulting Firm by deducting from his subsequent billings/payments such sum as agreed upon during contract negotiations until fully liquidated within the duration of the contract.

10. RETENTION PAYMENT

A retention payment of ten percent (10%) shall be withheld. It shall be based on the total amount due to the Consulting Firm prior to any deduction and shall be retained from every progress payment until fifty percent (50%) of the value of study, as determined by NEDA, are completed. If, after fifty percent (50%) completion, the study is satisfactorily done and on schedule, no additional retention shall be made; otherwise, the ten percent (10%) retention shall be imposed.

The total "retention money" shall be due for release upon approval of the Final Report. The Consulting Firm may, however, request the substitution of the retention money for each progress billing with irrevocable standby letters of credit from a commercial bank, bank guarantees or surety bonds callable on demand, of amounts equivalent to the retention money substituted for and acceptable to NEDA, provided that the project is on schedule and is satisfactorily undertaken. Otherwise, the ten percent (10%) retention shall be made. Said irrevocable standby letters of credit, bank guarantees and/or surety bonds, to be posted in favor of NEDA shall be valid for the duration of the contract.

11. LIQUIDATED DAMAGES

Where the Consultant refuses or fails to satisfactorily complete the work within the specified contract time, plus any time extension duly granted and is hereby in default under the contract, the contractor shall pay NEDA for liquidated damages, and not by way of penalty, an amount, as provided in the conditions of contract, equal to at least one tenth (1 /10) of one (1) percent of the cost of the unperformed portion of the works for every day of delay. Should the amount of liquidated damages reach fifteen percent (15%) of the contract amount, NEDA shall, at its own discretion, terminate the contract without prejudice to any further action it may take to recover whatever losses incurred due to non-performance of the Consultant.

To be entitled to such liquidated damages, NEDA does not have to prove that it has incurred actual damages. Such amount shall be deducted from any money due or which may become due the contractor under the contract and/or collect such liquidated damages from the retention money or other securities posted by the contractor whichever is convenient to NEDA.

ANNEX A

The consulting services will be undertaken over a nine (9)-month period as shown below:

EXPECTED OUTPUTS	Months								
	1	2	3	4	5	6	7	8	9
Inception Report, Inception Meeting , Work Plan & Workshops									
Market Study, Legal and documentations									
Specific Plantation and Plant Site									
Market Aspect & Business Models									
Production/Technical Aspect Preliminary Engineering Design									
Organization and Management									
Financial Aspect									
Financing and Taxation									
Potential Risks and Problems									
Social Acceptability									
Environmental Impact									
Market Analysis									
Validation of Agronomic Performance on the selected project site									
Stakeholder Workshops									
Data Collection (Primary/Secondary)									
Value/Options Analysis									
Interim Report									
Progress Reports									
Final Revisions & Submission of Final Report									

Note: The above chart is indicative only and does not preclude the shortlisted Consulting Firms from submitting their own work Plan and Gantt Chart of Activities as part of their Technical Proposal.

ANNEX B
Criteria for Shortlisting of Consulting Firms

	Weight	Consulti ng Firm #1	Consulti ng Firm #2	Consulti ng Firm #3	Consulti ng Firm #4	Consulti ng Firm #5	Etc. . .
APPLICABLE EXPERIENCE <ul style="list-style-type: none"> ▪ Completed consulting services of size, complexity and technical specialty comparable to job under consideration, including quality of performance ▪ Other completed consulting services related to the job under consideration ▪ Known cases of prior performance, including quality of work conforming to obligations and cost of services 	30%						
QUALIFICATION OF PERSONNEL Qualification of key personnel that may be assigned to the job	50%						

JOB CAPACITY Absorptive capacity to do additional works other than those currently being undertaken	20%						
TOTAL SCORE							
RANK							

ANNEX C
Guidelines in the Preparation of Eligibility Requirements

The Eligibility Statement of the Consulting Firm interested to be considered for the services contemplated shall fill up the enclosed form in six (6) copies and shall be submitted to the NEDA Bids and Awards Committee (NBAC).

The numbers below correspond to the numbers contained in the form.

1. Type complete name of firm, year established, country of registry if foreign, and type of organization whether individual, proprietorship, partnership, corporation or others.
2. Name of affiliate firms, their year established, countries of origin, and type of organization.
3. Type exact and complete home office, business address, telephone number and cable address. For consulting firms of foreign registry, indicate if there is any branch office/s established in the Philippines and where established.
4. If present firm is the successor to or outgrowth of one or more predecessor firms, type name/s of former entity/ies and the year/s of their original establishment.
5. Present a brief narrative description of the firm.
6. Indicate clearly and accurately the names of the principals of the Consulting Firm and key personnel. This must be accompanied by the curriculum vitae showing experience, professional affiliations and language capability of the key personnel listed.
7. List not more than two (2) principals who may be contacted by this Office. Listed principals must be empowered to speak for the firm on policy and contractual matters.
8. Indicate the number of employees by discipline. While some personnel may be qualified in several disciplines, each person should be countered only once in accordance with his/her primary functions.
 - a. Under this item, indicate the volume of gross consultancy fees per year for the last five years. Gross fees received may be as Prime Consultant or in association or joint venture with consulting firms.
 - b. Indicate bank references and bank address. It is a must that the latest balance sheet duly signed by an independent Certified Public Accountant or accounting firm be submitted with this form.
 - c. The chart listed under this item represents the ranges of professional Service Fee. The indices should be indicated under item no. 10, last column.
9. Indicate appropriate types of services and fields of specialization the Consulting Firm is technically and financially qualified to undertake.
10. This item represents the ongoing/committed consultancy projects of the Consulting Firm and those handled in the last five years. First column represents the name of the project, the date the project was started and how it was accomplished, i.e., as Prime Consultant or through joint venture or in association with other Consulting Firms. If it was implemented in association with other Consulting Firm, indicate name of Consulting Firm. Second column represents the

consulting services rendered, defined as clearly as possible. Third, column represents the Client whom the services were rendered. Indicate the address of the Client. Last column represents the level of fee received by the Consulting Firm as referred to under item 8c — INDEX FEE.

11. List of projects the firm has been engaged in consulting services.

NEW FIRMS (not reorganized or recently amalgamated but only established for less than two (2) years reckoned from the date of preparation of this form) may accomplish this form and questions on the form dealing with personnel or experience may be answered by citing experience and capabilities of the principals and key staff of the firm based on performance and responsibility while in the employ of others. In item 10, representative projects of key personnel and principal offices for the last three (3) years plus consulting services rendered by the New Firm may be indicated.

NOTE: Additional data, brochures, photos, etc. should not accompany this form unless specifically requested.

CONSULTANT'S ELIGIBILITY FORM					DATE		
CONSULTANT	Year Established	Country	Type of Organization				
			Indiv.	Part.	Corp.	Other	
1) NAME							
2) AFFILIATED FIRMS							
3) HOME OFFICE/BUSINESS ADDRESS / TEL. NOS. CABLE ADDRESS							
4) FORMER CONSULTANT'S NAME & YEAR ESTABLISHED FIRM OWNERSHIP							
5) NARRATIVE DESCRIPTION OF FIRM (Use other sheet if necessary)							
6) PARTNERS, DIRECTORS, OFFICERS, KEY PERSONNEL OF FIRM							
NAME AND TITLE		DEGREES(S)	YEARS WITH FIRM		AGE		
(ADD CURRICULUM VITAE SHOWING EXPERIENCE, PROFESSIONAL AFFILIATION AND LANGUAGE CAPABILITY)							
7) NAMES OF NOT MORE THAN TWO (2) PRINCIPALS TO CONTACT TITLE AND TELEPHONE NUMBER							
8) NUMBER OF PERSONNEL IN PRESENT ORGANIZATION							
DISCIPLINE				NUMBER			
PRINCIPAL							
KEY TECHNICAL							
a. Civil Engineers							
b. Structural Engineers							
c. Electrical Engineers							
d. Mechanical Engineers							
e. Architects							
f. Economists							
g. Others (Specify)							
SUPPORT TECHNICAL							
(Indicate as in above)							
ADMINISTRATIVE STAFF							
Indicate type, e.g. typist)							

8a) ANNUAL VOLUME OF GROSS FEES
(LAST 5 YEARS)

8b) FINANCIAL RATING OR BANK REFERENCE

8c)	RANGES	OF	PROFESSIONAL	FEEES	INDEX
1.		Less	than		P100,000
2.		P100,000	to		P250,000
3.		P250,000	to		P500,000
4.	P500,000		to	PI	million
5.	PI	million	to	P2	million
6.	P2	million	to	P5	million
7.	P5	million	to	PIO	million
8.	1110 million or greater				

9) FIELDS OF SPECIALIZATION AND TYPES OF SERVICES

FIELDS OF SPECIALIZATION

TYPES	OF	SERVICES
ABCDE		

1.		Engineering
2.		Architecture
3.		Finance
4.		Management
5.		Agriculture
6.		Law
7.	Others	(Please Specify)
A	-	Advisory and Review Services
B	-	Pre-Investment or Feasibility Studies
C	-	Design
D	—	Construction Supervision
E - Other Technical Services or Special Studies		

10) PROJECTS HANDLED BY THE CONSULTANT FOR THE LAST FIVE YEARS

PROJECT NAME/YEAR

SERVICE
RENDERED

CLIENT

INDEX
FEE

11) TYPICAL PROJECTS FOR WHICH CONSULTING SERVICES HAVE BEEN FURNISHED BY THE CONSULTANT (REFERENCE SHEETS MAY BE SUBMITTED FOR AS MANY PROJECTS AS DESIRED)							
NAME OF OVERALL PROJECT _____							
LOCATION OF OVERALL PROJECT _____							
CONSULTANT'S LEVEL OF EFFORT _____							
(CONSULTANT'S FEE)							
OWNER'S NAME AND ADDRESS							
YEAR SERVICES COMPLETED							
(INDICATE IF ESTIMATED OR ACTUAL)							
ASSOCIATED FIRMS							
DESCRIPTION OF PROJECT							
DESCRIPTION OF SERVICES FIRM PROVIDED							
LIST TYPES OF SERVICES FOR ASSOCIATED ASPECTS OF OVERALL PROJECTS							

ANNEX D
Breakdown of the Approved Budget for the Contract (ABC)

Billing Rate (non-reimbursable)	12,636,000.00
(9) Senior Consultants	
(8) Junior Consultants	
(2) Research Associates (Full-Time)	
Operating Expenses (reimbursable)	
Workshops and Meetings	
Travel, Accommodation & Representations	
PNOC/NEDA Representative Expenses	
Meals	
Travel	
Lodging	
Other Expenses	
Supplies and Materials <i>(inclusive of inputs for agronomic site validation)</i>	
Communications Expenses	
Other Services <i>(inclusive of other necessary retainer services and labor)</i>	
Office Rent	
Utilities	
Capital Outlay (reimbursable)	
Personal Computers and accessories	
Projector/LCD displays	
Total Reimbursable Expenses	7,335,000.00
GRAND TOTAL	19,971,000.00