



Stakeholder Management and Engagement Plan for Implementation of Arundo donax Biomass Initiative

Final Report

This document is a plan for the continuous and effective engagement of stakeholders with influence on or potentially impacted by initiatives to assess the long-term feasibility of using Arundo Donax (Wild Cane) as biomass fuel in Belize. It is an output of the Project Preparation Activity funded by the Global Climate Fund, and being executed by the Caribbean Community Climate Change Centre, in collaboration with and on behalf of the Government of Belize.

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1. Introduction

This management and engagement plan includes measures appropriate levels of consultation and the encouragement and accommodation of timely input of stakeholders for the *Arundo donax* (*A. donax*) initiatives being spearheaded by the Caribbean Community Climate Change Centre in Belize. While the initiatives were first formulated as a single project consisting of three main components, it has since been reconstituted into two separate and related projects with different funding agencies. The first of these is a project preparation initiative financed by a Green Climate Fund (GCF), and the second is a pilot cultivation initiative to be financed by the Belize Electricity Limited (BEL). The two initiatives are described in more detail below.

1.1. The Project Preparation Initiatives

Component 1: Funding Proposal Preparation

This component consists of analysis and stakeholder consultations that will provide critical information on the feasibility of using *Arundo donax* for production of biofuel. The activities to be undertaken under this component, each through a consultancy arrangement, are described below.

1. A feasibility study that will focus on the technical, financial and economic feasibility of the initiative and identify operational and funding modalities to enable long-term sustainability.
2. A stakeholder analysis and management and engagement plan that will identify stakeholders and set out actions for their engagement, with a view to enabling the successful implementation of the initiative. In addition to government, non-profit, civil society and private sector stakeholders, the plan should take account of women, children, youth and the differently abled.
3. A gender study and gender action plan that will facilitate the mainstreaming of gender considerations into the funding proposal and implementation of the project and ensure that activities result in short term and long term benefits of women and children.
4. An environmental and Social Impact Assessment (ESIA) and Social Management Plan (ESMP) that would include, but not be limited to the following.
 - a) Identification of all of the project's potential environmental and social impacts and measures for their prevention or mitigation, or for compensation in the event of adverse impacts.
 - b) Assessment of the legislative and regulatory environment;
 - c) Identification of appropriate institutional arrangements for the sustainable development and stewardship of the *Arundo donax* renewable energy initiative;
 - d) Survey of commercial interest from the sugar industry and other pertinent third parties
 - e) Investigation and presentation of findings for Public-Private Partnership investment options
 - f) Description of the number of beneficiaries potentially affected by the proposed project
 - g) Identification of opportunities, risk and concerns or issues related to the proposed project.

Component 2: Fuel Compatibility Test

This component consists of delivery of 150 tons of dried and shredded *Arundo donax* fuel from stands already growing in natural, mainly riparian habitats across Belize. The intention is to facilitate sufficient

burning to determine the calorific value or efficiency of *A. donax*. The trials will involve testing different proportions of *A. donax* with bagasse in order to observe their relative performance.

1.2. Related Pilot Cultivation Initiative

The pilot cultivation initiative to be financed by the Belize Electricity Limited (BEL) consists mainly of the test cultivation of wild cane of some 400 acres of leased lands near the San Lazaro and Yo Creek villages. The pilot cultivation activities will consist of two phases, the first being a testing phase during which 50 one-acre yield plots will be established, and the final being expanded cultivation of *A. donax* within the 400-acre property. The intention of the initial phase (yield plots) is to test the performance of *A. donax* plants under various conditions, as well as to identify the best approach to eradication. The aggressiveness of the *A. donax* plant will be mitigated during this phase by measures that will include the following.

- 1) Construction of a 20-foot wide buffer which will also function as an access road that will completely enclose the 400-acre site and site. It has been assessed that *A. donax* rhizomes cannot bridge this distance so that crop beyond the buffer would be protected.
- 2) Use of water from wells within the 400-acre property, and disposal within the buffer only; avoidance of any runoff or use of nearby waterways.

An overview of the stakeholders that are directly connected with the above initiatives, along with an evaluation of their impact by and influence on the projects, is described in the next section.

2. Stakeholder Overview

Stakeholders of the *A. donax* initiatives were identified within the following main groups.

- **Policymakers and Regulators:** This group includes the ministries responsible for economic development, climate change, energy, agriculture, environment and forestry. This group accommodates the project, ensuring that it aligns with national priorities, and provides the needed permits and certifications as required under any relevant laws. This refers particularly to research permits and environmental clearance.
- **Project proponents:** This group includes the Caribbean Community Climate Change Centre, The Government offices responsible for oversight Energy and Climate Change activities, the American Sugar Refinery/Belize Sugar Industries Group and its subsidiary, the Belize Co-generation Company, and the Belize Electricity Limited. These agencies are all involved in any or a combination of the oversight, execution or funding of project activities.
- **Research and Technical Units:** These are research agencies such as the Sugar Industry Research and Development Institute, the Orange Walk Agricultural Station, Ministry of Agriculture, the University of Belize which are all involved in research and data collection in areas related to agriculture, energy and climate change.
- **Cane Farmers:** This group includes the Belize Sugar Cane Farmers Association, the Progressive Sugar Cane Farmers Association and the Corozal Sugar Cane Producers Association, representative of the main economic activity in the Northern districts, where the compatibility testing is to be undertaken and the related cultivation initiative will be executed.
- **Community members or households:** While not limited to the Orange Walk and Corozal Districts, this category includes residents of the Yo Creek and San Lazaro Communities, inclusive of youth, women, farmers and community leaders such as teachers and heads of churches or

other faith-based organizations. The geographic focus reflects the intended location of the related pilot cultivation activity and the testing to be done at the BELCOGEN facility.

2.1. Stakeholder by Groups and Influence

The key stakeholders by respective groups are shown in the table below, along with indicators of levels of influence on, and engagement or interest in the projects. The assessment was done using expert judgment to analyze information gathered through stakeholder consultations and literature review.

Table 1: Stakeholders by Group, Influence and Level of Engagement

Stakeholder	Group	Influence	Stakeholder is				
			Unaware	Resistant	Neutral	Supportive	Leading
Caribbean Community Climate Change Centre	Proponent	H					C,D
Belize Electricity Limited	Proponent	H					C,D
Energy Unit, Ministry of Public Service	Proponent	M				C	D
Climate Change Unit	Proponent	M				C	D
BELCOGEN	Proponent	H					C,D
ASR/BSI	Proponent	H					C,D
Sugar Industry Research and Development Institute	Research	L				C,D	
Ministry of Economic Development	Policy	M				C,D	
Ministry of Agriculture, CEO	Policy	H			C	D	
Ministry of Agriculture, CAO	Policy	M			C	D	
Yo Creek Agricultural Station	Policy	M				C,D	
Department of the Environment	Policy	M			C,D		
Forest Department	Policy	M				C,D	
Belize Sugar Cane Farmers Association	Cane Farmer	M				C,D	
Progressive Cane Farmers Association	Cane Farmer	M				C,D	
Corozal Sugar Cane Farmers Association	Cane Farmer	L				C,D	
Non Cane Farming Community	Households	L	C			D	
Landowners	Households	L	C			D	
Families and households	Households	L	C			D	
Yo Creek Community	Households	H				C,D	
San Lazaro Community	Households	H				C,D	

Key

H = High, M = Moderate, L = Low, C = Current, D = Desired

2.2. Issues Identified

Key issues that can have an impact on the success of the *A. donax* Biomass initiatives are outlined below, clustered by stakeholder group. These issues were identified in part through consultation and focus group meetings, per the schedule at Appendix 1.

Policymakers and Regulators

Among policymakers and regulators, the main issue is the low level of engagement of the Ministry of Agriculture up to the start of the consultancy. This was evident in part through indications by several representatives of that ministry that no information had been received on the initiatives since the start of activities approximately two years prior and up to the point of the interview, and that as a consequence it had been assumed that the project would be moved forward.

These statements, which was paraphrased by almost all agency representatives at the start of interviews, suggest a need to provide information and updates on a regular basis. Some specific observations are listed below.

- A higher level of engagement of Ministry of Agriculture and specialized agriculture agencies such as the Belize Agriculture Health Authority is required going forward.
- Requirements of licensing and permitting agencies-land leases, forest research permits and environmental clearance-should be routinely monitored, and reports and requests made as required.

Project Proponents

The project proponent group includes the 5Cs, the Belize Electricity Limited (BEL) and the various government agencies. Notably, the level of engagement of the government agencies responsible for energy and climate policies appears to be low. In addition, the commitment of the BEL in terms of financing the related cultivation activity is not known to all of the stakeholders. There is also not enough general knowledge or awareness of the status of relevant issues, such as the update agreement between BEL and Comision Federal de Electricidad (CFE). There is also appears to be lag in information sharing between BELCOGEN and the project unit.

Cane Farmers

Cane farmers need clear update on the progress of the initiatives, and can be critical partners in terms of information and strategic on-the-ground support for implementation. Key issues that can influence implementation include the following-

- Cane farmers tend to assume the *A. donax* initiatives are exclusive to the Orange Walk Northern districts and to the cane industry.
- The historical relationship between cane farmers and processors can impact the associations' stance on BELCOGEN activities within the initiatives, notwithstanding the fact that *A. donax* is a perennial grass that is separate from sugarcane and sugar processing.

Community members or households

The communities in the Yo Creek and San Lazaro districts require clear updates on the progress of the pilot cultivation initiative. Given the leveling off of growth of the sugar industry and the reduction in price levels with the expiration of preferential arrangements, income levels are depressed and community residents are interested in economic opportunities. This lends to their interest in *A. donax* which they view as a potential cash crop, as well as their vigilance on resources.

2.3. Stakeholder Matrix

Stakeholders identified are set in the matrix below, along with description to their connection to, and level of interest and engagement in the initiative. Specific ways in which each stakeholder can affect the activities is also described, and strategy for their engagement indicated.

Stakeholder Name or Group	What is important to the stakeholder?	Stakeholders' actual or potential link to the project?	How could the stakeholder block the project?	Stakeholder is unaware, resistant, neutral, supportive or leading.*	Level of influence (Low, Medium, High)	Issues, Opportunities and Risks	Strategy for engaging the stakeholder
Energy Unit, Ministry of Public Service	Energy Policy, Government Focal Point for MOU with 5Cs	Maintaining oversight of the <i>Arundo donax</i> project with a view to ensuring consistency with national energy policy	Withdraw support at the policy level	S	M	Level of engagement affected by the distribution of the portfolios of the former ministry of Energy among three (3) separate ministries	Include in Quarterly project oversight Meeting/Update
Climate Change Unit	Climate Change Policy;	Maintaining oversight of the <i>Arundo donax</i> project with a view to ensuring consistency with national climate change policy	Can withdraw support at the policy level	S	M	Interested in project's alignment with Belize's objective of implementing adaptation and mitigation measures.	Include in Quarterly Project Oversight Meeting/Update
BELCOGEN	Provides electricity to national grid under co-generation agreement with BEL	Test burning of <i>Arundo donax</i> in existing facility and at varying conditions; recording and reporting of results, including measures of calorific values and levels and types of emissions.	Can cease collaborating on compatibility testing	L	H	Committed to compatibility testing; determined that in the event AD is feasible for biomass;	Include in Monthly Meeting for Status Update and exchange of Information

Stakeholder Name or Group	What is important to the stakeholder?	Stakeholders' actual or potential link to the project?	How could the stakeholder block the project?	Stakeholder is unaware, resistant, neutral, supportive or leading.*	Level of influence (Low, Medium, High)	Issues, Opportunities and Risks	Strategy for engaging the stakeholder
ASR/BSI	Owners of BELCOGEN, Producers of sugar and bi-product bagasse	Facilitation and oversight of the co-generation testing activities at BELCOGEN	Can direct BELCOGEN to cease collaborating on compatibility testing	L	H	Interested in exploring the technical and financial feasibility of using AD as supplementary biomass for energy generation	Include in Monthly Status Meeting for exchange of Information
Belize Electricity Limited	Produces and purchases electricity and distributes to users through the national grid; funders of related pilot cultivation activity.	Receiving data and information on co-generation testing; Assessing the feasibility and acceptability of <i>Arundo donax</i> mix of biomass generated energy within the national grid; financing the related pilot cultivation initiative.	Ceasing collaboration on project preparation activities; Withdrawing financial support for related pilot cultivation initiative	L	H	Interested in exploring all options.	Include in Quarterly Project Oversight Meeting
Sugar Industry Research and Development Institute	Scientists that can support the feasibility study by helping to identify risks and ecological impacts and determine best practices.	Supporting research and outreach; monitoring ecological impacts; collaborating on implementation of on-site activities of related pilot cultivation activities; collecting and recording data on yields.	Providing adverse information on ecological impacts	S	H	Interested in participating in the research aspects of the project to help determine the ecological impacts of cultivation of <i>A. donax</i> and in refining best practices.	Include in Technical Committee, meet on regular basis or at least bi-monthly

Stakeholder Name or Group	What is important to the stakeholder?	Stakeholders' actual or potential link to the project?	How could the stakeholder block the project?	Stakeholder is unaware, resistant, neutral, supportive or leading.*	Level of influence (Low, Medium, High)	Issues, Opportunities and Risks	Strategy for engaging the stakeholder
Landowners	Potential providers of land for cultivation	Collaborating with Policymakers and Co-generation operators to provide	Opting to not utilize land in alignment with policy and regulatory guidelines; withholding marginal lands or insisting on conversion of lands being used for food crop.	U	H	At risk of converting non-marginal or agricultural land to AD production	Develop Appropriate Outreach Material at critical points and set intervals; ensure outreach is done at the local level, using Village Councils and community leaders.
Ministry of Economic Development	Government agencies responsible for ensuring that any new activity aligns with national development plans	Maintaining oversight of the <i>Arundo donax</i> project with a view to ensuring consistency with national development policy; supporting or facilitating relevant negotiations with international governments or multilateral institutions, if and as needed.	Withdrawing support for project preparation activities and for related cultivation	S	M	Interested in ensuring consistency with national development plans	Include in Quarterly Project Oversight Meeting

Stakeholder Name or Group	What is important to the stakeholder?	Stakeholders' actual or potential link to the project?	How could the stakeholder block the project?	Stakeholder is unaware, resistant, neutral, supportive or leading.*	Level of influence (Low, Medium, High)	Issues, Opportunities and Risks	Strategy for engaging the stakeholder
Ministry of Agriculture, CEO	Government agencies responsible for ensuring that any new activity aligns with national agriculture policies.	Maintaining oversight of the <i>Arundo donax</i> project with a view to ensuring consistency with national agriculture policy and sound agricultural practices.	Mounting opposition to project preparation activities; opposing related pilot cultivation activities; lobbying against the initiative at the policy and decision making level.	N	H	Concerned with potential risks to existing stock of sugarcane farms, potential water demand from crop, and potential conversion of land currently being used for agricultural production	Include Agriculture Department in quarterly updates.
Ministry of Agriculture, CAO	Government agencies responsible for working with general public to facilitate agricultural activities ensuring that any new activity aligns with national agriculture policies.	Oversight of local level outreach and research around the related pilot cultivation of <i>Arundo donax</i> and monitoring of ecological impacts.	Non-support for research and outreach; identifying or reporting adverse ecological impacts.	N	H	Concerned with the ecological impact of <i>Arundo donax</i> cultivation and the potential economic benefit to farmers	Include in quarterly updates.

Stakeholder Name or Group	What is important to the stakeholder?	Stakeholders' actual or potential link to the project?	How could the stakeholder block the project?	Stakeholder is unaware, resistant, neutral, supportive or leading.*	Level of influence (Low, Medium, High)	Issues, Opportunities and Risks	Strategy for engaging the stakeholder
Yo Creek Agricultural Station	Government agencies responsible for outreach and extension services to farmers at local level.	Supporting local level outreach and research around the related pilot cultivation of <i>Arundo donax</i> ; Lending oversight of on-site cultivation of <i>Arundo donax</i> once initiated. Monitoring of ecological impacts.	Non-support for research and outreach; identifying or reporting adverse ecological impacts.	N	M	Concerned with the ecological impact of <i>Arundo donax</i> cultivation and the potential economic benefit to farmers	Include in Local Technical Committee, meet on at least bi-monthly; Include in monthly email updates.
Department of the Environment	Government agencies responsible for ensuring environmental regulations are adhered to in project execution and that socioeconomic activities align are consistent with sound environmental practices.	Issuing environmental clearances as required by law	Not issuing environmental clearance; issuing stop order	N	H	Concerned with ensuring minimal environmental damage	Report as required per Environmental Clearance conditions

Stakeholder Name or Group	What is important to the stakeholder?	Stakeholders' actual or potential link to the project?	How could the stakeholder block the project?	Stakeholder is unaware, resistant, neutral, supportive or leading.*	Level of influence (Low, Medium, High)	Issues, Opportunities and Risks	Strategy for engaging the stakeholder
Forest Department	Responsible for ensuring forest and biodiversity activities are consistent with national forest and biodiversity policies	Issuing permits as required by law	Not issuing research permits	S	H	Concerned with understanding the ecological impacts of <i>Arundo donax</i> cultivation and concurrent preservation of Belize biodiversity	Include in Quarterly Project Oversight Meeting
Non Cane Farming Community	New opportunities for income generation	No established link	Lobbying at the political level	U	L	Can help to establish broad based support	Include key representative in a monitoring team; include representative group(s) in information dissemination via email updates; Include in broad based consultations as needed

Stakeholder Name or Group	What is important to the stakeholder?	Stakeholders' actual or potential link to the project?	How could the stakeholder block the project?	Stakeholder is unaware, resistant, neutral, supportive or leading.*	Level of influence (Low, Medium, High)	Issues, Opportunities and Risks	Strategy for engaging the stakeholder
Families	Indirect beneficiaries that would be positively impacted by a viable and vibrant biomass industry	Using and purchasing energy provided through national grid.	Opposing biomass	U	L	Interested in participating as producers in new and viable economic activities	Communicate through local leaders, such as village chairmen or community leaders
Sugar Cane Farmers Associations (Belize, Progressive, Corozal)	Primary stakeholders in sugarcane cultivation and beneficiaries of sugar production activities.	Being open to cultivating <i>Arundo donax</i> along the guidelines to be determined, in the event that the project preparation and related pilot cultivation activities demonstrate feasibility and that there are institutional investors interested in purchasing <i>Arundo donax</i> for conversion to biomass.	Mounting sustained opposition to project preparation activities and to related pilot cultivation at the political level; Premature lobbying for exclusive access or first rights to anticipated biomass and co-generation industry; Premature attempts to negotiate terms, such as pricing and delivery mechanism.	S	H	Interested in participating as producers in new and viable economic activities	Include in quarterly email updates.

3. Engagement and Communication Strategy

The engagement and community strategy has several key aspects that would facilitate meaningful inclusion of key stakeholders, and ensure regular update, reduce information asymmetry and enable smoother implementation.

- Expand inclusion of Ministry of Agriculture in activities through implementation. This includes widening the number of communication points within the organization, and particularly including the Extension Officer at the Yo Creek Agriculture Station (Within 1 month).
- Identify an oversight group inclusive of stakeholders from each of the following groups (Within 2 month).
 - Policymakers-include Agriculture, Forest Department, Energy and Climate.
 - Farmers (of sugarcane and non-sugarcane crops)
 - Communities and Households (Yo Creek and San Lazaro Community Leaders, NAVCO)
 - Researchers (SIRDI, University of Belize)
 - Energy Providers (BEL, BELCOGEN/ASR-BSI)
- Identify and include at least 2 key representatives of farmers of crops other than sugarcane as early as possible to include in the oversight (Within 2 months).
- Establish and maintain a schedule for updating stakeholders via email on the progress of the initiatives, and on the results (within 2 months).
- Initiate and maintain a schedule of on-site visits with proponents and researchers (collaborators, within 4 months). This would include BEL, SIRDI, BELCOGEN and members of the communities in the districts where activities are being undertaken.
- Establish a technical and research advisory group with participation of the Sugar Industry Research and Development Institute, the Agriculture Extension Officer in Charge of the Yo Creek Agricultural Station (within 3 months).
- Develop a web portal on the 5Cs website for the provision of updates on the *A. donax* initiatives (within 3 months).
- Develop media package of information on *A. donax* initiative (within 3 months).
- Establish a routine of roundtable and community consultation meetings to facilitate engagement of key stakeholders (within 4 months). The audience and frequency should be as follows-
 - Community Consultation: Yo Creek and San Lazaro Communities, bi-annually.
 - Roundtable: Technical and Advisory Group, every 4 months.
 - Roundtable: Oversight Group, Annually.

3.1. Information Dissemination and Channels for Feedback

Communication with stakeholders should be done through several modes, as described in the table below.

Table 2: Information Dissemination Method

Information Dissemination Method	Use
Phone/text/instant messages	Inform stakeholders of Consultations and meetings
Email	Inform Stakeholders of Consultations and meetings and confirm attendance; Provide attachments such as prepared reports and communication materials; Provide updates on initiatives or reports of related meetings and working sessions.
Print Media	Development and disseminate brochures or reports to provide background or update on initiatives, implementation progress and results. Placement can be at strategic location, such as government and public utility, city, town and village council offices.
Radio and Television	Disseminate information on initiatives, implementation progress and results; Engage facilitators and audience in Q&A.
Social Media	Provide regular updates on implementation progress and related developments for key stakeholders, as prepared and approved for release.
Website	Develop web portal for A. <i>donax</i> initiatives; updated at least monthly.
Interviews	Illicit and record direct input from stakeholders; establish connection and rapport.
Focus Group Meetings	Provide background and update on initiatives; use structured approach to engaged participants and encourage dialogue; record participants inputs; provide feedback where possible.
Roundtable	Present and review update on A. <i>donax</i> initiative; Identify and discuss key issues that would affect implementation or output; Report by participants on issues relevant to the A. <i>donax</i> initiative and within their purview that would have been previously identified for inquiry, research and study. Record key discussions and findings.
Public Consultations	Present background and update on A. <i>donax</i> initiatives; engage in Q&A; record participants input and feedback.
Workshops	Present background and update on A. <i>donax</i> initiatives; use participatory activities to facilitate dialogue, brainstorming, feedback, analyses and recommendation; record outputs
Formal Meetings	Provide background and update on initiatives; distribute or exchange technical material and data; Record key issues and inputs

The engagement and communication strategy outlined in the previous subsection can be supported with the following schedule of information flow. *It is important to note that emails are a critical component of the dissemination channel and would be important for timely feedback.* Where urgent or practical, the use of phone and text should be employed. This is especially applicable in organizing community-level engagement.

Table 3: Information Flow

Stakeholder	Information To Be Exchanged	Engagement Method	Timing
Belize Electricity Limited	Progress and results of cultivation activities; results of compatibility test	Email	Monthly
	Meeting times and dates, Feedback on Issues	Email, Phone, Text Instant Messages	As Needed
Energy Unit, Ministry of Public Service	Progress on implementation of project preparation and cultivation initiatives	Email	Monthly
	Meeting times and dates, Feedback on Issues	Email, Phone, Text Instant Messages	As needed;
National Climate Change Office	Progress on implementation of project preparation and cultivation initiatives	Email	Monthly
	Meeting times and dates, Feedback on Issues	Email, Phone, Text Instant Messages	As needed
BELCOGEN/ASR-BSI	Progress of <i>A. donax</i> preparation processes (drying and shredding)	Email	Monthly
	Meeting times and dates, Feedback on Issues	Email, Phone, Text Instant Messages	Every 4 months (Quadrimester)
Sugar Industry Research and Development Institute	Results of compatibility testing	Email	As Available
	Approaches to and results of pilot cultivation activity	Email	As needed
	Meeting times and dates	Email, Phone, Text	As needed
	Technical information for improved cultivation practices and risk management	Roundtable	Every 4 months (Quadrimester)
Ministry of Economic Development	Progress and results of project preparation and cultivation activity	Email	Quarterly
		Roundtable	Annually
Ministry of Agriculture, CEO	Detail information of results of cultivation activity	Email	As Available
		Roundtable	Annually
Ministry of Agriculture, CAO	Detail information of results of cultivation activity	Email	As Available
	Meeting times and dates, Feedback on Issues	Email, Phone, Text Instant Messages	As needed
	Technical information for improved cultivation practices and risk management;	Roundtable	Annually
Yo Creek Agricultural Station	Participation in the cultivation activities; Detail information of results of cultivation activity	Email	Monthly

Table 3: Information Flow

Stakeholder	Information To Be Exchanged	Engagement Method	Timing
	Meeting times and dates, Feedback on Issues	Email, Phone, Text Instant Messages	As needed
	Technical information for improved cultivation practices and risk management;	Roundtable	Every 4 months (quadrimester)
Department of the Environment	Adherence to provisions of environmental clearance provided	Email	As needed
Forest Department	Progress and results of the cultivation activity; information in response to research permit issued	Email	As needed
		Roundtable	Annually
Cane farmers	Results of compatibility testing and pilot cultivation activity; Measures to be taken toward exit or expansion	Email	
		Interviews or Focus Group Meetings	Every 6 months
Farmers of crops other than sugarcane	Results of compatibility testing and pilot cultivation activity; Measures to be taken toward exit or expansion	Email	Monthly
		Website	Monthly
		Print Media	As needed
Landowners	Progress and results of on implementation of project preparation and cultivation initiatives; Measures to be taken toward exit or expansion	Website	Monthly
		Radio and Television	As needed, Annually
		Print Media	As needed
Yo Creek Resident	Results of compatibility testing and pilot cultivation activity; Measures to be taken toward exit or expansion		Every 6 months
San Lazaro Resident	Results of compatibility testing and pilot cultivation activity; Measures to be taken toward exit or expansion		Every 6 Months
Families and households	Progress and results of on implementation of project preparation and cultivation initiatives; Measures to be taken toward exit or expansion	Website	Monthly
		Radio and Television	As needed, at least annually
		Print Media	As needed

3.2. Conflict Management and Settlement

The recommendation to implement a schedule of regular communication is intended to minimize conflicts. Where issues need to be dealt with on an escalated level, the Project Manager should liaise with the representative of the agency with lead responsibility for the issue concerned.

3.3. Monitoring and reporting

The achievement of the communication strategy and the implementation of the schedule should be monitored jointly and regularly by the Project oversight team members, in coordination with the communications office. A log of communications should be established and updated monthly, and instruments to measure stakeholder satisfaction should be included in the quadrimesterly, semesterly and annual meetings.

BIBLIOGRAPHY

- Caribbean Community Climate Change Centre. (2016a). *Potential Study on producible Biogas and Renewable Energy Biomass and Organic Waste in Belize*.
- Caribbean Community Climate Change Centre. (2016b). *Environment and Risk Management Plan for Piloting the Cultivation of Arundo Donax in Northern Belize*.
- Caribbean Community Climate Change Centre and the Ministry of Energy, Public Service, Science & Technology and Public Utilities (MESTPU). (2017). *Project Proposal. Project for the Production of Arundo Donax as a Renewable Biomass Fuel for Belize*.
- Caribbean Community Climate Change Centre and the Ministry of Forestry, Fisheries, and Sustainable Development. (2014). *A National Climate Change Policy Strategy and Action Plan to Address Climate Change in Belize*.
- Daniels, E.A. (2016). *The Suitability of wild cane (Arundo Donax) as a potential supplement to bagasse for electricity generation in Belize*. Center for Resource Management and Environmental Studies (CERMES), Barbados.
- Gischler, C., Rodrigues, E., Rojas Sanchez, L., Gonzalez Torres, C., Servetti, G., Olson, L. (2014). *The Energy Sector in Belize*. Inter-American Development Bank
- Government of Belize. (2016). Belize 2016 – 2019. *Growth and Sustainable Development Strategy*. Ministry of Economic Development.
- Government of Belize. (2012) *National Energy Policy Framework. Energy by the People, for the People. Towards Energy Efficiency, Sustainability and Resilience for Belize in the 21st Century*. Tillett, A., Locke, J., Mencias, J.
- Government of Belize. (2013). *National Climate Resilient Investment Plan*.
- Government of Belize. (2003). *The National Food & Agriculture Policy 2002-2020*.
- Government of Belize. (n.d.a). *Horizon 2030. National Development Framework for Belize. 2010 – 2030*.
- Government of Belize. (n.d.b). Belize. *Nationally Determined Contribution Under the United Nations Framework Convention on Climate Change*. Belize National Climate Change Office.
- Green Climate Fund. (2018). *Approved Project Preparation Funding Application. Arundo Donax Renewable Bio-mass Fuel for Belize-Feasibility Study and Funding Proposal Preparation*.
- The United Nations Framework Convention on Climate Change*. Downloaded from <https://unfccc.int/resource/docs/2015/cop21/eng/l09r01.pdf>
- United Nations. (2015). *Paris Agreement*.

APPENDIX 1: STAKEHOLDERS INTERVIEWED

Agency	Contact Person	Position	Phone Contact	Meeting Date
Individual or Small Group Meetings				
Caribbean Community Climate Change Centre	Mr. Earl Green	Project Officer	(501) 824-1104	5-Jul-18
	Dr. Al Binger	Adviser	+1 (301)-873-4522	12-Jul-18
	Dr. Kenrick Leslie	Executive Director	(501) 824-1104	26-Jul-18
National Climate Change Office	Dr. Lennox Gladden	NCCO	(501) 828-5964	11-Jul-18
United Nations Development Programme	Ms. Diane Wade	Environment Program Manager	(501) 822-2688	18-Jul-18
Ministry of Economic Development	Mrs. Y. Sharman Hyde	CEO, MED	(501) 822-2527	19-Jul-18
Forest Department	Mr. Wilber Sabido	Chief Forest Officer	(501) 822-2079	20-Jul-18
Ministry of Agriculture	Min. Godwin Hulse	Minister	(501) 822-2241	20-Jul-18
	Mr. Andrew Harrison	Chief Agricultural Officer	(501) 822-2241	20-Jul-18
	Mr. Andrew Mejia		(501) 822-2241	20-Jul-18
	Dr. Victorino Pascual	Director, Water and Climate Change	(501) 622-9327	25-Jul-18
Ministry of the Public Service, Energy Unit	Mr. Ryan Cobb	Director	(501) 822-2204	25-Jul-18
Environment Department	Mr. Leonides Sosa	Environment Officer	(501) 802-2542	25-Jul-18
Sugar Industry Research and Development Institute	Mr. Marcos Osorio	Executive Director	(501)-677-4794	30-Jul-18
	Dr. Luciano Chi	Scientist	(501)-677-4794	30-Jul-18
Yo Creek Agricultural Station	Mr. (Barry) Fulton Palacio	Agricultural Officer	(501) 615-3410	30-Jul-18
American Sugar Refinery/Belize Sugar Industry	Mr. Donnie Tun	Power Plant Superintendent	(501) 322-2150	31-Jul-18
	Mr. Luis Ramirez	Industrial Operations Manager	(501) 322-2150	31-Jul-18
	Ms. Susana Castillo	Project Assistant, Government Affairs and Communications Officer	(501) 322-2150	31-Jul-18

Agency	Contact Person	Position	Phone Contact	Meeting Date
Public Utilities Commission	Mr. Ambrose Tillett	Consultant	(501) 223-4398	2-Aug-18
Belize Electricity Limited	Mr. Jeffrey Locke	Chief Executive Officer	(501) 227-0954	6-Sep-18
	Mr. Ernesto Gomez	Generation Planning Officer	(501) 227-0954	6-Sep-18
Saint Francis Xavier Credit Union	Mr. Elvis Canul	Head Office Manager	(501) 422-2892	31-Aug-18
Focus or Group Discussions				
Belize Sugar Cane Farmers' Association	Mr. Oscar Alonso,		(501) 322-3670	27-Aug-18
Belize Sugar Cane Farmers' Association	Mr. A. Wicab and Board		(501) 322-3670	27-Aug-18
Progressive Sugarcane Producers Association	Mr. Octavio Bol		(501) 302-1568	28-Aug-18
Corozal Sugarcane Producers Association	Mr. Vladimir Puck		(501) 667-1150	31-Aug-18
	Mr. Leonardo Fulgarait		(501) 667-1150	31-Aug-18
Yo Creek Village Council	Mr. Abel Sosa	Chairman	(501)-631-4324	27-Aug-18
Yo Creek Residents	Mr. Abel Sosa	Residents	(501)-631-4324	27-Aug-18
San Lazaro Village Council	Mr. Miguel Cabanas	Chairman	(501) 631-5156	29-Aug-18
San Lazaro Village Residents	Mr. Miguel Cabanas	Residents	(501) 663-5156	29-Aug-18