



National Coordination and preparation of the draft of the National Agroforestry Policy



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Abbreviations and Acronyms

AF	Agroforestry
AFS	Agroforestry system
AMAF	ASEAN Ministries of Agriculture and Forestry
ASEAN	Association of South-East Asian Nations
ATWGARD	ASEAN Technical Working Group in Agricultural Research and Development
BLPA	Belize Livestock Producers Association
CATIE	Tropical Agricultural Research and Higher Education Center (acronym in Spanish)
CC	Climate Change
CGIAR	Consultative Group on International Agricultural Research
COP	Conference of Parties
CTCN	Climate Technology Center and Network
FAO	United Nations Food and Agriculture Organization
FTA	Forests, trees and agroforestry
IUCN	International Union for Conservation
PDT	Policy Development Team
MAG	Ministry of Agriculture and Livestock
NAFC	National Agroforestry Council
REDD+	Reducing Emissions from Deforestation and Degradation Plus
TA	Technical assistance
TCGA	Toledo Cacao Growers Association
TFCGA	Trio Farm Cacao Growers Association
TIDE	Toledo Institute for Development and Environment
UB	University of Belize
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change



Introduction

The objective of CATIE's technical assistance (TA) is: "To develop an integrated and comprehensive Agroforestry (AF) policy framework that will aid in mainstreaming this form of land use countrywide, providing practical knowledge and skills to the national team (National Climate Change Office, the Agriculture Department and the Forest Department) to understand and use a tested and successful process to develop a National AF Policy (NAFP) for Belize.

Based on the Terms of Reference of the "Development of an integrated and comprehensive AF policy for Belize Technical Assistance", CATIE is submitting **Deliverable 6.1 of Output 6**, i.e National Coordination and Preparation of the draft of the National Agroforestry Policy and reports on all other consultations that were conducted during the project October 2019 – October 2020.

Consultations conducted during the project are as follows:

Inter-ministerial coordination: Agriculture, Forest and Environment Departments and other stakeholders

Rapid participatory Assessment Gender Equity: Challenges for Inclusion in Agroforestry in Belize and Guidelines for Inclusion

Gaps, Constraints, Issues and Strengths that exist in the agroforestry sector in Belize and Gaps and Constraints that hinder its adoption countrywide.

District to District Consultation on Agroforestry in Belize (Deliverable 6.1- Organize a consultation meeting with key stakeholders across the country: three events for a total of 30-40 participants (10-12 per event) seeking for feedback on the draft of the policy.)

Deliverable 6.2 - Organize an intermediate consulting workshop with the national task force to share the consolidated policy draft.

Deliverable 6.3 - Consolidate final draft of the agroforestry policy base on outcome from activity 6.1

These Output 6 deliverables corresponds to specific objective 6 of the TA which is "Consult stakeholders by district on the draft national agroforestry policy."



Importance of Agroforestry and as a strategy to adopt to climate change

Agroforestry systems (AFS) are multifunctional systems that can provide a wide range of economic, socio-cultural and environmental benefits. Most AFSs aim to increase or maintain production and productivity of farming systems; reduce agricultural inputs and thus reduce production costs; and diversify production through a variety of possible tree products; for example, food, fodder, timber and other building materials and fuel wood. AF promotes biodiversity and produces various ecosystem services. Thus, they provide and receive ecosystem services and disservices. These agroecosystems provide direct services and the management of their ecosystem determines the delivery of those services (Palacios, Bucheli & Bokelmann, 2017).

AF is not a new practice but instead it has been a common traditional way to produce food, fodder, fibre and fuels. Furthermore, developing AF for food production can also help in the mitigating the challenges of climate change, environmental degradation and biodiversity loss (Vi Agroforestry, 2020).

Based on the REDD+ scheme and other plans and strategies, having AFS can help combat or reduce greenhouse gas (GHS) emissions from deforestation and forest degradation by forest conservation of forest carbon stock through carbon sequestration either on trees or in soils. AF practice such as woodlots, conservation of riparian forest, forest buffers, inter-cropping and silvo-pastoral systems are way that can assist in carbon sequestration.

Belize has committed itself to developing, adopting and implementing policies to mitigate the effects of climate change through the Nationally Determined Contribution (NDCs) and projects like REDD+. NDC has placed a great emphasis on sustainable forest management as a way to combat climate change through AFSs. Having AFS eliminated the GHG emissions associated with agrochemical leaching and releasing into the air and also minimizes the release of GHG from soil degradation. AF is an adequate strategy to implement in Belize and its importance is well known; however, its implementation has been fragmented.

For this reason, the country saw the need to develop and is developing a National Agroforestry Policy (NAFP) which will set a clear roadmap for mainstreaming of AF in both large and small-scale farms, build research capacity and establish new AF projects countrywide.



Belize country profile

Belize is a small subtropical country (22,966 km²) which was occupied solely by the Maya people before the arrival of the Europeans and prior to becoming a British colony (Mitchell et. al, 2017). Belize, formerly known as British Honduras, is located on the east coast of Central America facing the Caribbean Sea (15°53'-18°30'N; 87°15'-89°15'W). The country is bordered on the west and south by Guatemala and on the north by Mexico. The western, south-western and southern part of the country holds the "Mayan Mountains", whereas the entire coast and northern part of the country corresponds to the "Low Plains" (Rosa Cruz, 2010 FAO 2018).

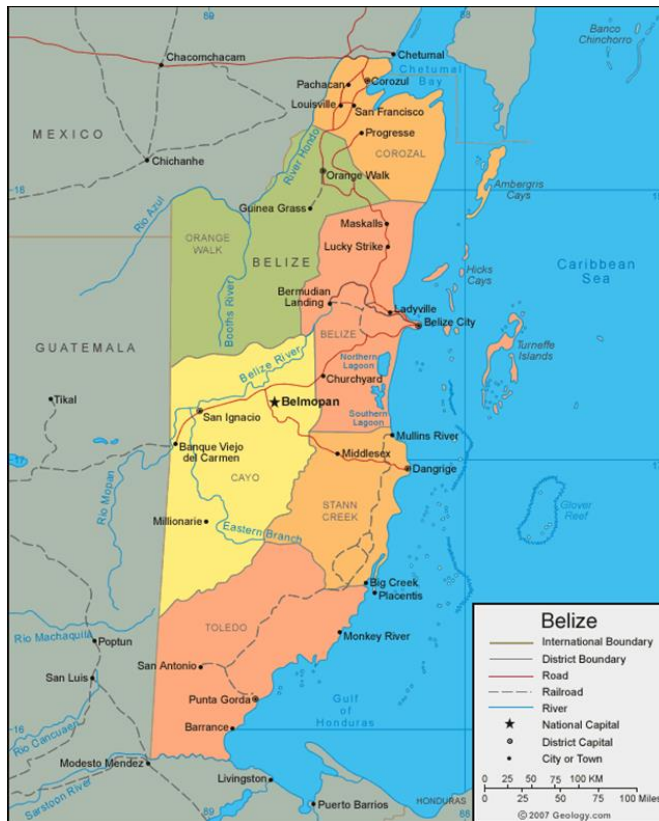
Belize has three distinct physiographic regions: i) the flat northern lowlands, with a complex mosaic of lowland, semi-deciduous feet, savannahs, freshwater rivers and wetlands, with saltwater lagoons and mangroves along the coast; ii) the southern coastal plain that supports the tropical pine and broadleaf forest; iii) the Maya Mountains of granite quartzite's and shales. Seventy ecosystems have been identified within these broad categories (Salas and Shal, 2015).

The country holds approximately 1,014 native species of vertebrates and 3,411 native species of plants. The forest cover is estimated in 60% of land area. Over 100 protected areas cover 35% of the country's total land area and 10.6% percent of the country's total sea area allowing in total protected areas to cover 22.8% of country's national territory (Kay & Avella, 2010).

The country is populated with more than six different ethnic groups each with its unique cultural traditions and languages (Kay & Avella, 2010). Belize's current estimated population is 408,487 inhabitants. Of these 44.71% (182,663) live in urban areas, while 55.28% (225,824) live in rural areas (SIB, 2019). Belize has a small economy, and it mainly depends on tourism and agriculture; these two sectors account for more than half of Belize's economy; and agriculture alone contributes 13.6% of GDP (SIB, 2019; Gob, 2015).



FIGURE 1. ADMINISTRATIVE & POLITICAL MAP OF BELIZE



The agriculture sector in Belize is characterized by three main sub-sectors (Avila 2011):

1. A fairly well-organized traditional export sector for sugar, banana, citrus, and marine products.
2. A more traditional, small-scale farm and farming family sector producing food mainly for local consumption.
3. A well-integrated large-scale commercial sector, basically the Mennonite communities, who are leaders in the basic grains, cattle, poultry, and feed industries.

It has been estimated that approximately 0.83 million ha, or 38% of the land area, are suitable for agriculture, and about 15% of this amount is under farming every year. A 2010 census of farms in Belize shows that 24% of farms have less than 2 ha, 33% between 2 and 8 ha, and 74% of farms in the country are below 20 ha. It is estimated that 24,290 ha is in sugarcane, 17,000 ha in citrus, 15,400 ha in corn and 60,730 ha in pastures grazed by some 80,000 head of cattle. A new national census was planned for 2020 to update these data, but due to Covid-19 it has been postponed to 2021.



Results of the District Consultation and Other Consultation held during the Development of the National Agroforestry Policy Project.

Justification

For the development of the NAFFP, it is considered indispensable to consult and involve the people on the ground who will be most affected and impacted by the policy; i.e the productive sector stakeholders, on the key decisions of justification, priorities, key components, etc. of the proposed policy. Although their knowledge and experience on policy making may be limited, they do have valuable information, experience and suggestions to make, provided the topics and issues are presented and discussed in a meaningful way to them.

Objectives

The objective of these consultations and the district consultations is to enrich and improve our understanding of the views, assessments and suggestions of the main actors on the ground such as the farmers or producers, processors and marketers, and those involved in investing or lending. In particular, the focus was on the key components of the NAFFP such as their interest and priorities on AF, desired types of trees and AF, the types of support and incentives they may need to implement the policy, as well as any advice they may have on what must be included in the policy to make it a success.

Methodology

Prior to COVID -19, two consultation (one group and individual consultations) were conducted; however, with the appearance of COVID-19 in Belize and the pandemic restrictions fully fledged group consultations were not possible. As a result, the field staff of the YCT and the Ministry of Agriculture and the Forest Department, complemented by the CATIE consultants.

For the other consultations meetings were held with the CEO, Dr. Percival Cho, followed by a kick-off meeting with other stakeholders who play an important role in the forestry, environmental, agricultural sector such as Sugar Research and Development Institute (SIRDI), Donaus Consultant, Belize Livestock Producers Association (BLPA), Belize Audobon Society (BAS), Caribbean Agricultural Research Development Institute (CARDI) Ya'axché Conservation Trust, Programme for Belize (BFP), The Inter-American Institute for Cooperation in Agriculture (IICA) and including the Forest Department, Ministry of Food and Agriculture, Department of the Environment.

For the rapid participatory gender diagnosis, a tour was made to carry out a quick diagnosis and learn about the perception of different actors about the forms of



participation of women in agroforestry and the institutional mechanisms to support women's productive initiatives.

For the district to district consultation it was decided to consult each target group such as farmers and producers, processors and marketers, and investors, bankers or credit unions).

Semi-structured questionnaire protocols were developed for the interviews. The protocol was provided to field staff who collaborated with the activity in this case the District to District consultations. The same protocol was used by the consultants who also conducted interviews with stakeholders. For each target groups (interviewees) a specific set of questions were elaborated and some questions were modified to make them relevant to each of the groups.

Prior to COVID-19 interviews were conducted individually and in groups. As mentioned earlier the interviews were conducted with farmers, associations, business owners etc. During COVID-19 interviews were conducted individually *in situ*, via Whatsapp and telephone calls.

The selection of farmers was done by the collaborating staff or by the consultants who conducted the interviews, with the only guideline that a minimum number of each group was desired. Due to the pandemic and the limitation of staff in terms of time and logistics, the number of interviews was lower than expected. Although group consultations were not possible, the results are extremely relevant and constructive for the purpose of securing inputs and feedback on the policy from those on the grounds.

Results

Organization and farmers in Belize are conducting various types of agroforestry such as cacao productions under shaded trees, intercropping using lime and orange along with coconut and home-gardens.

Consulting literature and based on consultations it is known that barriers/gaps and limitations can affect the adaptation or implementation of AF practices.

In this sense, the strategic actions derived from the policy will facilitate the implementation of AF, increase the numbers of farmers participating in AF and articulate efforts within the governing institutions of the agricultural and forestry to provide technical support and training, and to receive information and cooperation from practicing beneficiaries. This will also be an excellent opportunity to include the gender approach in a sector where its issue is marginalized and invisible.



Inter-ministerial coordination: Agriculture, Forest and Environment Departments and other stakeholders

Identifying Gaps/Limitations and opportunities in AF

According to literature barrier/gaps and limitation can affect the implementation of AF. These barriers/gaps and limitation identified are mostly due to lack of land tenure, lack of market access, lack of trust within in the communities, lack of capacity building, lack of technology, deep-rooted traditions, AF highly is seen as highly time-consuming: unfeasible for farmers with a second job, lack of knowledge etc. Based on the first consultations conducted, similar results to the literature were determined, the limitation and gap for the implementation of AF practices an policy are: negative impacts of climate change, natural disasters, lack of business and marketing strategy to support communities, lack of sensitization and awareness on how AFS s can improve sustainable benefits livelihoods, lack of knowledge of ideal mix of species to put under production, lack of defined management on fire threats and response to these types of threats, no incentives to maintain communities engaged, lack of synergy among departments, no knowledge on implementation of AFSs (Table 1).

TABLE 1. OPPORTUNITIES AND LIMITATIONS IDENTIFIED BY STAKEHOLDERS DURING THE GROUP DISCUSSIONS

Gap/Limitations
Climate change, natural disasters
Lack of business & marketing strategy support for communities
Lack of sensitization and awareness on how AFS can improve and become sustainable benefits livelihoods
Limited knowledge of ideal mix of species to put under production
Define management on fire threats and response to these types of threats
No incentives to maintain communities engaged
No synergy among departments
No knowledge on implementation of AFS
Collection of baseline data information with cultural and traditional method of production in agriculture and livestock production in Belize
Poor enforcement and political will
No willingness to change lack of financial support and management & effective systems
No regulatory agencies and coordination
No profound technical support
No access to technology
Long-term system plant and investment



The following (Table 2) opportunities identified by the stakeholders for the implementation of AF in Belize are:

TABLE 2. OPPORTUNITIES IDENTIFIED BY THE STAKEHOLDERS FOR AF IMPLEMENTATION IN BELIZE

Opportunities
REDD+ project in Belize
Utilization of trees with important economic value
Sustainable production
Carbon sequestration
Attraction for financial benefits
Protection for buffer zones and improve water catchment
Soil conservation and temperature regulation
Biodiversity conservation and forest protection
Allow for synergies within departments, regulation and enforcement agencies
Strengthen resilience
Provide ecosystem services
Generate additional income for farmers
Sustainable land use management that will comply with the SDGs at a national level
Attract funding to support and implement these types of strategies
Incentives for adaptation to a NAP program
Livelihood opportunities for families
Alternatives for extra income
Diversify produce
Generate healthy ecosystem
Provide food and employment

Benefits, Barriers and Incentives

The responses toward benefits, barriers and incentives through the semi-structured interview/questionnaire were identified. Restoration/improvement of soil, livestock and crop production, carbon sequestration and carbon resilience, diversifying produce and generating additional income has been identified as benefits that can be obtained from implementing agroforestry practices.

On the other hand, lack of a funding program and incentives for the implementation of AFSs and the willingness to adopt AFS practice as a new technology by society. In terms of incentives, most responded that for them incentive would be provide training and demonstration on functionality of AFS to other farmers through farm model and meanwhile others have identified that payment for carbon capturing can be an incentive for the implementation of AFS. It is important to note that not all were able to identify what incentives can be used as motivation for farmers to implement AFSs.



Gaps, Constraints, Issues and Strengths that exist in the agroforestry sector in Belize and Gaps and Constraints that hinder its adoption countrywide

Achievements with agroforestry projects and practices

Most groups and individuals are planting timber species (mahogany, teak, Spanish cedar and pine) and fruit trees (citrus, soursop etc.) with annual crops. However, they are not necessarily evaluating or testing any specific agroforestry practice or components, except for the Ministry of Agriculture and YCT. The latter is very advanced in developing the cacao-based agroforestry in the forest reserves and YCT hosted the first cacao AF forum in 2018. The Ministry is promoting mixed farming systems, intercropping, alley cropping, regenerative agriculture, protein and energy banks, silvopastoral and agrosilvopastoral systems, and beekeeping programs based on agroforestry practices. There are several nursery activities to produce seedlings of the species most in demand.

There is one high investment program of TKO Farm in Teakettle, Cayo District, planting over a hundred acres of valuable timber and fruit species for the export market. Although they expressed interest and plans for agroforestry, their program at present is basically forest plantation in pure stands. Meanwhile, there is another company that plants pine trees in both commercial plots for their own use and to supply their company's demands. In addition, they also have pine seedlings imported from Brazil on sale to the local and surrounding communities, as part of their reforestation program.

Farmers have seen the necessity of combining short term crops in long term crop plantation; for example, citrus and pineapple, or coconut and lime. These short-term crops were implemented to fill the income gap of the main crop planted in the field. Some large farmers appreciate the need to provide quality products, hence they have sought certification to ensure the quality of their production from entities like Global Gap, HACCP, etc. Before these certificates are issued by the respective entities, the farmers must comply with the necessary good agricultural practices that can guarantee the quality of their product.

Constraints or challenges being faced in their agroforestry projects

The main constraints cited are insufficient awareness and knowledge of agroforestry, low market prices for crops/cattle and tree products, inadequate technical assistance and support for agriculture and AF, the culture of the people (i.e. preference for slash & burn, reluctance to try new systems, and belief that incorporating trees will reduce yields), and lack of financing and financial incentives for AF.

There are also social and technical problems, i.e. flooding, wildfires, no short-term income, protection of small trees, burglaries and poaching. Other challenges include: low level of expertise in agroforestry and land use management, lack of awareness of the



benefits and value for trees, low access to financing to develop AF, and low demand for nursery plants.

One of the major challenges farmers face is the fragmented coordination and collaboration between government entities and NGOs. There is also no sole framework or platform for information sharing among entities because entities customarily work in their own area of expertise. As a result, interaction with the farmers is minimal. Therefore, collaboration and coordination efforts need to be strengthened among GoB, the NGOs and farmers. Additionally, there are also no incentives for AF development and no incentives to encourage private landowners to conserve forests in their land. Unfortunately, the economy does not support the development of AF and for farmers AF attracts only long-term benefits and lastly, it does not provide the same income as monocropping.

Actions to accelerate widespread adoption of agroforestry

The main actions, that were recommended, included better market prices for agricultural and tree products and developing product markets; reduction of royalties/taxes and other financial incentives for agroforestry; AF education and awareness by means of demonstrations, school programs and extension or farmer field schools; consistent technical assistance, capacity building and financial support for ongoing AF projects, and making a strong link with food security, ecotourism, non-timber forest products, livestock production and sustainable development, including reduction of deforestation and biodiversity conservation; and organization and coordination of farmers interested in agroforestry.

In order to adapt AFS in Belize it is important to coordinate efforts between the GoB and NGOs to work as a team in order to encourage farmers who are interested in AFS and bridge the gaps that exist. Crucially, a structure must be created which can facilitate a process for them to work together, share information so that they can learn from each other through farm field schools (i.e farmers teaching each other, an approach promoted by FAO and adopted by the DA) and other educational programs. These programs can be used as a demonstration to the farmers in order to expose what are the long term and short-term benefits of implementing these AFS.

Education awareness and agricultural training is also necessary so as to expose farmers to these types of ideas, to teach the importance of AFS, such as intercropping and having a diversity of crops, to teach the use of long-term crops with short term crops so as to fill the income gaps of long-term crops.

It is also important to provide a market-led approach and establish fair prices for AF products such as livestock, small ruminants and poultry. Create an appropriate framework which can facilitate and reduce the burden (reduce taxes and royalties) on timber



harvested for exportation allowing an easy process for exporting timber and in return this creates good foreign exchange for the country.

It is necessary to assess existing AFS in the country and provide good incentives to farmers who are interested in AFS; classify lands that are available; determine lands that can be allocated to production and recuperated, and provide these lands to those who are interested but don't have land to cultivate on (especially women), so that they can develop their own AFS. Finally, there is the need to implement other sustainable land use policies that can work hand in hand with the Agroforestry policy to facilitate the implementation of the AFS.

Rapid Participatory Assessment Gender Equity: Challenges for Inclusion in Agroforestry in Belize & Guidelines for Inclusion

Gender in Forestry, Agriculture and Food Policies

Forestry Policy 2015

Belize has a National Forest Policy published in 2015, and based on the last forest policy review of 2012. This document states that the "GoB recognizes that the country's forests play an important role in its social, and economic development, and is a significant contributor to the daily livelihoods of rural, indigenous and immigrant populations".

The objective of the forest policy seeks "a prosperous and integrated forest sector, where Belize's forests are valued for their significant economic, sociocultural and environmental benefits and are managed in a sustainable manner for the benefit of the nation." The policy is based on the Constitution of Belize and responds to the Horizon 2030 Planning Framework. It consists of 11 guiding principles, fifteen policy statements, each with a set of strategies for the implementation of the policy statement.

In relation to the gender issue, the policy indicates some concerns directed at how to guarantee the participation of women in the access, use and control of resources from the forest. In particular, it is mentioned that access to land and property influences how woman access natural resources and may or may not eventually adopt practices for the sustainable use of resources on lands that are not their own. It is added that women's secure and independent access to land is limited by the social status of Belizean women, patriarchal culture, and the same level of awareness of women about their rights.

The document alludes to a traditional cultural element of gender roles that men and women fulfil in productive and reproductive activities in Belize. In general, it is pointed out that men play a significant role in the exploitation of natural resources of commercial



purposes, such as logging, cattle grazing, fishing, mining and extraction of trees for timber. While women participate less in these activities, but they do have a relevant role in economic activities related to agriculture, and assume mostly responsibility for reproductive activities (food, preparation, firewood collection, water transport, child and family healthy care).

The policy indicates key elements for the implementation of the forest policy “specifically on the issue of gender and equity, it mentions:”

- The government will ensure that women, youth and the poor are particular beneficiaries of forestry sector development. It recognizes that there are sectors of society that are often marginalized in development processes, and that these groups are often the most dependant on forest resources for their livelihoods
- The government will ensure the integration of gender concern and issues in forestry development and specifically in strategies.
- Take into account gender differences in perceptions and uses of forest products. Efforts will be included to:

- o Encourage the active participation of women and youth in decision-making resource management and benefit sharing
- o Promote changes in attitudes and organizational culture, to break gender barriers and promote mutual respect and dignity for all people, regardless of social group and gender.
- o The government will also support skills development and access to employment and livelihood opportunities; security in access to forest resources: active participation and benefit sharing in forest management.

National Agricultural Food Policy (2002-2020/2015-2030)

The National Agricultural Food Policy (2015-2030) in Belize, as part of its strategic goals to meet national policy, the Ministry of Agriculture plans to increase sustainable livelihood options for food and nutrition by expanding the employment and income-generating opportunities for underserved communities, promote home food production using backyard/container gardening technology, and increase the participation of youth and women in the development process through empowerment, through the development and implementation of the youth participation program and develop and implement specific programs for women, based on the debate on agricultural opportunities, support provision resources (land and credit), basic infrastructure and support.

Beneficiaries of the policy include farmers, agribusiness companies, agro-processors, input suppliers, financial service providers, general services providers, consumers, rural



populations, technical and financial cooperation agencies and the GoB. The gender issue is mentioned in relation to the sustainable development of rural area (Table 3).

TABLE 3. KEY ISSUES TO PROMOTE THE GENDER AND EQUITY APPROACH IN THE NATIONAL AGRICULTURAL FOOD POLICY

Key Areas	Description	Relationship w/gender & equity
Sustainable Development Rural	Promote gender participation of the local population, including women, youth and indigenous groups, in local development planning and decision-making	Improve access to productive resources and services and create economic opportunities. For small farmers, women and young farmers, and indigenous people, particularly in poor and marginal areas Special programs for women and young farmers, including credit, training and apprenticeships
Policies on cooperativism and producer organizations	The issue of cooperativism is underlined with special emphasis, recognizing the importance and the role it plays in providing needed services, especially in coastal and inland communities, and offering exciting opportunities for meaningful employment for youth and women	There are 43 operating societies in Belize (15 credit cooperatives and 28 cooperatives) spread over the six districts of Belize. The policy is aimed at ensuring the effective participation and full integration of women in cooperative development at all levels. Promote the role of women and youth in credit unions and cooperative movement
Small Farmers & Business Bank	The Ministry of Agriculture and Fisheries will continue to support and work closely with Small Farmers and Business Bank	Credit to women, young entrepreneurs, farmers and small entrepreneurs without the burdens of the conventional guarantee.



	Today's development banks cannot adequately meet the needs of small farmers: small farmers require timely technical support and supervision, along with low interest rates as agriculture is very risky.	
Domestic credit	Credit management should not be based on production experience, payment recording and collateral, as current lending practices discriminate against subsistence farmers, new farmers, women/youth and those without rights to land ownership	Eliminate conventional agricultural credit allocation barriers, such as the requirement of experience as producers and land title.

Participation of rural and indigenous women in Agroforestry in Belize

According to the people interviewed, rural women participate mostly in activities related to agriculture and spend less time in forestry activities. They also have a preponderant role in domestic activities and care work for the family nucleus.

In agricultural activities, women, especially indigenous women, collect firewood, work in home gardens/plant products such as chili, tomato, cucumber, cabbage, aromatic herbs; they raise chickens, pigs and turkeys for family consumption and occasionally engage in food exchanges. The men are engaged in planting of citrus and corn.

Other tasks that were mentioned in the interviews are the planting and harvesting of peanuts. The women sow, harvest, shelling and roasting, they also support by washing the vegetables that go to the market. "Women and men market and sell at the San Ignacio sell their produce crops and vegetables at the San Ignacio fair".

Non-indigenous women are less involved in agricultural activities; however, they are more involved in product marketing activities. Garifuna women participate more in agriculture, planting and harvesting. One finding of the diagnosis is that there are differences in the levels of empowerment between rural, indigenous and Garifuna women; interviewee said "As for rural women, the Garifuna have more say, the mestizos not much." These differences have to do with the roles that these women assume in Belizean society, which



is manifested in some cases with skills for managing money, calculating production costs and profit margins in the sale of products, and skills to market locally. These strengths are an important contribution to the economic activities of the family, where men produce on a larger scale and sell to larger markets and women support them “doing administrative work.”

In relation to cases of women and/or women’s organizations that have enterprises, it was mentioned that in the Cayo there is a financing experience with a group of six women for the planting of bananas, roots and tubers and the productions of artisanal banana chips. This initiative has been led by the Ministry of Agriculture and financed by the World Bank.

There are other experience of women producing coconut oil, pipe water and vinegar made from banana, which they sell locally. However, the person interviewed pointed out that “they lack support, extension officers don’t know a lot about gender and agroforestry.”

On the other hand, the participation of women, mainly indigenous, in cocoa activity, honey production and local and foreign tourism is reported. In this last activity, women are integrated in some ecotourism ventures, especially in the preparation of typical foods and handicrafts, they are interested in cruise tourism. These experiences are accompanied by the NGO like Ya’axche Conservation Trust who mentioned the need for public institutions to support these entrepreneurship, because there is a need to train women’s human capital.

Strengths and contributions of women: women are natural stewards

Most of the people interviewed agree that the greatest strengths and contributions of women in rural areas are the abilities to plan, do business and give added value to the farm’s products. “Women are natural administrators; they invest, control finances, planners and executors, they can carry out many activities at the same time.”

In the sugarcane activity, women have shown strengths to lead; for example, there are heads of harvest groups. In the sugar industry, Sugar Industry Research Development (SIRDI), there are 5000 cane producers, of which 2000 are women, owners of cane fields and are active.

According to the opinion of the person interviewed in SIRDI, women are essential in the sugar industry and are considered ideal to establish forest nurseries that are then used for planting on farms. In the sugar industry they are working on the generational change and for this, they are involving young people and women. SIRDI mentions taking actions to promote gender equality. They are in charge of keeping the record, keeping payroll which is very important in the sugarcane activity. “The male gender is not focused on



saving, women are; they have plans, save and invest, but it is necessary to polish and bet on training, create programs and an area of opportunity for them.”

Most frequent difficulties: macho culture

Most of the people interviewed agree that the machi culture is one of the main obstacles that prevent women from developing in the social, political and economic sphere. Cultural barriers persist, this makes women’s contributions invisible and prevent progress towards higher levels of empowerment and economic autonomy; with an impact on opportunities to access technical assistance, training and financing.

Another aspect that was mentioned is related to the use of time. Women spend most of their time in housework, and in their free time they are in charge of fetching firewood and carrying the water they use at home.

This situation is especially evident in indigenous women, who have a high number of children, making it even more difficult to attend training events. Not all women have the same family support from their partners and there is resistance to women’s independence. In most indigenous families, men do not allow women to speak with strangers especially if they are men and in the Ministry of Agriculture, there are few women who are extension officers, who could eventually create a gap in these communities.

Other difficulties identified refer to illiteracy, difficulty in marketing their products in larger markets, lack of financing, technical support, access to technology and training to develop the capacity and potential of women. For example, in the sugarcane activity there are areas of opportunity, adding value added to the by-products such as the production of panela (sugar blocks from sugarcane), cane leaves for handicrafts, and production of cane paper. However, political will is required to support these initiatives directed at women.

Other relevant observations are related to the issue of generational change, usually young people have their employment expectations focused on service areas. Young women are employed in call centres and young men in tourism, as cooks, waiters and bartenders. Thus, participation in agriculture and agroforestry activities are in hand of adults; pointing out that the “modern world” encourages the consumption of superfluous goods and discourages activities related to agriculture. Greater awareness is required among the population and show the benefits of having a home garden. Help is needed, such as productive and sustainable technical assistance.

The issue of the right to land and property is a resource that was pointed out as a strong limitation for women. They insisted on the need to seek legal mechanism so that women



have the right to own a plot of land to dedicate to production and carry out their own negotiations.

Actions in favour of women from the ministries: visibility

Most of the people interviewed note that actions to favour rural women in Belize are almost non-existent in the public institutions in charge of the agricultural and forestry sector. There are no ministerial guidelines that guide actions for working with rural women. “The Ministry of Agriculture does not take any specific action and much less in the forestry sector, there are not even extension agents.”

The monitoring and evaluation system does not have gender indicator or formats. It is difficult to disaggregate the information by sex- except for some projects- There is no gender unit, nor there is a human recourse unit assigned to this topic. The monitoring and evaluation system is not standard, there is no ministerial guideline that indicated the need to integrate gender actions into operational plans.

Despite the fact that Belize has a Women’s Comission, attached to the Ministry of Human Development, Social Transformation and Poverty Alleviation, and a gender policy at the national level, there are no articulation mechanism, or guidelines with the institutions of the agricultural sector to the inclusion of the gender issue in program activities. Ad mentioned above, only some actions in specific projects with external financing are included, as required by the donor and not as an institutional policy. Several people interviewed stated that they were unaware of the existence of a gender policy at the national level and of the women’s commission (Annex xx).

Actions that could be implemented from the perspective of the interviewees: remove barriers (cultural, social and political)

Faced with the question about their criteria about which actions should be implemented by the leaders of each sectors, several mentioned that some actors are directly aimed to institutional work and other directly for the target population. For a better understanding of this information, the actions were arranged in two columns: actions that can be implemented with the help from institutions from the agricultural and forestry sector and actions that can be implemented through rural women participation.

TABLE 4. ACTIONS THAT CAN BE IMPLEMENTED FROM THE PERSPECTIVE OF THE INTERVIEWEE

Institutions of the agricultural and forestry sector	Rural Women
There are barriers political, cultural and institutional. An in-depth diagnosis is needed to show that women are involved in agriculture and forestry	Promote the empowerment and participation of women through technical training and access to economic opportunities



Create a favourable environment in the country to recognize the participation and contribution of women	Create financing opportunities and promote projects for women
Gender policy articulated between the Ministry of Agriculture, the Forest Sector and the New Agroforestry Policy	Create opportunities and support in training and education so that women can take leadership positions and feel comfortable being leaders
Create a gender unit with human and financial resources	Include agroforestry in the national education curriculum (secondary and technical level)
Sensitization of technical personnel on gender issues, the educational system does not integrate this dimension	Holistic intervention in Family Farming that considers the right of the family. Family farming and agroforestry are very important to protect the environment, the forest and the water. Generate higher income
Awareness to public officials to involve women and youth (Institutions and indigenous government) Training and technical assistance	Recognition of the contribution of women in caring for the environment and educating children.
Train technical staff on gender issues	Having affirmative actions, participation quotas: training, empower women through project with affirmative actions
Collection of data disaggregated by sex	Promote access to land for women. Mayan women are the most affected
Institutions bring information to communities and recognize the interest and needs of women	Exchanges of women to look at opportunities and success stories. Training in technology, internet, business plants Create seed funds Virtual integration: train in the use of email, Facebook and other communication products (videos, brochures) and be invited more frequently to open consultations. Provide training and training in value chains

District to District Consultations on Agroforestry Policy in Belize



Farmers and Producers

Twenty-six farmers and producers were interviewed in the 6 districts (Table 5). The main results can be summarized as follows.

Interest in the NAF policy: all except 1 farmer responded affirmatively. That one farmer responded that the answer would depend on some other conditions, but subsequently seemed to be interested by the comment made. Most farmers cited reasons of natural resources, environment, wildlife and climate change for an affirmative response. The second important reason was about AF being good for farmers, children, grandchildren, improvement of crop yields and AF needing attention since it is an old practice.

Types of trees or products of interest to them: In order of importance, their preferences are timber and fruit trees, fodder and then shade trees respectively.

Where do they want to plant these trees: The common response is the farm and to much lesser extent, on boundaries, degraded cane fields, and in forest areas. On average the areas available would be from 5 to 30 acres. With a few farmers having larger areas. One farmer, obviously a large one stated 10 000 acres.

How could they help in promoting and implementing the AF policy: Most farmers can help by means of demonstrations, trying AF recommendations, planting trees and working on nurseries, training of other farmers and participating on promotional campaigns.

Kinds of support or incentives to plant trees and start with AF practices: Mainly they would need training, seedlings/nurseries, inputs and water, finance, fast returns and land.

Where could they receive those kinds of support or incentives: "Nowhere" was the common the answer, followed by "The Forest Department". A few cited the neighbor, UB and BAHA.

Advice they can give to ensure success of the AF Policy: There were about 15 different suggestions, amongst which the more frequent responses were: provide sound information, enforce regulations, provide inputs, involve all farmers involve GoB, involve the Mennonites, and follow up with M&E.



TABLE 5. RESULTS OF DISUSSION WITH 26 FARMERS AND PRODUCERS IN ALL DISTRICTS OF BELIZE.

Farmers and Producers (N= 26)	Responses	Frequency	
1) Are you interested in a national policy that promotes agroforestry? Why?	Yes, and why: <ul style="list-style-type: none"> • Protect natural resources & environment 8 • Climate change, drought 4 • Can bring wildlife 3 • Good for farmers 3 • Good for my children & grandchildren 3 • Better agric production & yields 3 • AF is old practice, needs attention 2 • Have trees already 1 • Limited capacity 1 • Strong person, can work 1 • Economics 1 • Beauty 1 • Shade for animals 1 	25	
2) What types of trees or products are of interest to you?	<ul style="list-style-type: none"> • Timber 19 • Fruits 9 • Fodder 4 • Shade trees 3 • All kinds 3 • Coconut or cohune 2 • Cohune 1 • Fertilizer improving 1 		
3) Where do you want to plant them? How much land area do you have available?	<ul style="list-style-type: none"> • Farm 10 • Boundaries 2 • Cane field 2 • New land 1 • Pasture 1 • Forest 2 		<u>Acres:</u> 5,5,8,8,8,10 ,10, 12,14,16,20, 30, 150,250,500 & one with 10,000
4) If and when this Agroforestry Policy would be approved, how could help in	<ul style="list-style-type: none"> • Demonstrations 8 • Try AF 7 • Plant trees 6 • Training 6 		



Farmers and Producers (N= 26)	Responses	Frequency
promoting and implementing the policy?	<ul style="list-style-type: none"> • Promotion campaigns • Organize activities • Nurseries • Help with vision • Keep trees in pastures 	<p>4 2 3 1 1</p>
5) What kinds of support or incentives do you need to plant trees and start some Agroforestry practices?	<ul style="list-style-type: none"> • Training • Finance • Seedlings • Inputs • Water • Nurseries • Land • Clear land • Fast returns • Info on benefits 	<p>10 6 6 4 3 2 2 1 1 1</p>
6) Do you know where you could receive those kinds of support now? Where?	<ul style="list-style-type: none"> • Nowhere • Forest Dept • SIRDI • Bank • Neighbour • Private sector • UB • BAHA • NGO 	<p>8 7 1 1 2 1 2 2 1</p>
7) What advice could you give us to ensure success of this AF policy?	<ul style="list-style-type: none"> • Sound info • Passion • Hard work • Provide inputs • Seedlings • Follow up M&E • Reforestation is good • Follow of Agric & Forestry • Community meetings • Enforcement of regulations • Involve all farmers • Involve Mennonites • Involve GoB • Demonstrations, pilot model 	<p>3 1 1 2 1 2 2 1 1 2 3 3 2 2 1</p>



Farmers and Producers (N= 26)	Responses	Frequency
	<ul style="list-style-type: none"> No politics 	

Farmer collaborating with the Ya'axché Conservation Trust

There were discussions within **6 small** farmers who are YCT collaborators in Toledo Districts who were treated in a special way because they have more experience with AF and have received AF training from the YCT (Table 6)

Kinds of AF practices, plusses and negatives: The cacao-based AF system is the most common, and they are experimenting with other AF options with the milpa, alley cropping, and AF for honey production. No negatives were expressed about their AF practices.

What types of trees they want to plant: Clearly their preferences are for fruit and timber trees.

What topics about AF do they need training: A wide range of topics were suggested, from tree planting to everything, which indicated that they know more about the AF potentials and perhaps why all these topics are so important for AF development.

Kinds of support and incentives needed to expand AF: Here there was consensus on seeds and seedlings, and financing (i.e cheap loans).

TABLE 6. RESULTS OF DISCUSSION WITH 6 FARMERS COLLABORATORS OF YA'AXCHÉ CONSERVATION TRUST (YCT)

YCT Farmer collaborators (N=6)	Responses	Frequency
1. What kinds of AF, if any are you practicing now and what do you perceive as the plusses or negatives of each kind of AF you practice?	<ul style="list-style-type: none"> Cacao based AF Milpa based fruit tree Inga alley cropping AF with cacao, coffee, fruits & small animals AF for apiary (bees) No negatives – need food, incl. other uses for future 	3 1 1 1 1 2
2. What types of trees do you want to plant on your farm, in order of preference: fruit, timber, fodder,	<ul style="list-style-type: none"> Fruits Timber All species Wants to expand farm into forest Has 54 acres for AF 	5 5 1 1 1



YCT Farmer collaborators (N=6)	Responses	Frequency
fuelwood, medicinal or other? Where on your farm do you want to plant them?		
3. What topics about AF would you like to be trained on by the YCT or the extension service?	<ul style="list-style-type: none"> • Alley cropping • Tree planting • Production of seedlings • AF systems • Beekeeping • Bio-fertilizers • Pests and diseases • Soil testing • Farm planning & site selection • Proposal writing • All topics 	<p>1 2 1 1 1 1 1 1 1 1 1 1</p>
4. What kinds of support or incentives do you need to plant and grow more trees on your farm or your village?	<ul style="list-style-type: none"> • Seeds and seedlings • Finance (cheap loans) • Refinery for making chocolate • Remove royalties on trees planted • Assistance in cleaning farm 	<p>5 3 1 1 1</p>

Processors and Marketers

Twenty-two processors and marketers were interviewed in the 6 districts (Table 7). The main results can be summarized as follows.

Interest in a National Policy that promotes agroforestry: All responded affirmatively because trees are scarce, and trees are good for future generations, for the economy and for the economy and for the country. They are interested in the policy because we need on log concessions, protect the forests, and promote better farming and promote sustainable development.

Types of trees or tree species you are interested in: They are interested largely on timber species, and some of fruit trees, coconuts and shade trees.

How you could help in promoting and implementing the policy: They can promote AF and a minority could share information and replant trees that have been cut.



Where you could receive those kinds of supports now: Most indicated “nowhere”, some suggested a bank like DFC, and a couple complained that FD does not help with any support.

Advice you could give us to ensure success of this AF policy: Four interviewees had no suggestion. But other indicated the policy needs to be fair and no (partisan) politics, provide incentives and information, plant suitable and fast-growing trees. Other suggestions were: to involve the NGOs involve all and work together and just implement the policy and to collect and to collect the royalties.

TABLE 7. RESULTS OF DISCUSSION WITH 22 PROCESSORS AND MARKETERS IN ALL DISTRICT OF BELIZE

Processors and Marketers (N=22)	Responses	Frequency
1. Are you interested in a National Policy that promotes agroforestry? Yes, NO If yes, why?	Yes Why? Trees are scarce <ul style="list-style-type: none"> • Good for economy and country • Trees for future generations • Check on log concessions • Protect forests • Generate income • Better farming, sustainable development • Not burden for loggers and wood workers 	22 6 6 4 3 2 1 2 1
2. What types of trees or tree species would you be interested for your business?	<ul style="list-style-type: none"> • Timber • Fruits • Coconut • Shade trees 	21 3 4 2
3. If and when this Agroforestry Policy would be approved, how could you help in promoting and implementing the policy?	<ul style="list-style-type: none"> • Promote AF • Share information • Explain value of timber • Replant trees cut • Control harvesting 	10 2 1 2 1
4. What kinds of support or incentives do you need to expand your business in these products?	<ul style="list-style-type: none"> • Financial support • Provide plants & seedlings • Technical assistance • Teaching & education on AF • Government to provide land • FD to give concessions to right people 	11 9 3 3 3 3



Processors and Marketers (N=22)	Responses	Frequency
	<ul style="list-style-type: none"> • Encourage to plant trees on land • Expand market 	2 1
5. Do you know where you could receive those kinds of support now? Where?	<ul style="list-style-type: none"> • Nowhere • FD does not help • Banks like DFC • Community loans at 0 interest rate • information 	15 2 3 1 1
6. What advice could you give us to ensure success of this agroforestry policy?	<ul style="list-style-type: none"> • None • Fairness, no politics • Training • Involve NGOs • Plant fast growing trees • Suitable trees • Involve all and work together • Provide incentives • Provide info on trees, etc • Collect royalties • Loggers paid from royalties \$1 or 2/tree • Implement policy 	4 3 1 2 2 2 1 3 2 1 1 2

Discussion with investors, banker & credit union

Discussion with this group of stakeholders (Table 8) was extremely valuable and positive. Here are the salient responses and feedback received from the 5 persons or entities.

Interest in a policy that promote AF: They all support the AF policy, because of maximizing benefits for farmers, need for an investment strategy, and for environment and climate change reasons.

Could you increase the available capital: The response was positive, all interested in investing in AF, DFC has about \$2.5 million per annum and could mobilize more, similarly with the credit union. The amounts availed would depend on the borrowers being considered, and environmental clearance is needed.

Support or what incentives do you need to avail more capital for AF: It appears they would favour AF, but it depends on the borrowers, facilities and infrastructure for project success, and need to demonstrate the benefits of AF. DDFC has lines of credit with the international financial institutions like CDB, EIB, CDF.



Where you could find kinds of support needed: They could go to the Departments of Agriculture and Forest and Industry, BCCI and GoB for a sovereign guarantee.

Advice could you give us to ensure success of this AF policy: work on the campaign to inform the people, legislation and regulations, trademark and patents, the implementation plan and get a clear policy statement from GoB. The policy would need champions and executives with will power and passion.

TABLE 8. RESULTS OF DISCUSSION WITH 5 INVESTORS, BANKER & CREDIT UNION

Investors, Banker & Credit Union (N= 5)	Responses	# Responses
1) Are you interested in a national policy that promotes agroforestry? Why?	Indicated their support for the policy <ul style="list-style-type: none"> • Maximize benefits for farmers • Need different strategies. i.e for investment • Effect on environment • Climate resiliency • Replanting trees is beneficial 	5 2 1 1 1 1
2) Would your institution be interested in investing in AF? How much every year?	All 5 indicated their interest in investing in AF <ul style="list-style-type: none"> • About \$2.5 M every year • Depends on borrower being considered • No limit • Need environmental clearance • 	5 1 1 1 1
3) If there was strong demand for AF, could you increase the available capital?	Yes we could: <ul style="list-style-type: none"> • Up to \$2.5m • Depends on borrower • Facilities & infrastructure for project success • Have partners such as CDB, EIB, CDF • Show benefits of trees and AF • Information 	5 1 1 1 1 1
4) What kinds of support or incentives do you need to avail more capital for AF?	<ul style="list-style-type: none"> • Access to concessionary funding • Enabling environment & regulations • Technical training • M&E especially on benefits • Infrastructure • Logging permit 	3 1 1 1 1 1



Investors, Banker & Credit Union (N= 5)	Responses	# Responses
5) Do you know where you could receive those kinds of support now? Where?	<ul style="list-style-type: none"> • DoA • DoF • Beltraide – Small Business Center • Industry • BCCI • GoB for sovereign guarantee 	2 1 2 1 1 1
6) What advice could you give us to ensure success of this AF policy?	<ul style="list-style-type: none"> • Campaign to inform people • Need legislation and regulations • Trademark – patents • Collateral regulations • Champions & executives with will & passion • Implementation plan • Clear policy statement from GoB 	2 1 1 1 1 1 1

Conclusion

The interviews conducted with stakeholders has given the team ideas and feedback on the positions of the farmers, where they stand and their perspective on the implementation of AF.

Stakeholders do understand that there is a possibility to adopt to new technologies, in this case, AF systems. However, they also understand and have identified that there are barriers/gaps/limitations that can affect the adoption and execution to the AFSs and policy.

Understanding what are the barriers/limitations/gaps and knowing who are the key stakeholders/actors; identifying a strategy would be straightforward. Identifying these strategy can be used to confront these barriers and identifying which organization maybe be able to assist in eliminating these barriers through awareness, i.e presentations, farmer field school training, incentive academia, and other research centre to develop research that will foster innovation of AF and subsidize farmers to participate in AF to increase forest cover and other desirable outputs.

These interviews have given the opportunity to determine that organization and farmers in Belize are conducting various types of agroforestry such as cacao production under shaded trees, intercropping using lime and orange along with coconut and home-gardens.



In this sense, the strategic actions derived from the policy will facilitate the implementation of the AF, increase the numbers of farmers participating in AF and articulate efforts within the governing institutions of the agricultural and forestry sector to provide technical support and training, and to receive information and cooperation from practicing beneficiaries.

In terms of gender participation in the AF sector, it is understood that there are policies that specifically address gender issues, such as the National Gender Policy (2013), and cross-sectionally, in the case of the National Agricultural Food Policy (2002-2020), Forest Policy (2015). However, the institutionalization of the gender approach still remains marginal. The institutions have scattered actions in this matter, which generally obey the demand of a project donor, but once they are finished, these actions do not have continuity

The institutions of the agricultural sector do not have a gender unit with human and financial resources to guide the mainstreaming of the gender approach in the institutions. Consequently, technical personnel do not feel obliged to include actions in the operational plans, nor are they receiving technical training to effectively address the gender issue in their work.

Information is seldom disaggregated by sex, except for projects that require it. There is not standardization of formats for the collection of information, nor are the gender indicators that account for the support that institutions are providing to rural women.

Rural and indigenous women are a sector of the population that despite their exclusion, invisibility and marginalization, participate and contribute in different agricultural activities in production and value chains and in the commercialization of products mainly in local markets. They participate in these activities, generally from informality, without financial support and with little training, and they experience discrimination in terms of access to land and property. This resource is limiting for women and was recurring theme during the interviews.

Some NGOs do partially fulfil the role that the State should play, offering training programs and supporting women's enterprises (cocoa, honey, ecotourism), such is the case of the Ya'axché Conservation Trust. Specifically, private companies are supporting actions for women and young people, for example SIRDI, in the sugar cane sector, which has 33% women owners of sugarcane fields who have license to deliver product; as pointed out by the executive director of SIRDI "the sugarcane sector has the challenge of diversifying with fruit and timber trees, in other words, promoting agroforestry in the cultivation of sugarcane..." "women and young people are ideal to establish tree nurseries in the communities."



In conclusion, it must be said that the interviewees consider having an agroforestry policy in Belize positive and relevant. It is an opportunity for Belize to make a more integrated process in the agricultural sector and include women in a visible way and considering them as subjects of development especially in sector where its issue is marginalized and invisible.

News publication related to the NAFP project

During the National Agroforestry Policy development project, the project has been highlighted multiple times on the CATIE's newsfeed so as to create awareness that there is a first policy of this kind being developed in Central America. Having these kinds of policy can help farmers and the country tremendously through the role that these types of system play especially for food security, health care, ecosystem resilience, helps prevent biodiversity degradations, serves as pollination sinks for insects pollinators, habitat for birds and other flora and fauna, and it also helps to mitigate and adopt to climate change.

Below you can see the multiple times the project has been highlighted in the CATIE's Newsfeed and Facebook which reaches out to millions of people around the globe.



FIGURE 2. CATIE SUPPORTS BELIZE IN THE FORMULATION OF ITS NATIONAL AGROFORESTRY POLICY



The screenshot shows the CATIE website interface. At the top, there is a navigation menu with links: Inicio, ¿Qué es CATIE?, Programas de Educación, ¿En qué trabajamos?, Productos y servicios, and ¿Dónde trabajamos?. There are also flags for Spain and the United Kingdom, and a search icon. Below the navigation, there is a 'Visto: 1838' indicator and a 'Imprimir' button. The main article title is 'CATIE apoya a Belice en la formulación de su Política Agroforestal Nacional'. The article text describes the process of formulating Belize's National Agroforestry Policy, starting in October 2019. It mentions a meeting in Belmopan, Belize, where the general direction for the policy was identified. The article also notes that CATIE (Centro Agronómico Tropical de Investigación y Enseñanza) provided technical assistance to the Office of Climate Change in Belize and other key actors. Helen Choco, national coordinator for the policy, is quoted as saying the initiative is important for Belize as it aims to develop a National Agroforestry Policy that will contribute to achieving the Sustainable Development Goals (SDGs) and adapting to and reducing greenhouse gas emissions at the national level. The article further details the next steps, including a visit to CATIE in Costa Rica to learn about agroforestry policies in the region, and interviews with representatives of the National Forest Financing Fund (FONAFIFO) and the Ministry of Environment and Energy of Costa Rica. It also mentions the preparation of a first draft of the policy instrument, which will be shared with the highest level of the Ministry of Agriculture, Fisheries, Silviculture, Environment, Sustainable Development and Immigration, Belize. Finally, it states that local and national consultations will be held in Belize to gather the perception of different actors on the policy formulation, and a national discussion workshop will be organized to discuss the draft and its dissemination.

Mayor información:
 Guillermo Detlefsen
 Investigador
 Programa de Agricultura, ganadería y agroforestería
 CATIE
 gdetlef@catie.ac.cr

On the right side of the page, there is a list of related articles or news items, including: 'Herramientas para promover la ganadería sustentable en manos de familias productoras', 'GEOCATIE presente en el mayor evento de Sistemas de Información Geográfica de la región', 'Municipalidades de Costa Rica buscan transición hacia una economía circular', 'Formando profesionales de América en el manejo diversificado de bosques', 'Instituto Tecnológico Superior de Cintalapa y CATIE estrechan su relación de cooperación', 'Proyecto "Mecanismos y redes de transferencia de tecnologías de cambio climático en Latinoamérica y el Caribe" realizó su presentación de cierre', 'Reconocen al CATIE y a la Unión Europea por su compromiso contra la desertificación', 'Jardín Botánico del CATIE es ahora un atractivo Safe Travels', 'Hacia el escalamiento del Sistema de Información Departamental de Seguridad Alimentaria', and 'Inician en Chiapas una comunidad de aprendizaje para capacitar a mujeres en temas de género'.



FIGURE 3. BELIZEAN AUTHORITIES KNOW ABOUT ADVANCES IN AGROFORESTRY POLICIES IN COSTA RICA AND THE REGION

CATIE Inicio | ¿Qué es CATIE? | Programas de Educación | ¿En qué trabajamos? | Productos y servicios | ¿Dónde trabajamos? |   

Autoridades de Belice conocen sobre avances de políticas agroforestales en Costa Rica y la región

- *Intercambian experiencias para determinar las lecciones aprendidas que pueden servir de insumo para formular su política agroforestal nacional*

14 de noviembre de 2019. Autoridades de Belice visitan, del 12 al 15 de noviembre, la sede del CATIE (Centro Agronómico Tropical de Investigación y Enseñanza) para conocer los avances en políticas agroforestales que existen en la región, principalmente en Costa Rica.

Se trata de una misión de intercambio Sur-Sur para crear capacidad nacional en la formulación de políticas. Esto como parte del proceso de desarrollo de la Política Agroforestal Nacional, el cual cuenta con el apoyo del CATIE a través de una asistencia técnica, con fondos del *Climate Technology Centre and Network* (CTCN)-UNIDO.

“Queremos ver qué aspectos de la experiencia del CATIE, a nivel regional, y de la de Costa Rica, a nivel nacional, en el tema de agroforestería nos pueden servir para crear nuestra política”, expresó Johanna Pacheco, oficial de la Oficina Nacional de Cambio Climático de Belice.

Para esto, la delegación de Belice conformada por Pacheco, Wilber Sabido, director del Departamento Forestal; Belarmino Esquivel, director de extensión del Departamento de Agricultura; y Gustavo Requena, director del Programa de Alcance Comunitario y Medios de Vida Ya’axche Conservation Trust, tienen agendada una visita al Fondo Nacional de Financiamiento Forestal (FONAFIFO) y al Ministerio de Agricultura y Ganadería de Costa Rica (MAG), en donde se entrevistarán con funcionarios de ambas entidades para conocer más sobre el sistema de Pago por Servicios Ambientales (PSA) y avances en materia de política agroforestal.

Además, realizarán una gira de campo por varias fincas de la zona Atlántica del país en las que se llevan a cabo prácticas agroforestales. Vesalio Mora, jefe de Planificación Agropecuaria del MAG para la Región Caribe y quien ha apoyado la coordinación de la gira de campo, manifestó que la visita permitirá a la delegación de Belice generar políticas similares y mejoradas a su realidad, contemplando financiamiento y desarrollo de estrategias para implementar sistemas agroforestales (SAF).

Por su parte, en el CATIE la delegación compartió un espacio con Róger Madrigal, investigador del Programa Investigación en Desarrollo, Economía y Ambiente del CATIE, quien les habló sobre el sistema de PSA y la experiencia de Costa Rica y Jamaica en ese ámbito. A su vez, con Felicia Ramírez, experta en género del CATIE, e Isabel Gutiérrez, decana de la Escuela de Posgrado del Centro, conversaron sobre aspectos de género en Centroamérica a tomar en cuenta en la agroforestería.

Finalmente, Sabido comentó que esta visita estrechará las relaciones entre Belice y CATIE pues hay mucho por hacer en términos de sistemas de producción, gobernanza, construcción de alianzas público-privadas e investigación para el desarrollo.

Mayor información:
 Guillermo Detlefsen
 Investigador
 Programa de Agricultura, ganadería y agroforestería
 CATIE
gdetlef@catie.ac.cr

Sistemas de Información Geográfica de la región

- Municipalidades de Costa Rica buscan transición hacia una economía circular
- Formando profesionales de América en el manejo diversificado de bosques
- Instituto Tecnológico Superior de Cintalapa y CATIE estrechan su relación de cooperación
- Proyecto “Mecanismos y redes de transferencia de tecnologías de cambio climático en Latinoamérica y el Caribe” realizó su presentación de cierre
- Reconocen al CATIE y a la Unión Europea por su compromiso contra la desnutrición
- Jardín Botánico del CATIE es ahora un atractivo Safe Travels
- Hacia el escalamiento del Sistema de Información Departamental de Seguridad Alimentaria
- Inician en Chiapas una comunidad de aprendizaje para capacitar a mujeres en temas de género



FIGURE 4. CATIE CONTINUES TO SUPPORT BELIZE IN THE FORMULATION OF ITS AGROFORESTRY POLICY

CATIE Inicio | ¿Qué es CATIE? | Programas de Educación | ¿En qué trabajamos? | Productos y servicios | ¿Dónde trabajamos? |

Visto: **4480**

CATIE continúa apoyando a Belice en la formulación de su política agroforestal

- La institución realizó una asistencia técnica para contribuir a integrar el enfoque de género en dicha política

12 de marzo de 2020. Para la formulación de la Política Nacional Agroforestal de Belice, el país cuenta con el apoyo del CATIE (Centro Agronómico Tropical de Investigación y Enseñanza), a través de una asistencia técnica a la Oficina de Cambio Climático de Belice. Como parte de esta cooperación, el Centro realizó del 2 al 6 de marzo, en las ciudades de Belmopán y San Ignacio, una asistencia técnica para contribuir a integrar el enfoque de género en la elaboración de dicha política agroforestal.

Con este fin, Felicia Ramírez, experta en género del CATIE, y Hellen Chocó, graduada del Centro, realizaron un diagnóstico participativo, que conjuntamente con una revisión de fuentes secundarias, permitirá identificar vacíos y oportunidades para implementar el enfoque de género en la política agroforestal, así como conocer cuál es el estado del arte del tema de género, dentro del marco de trabajo con sistemas silvoagrícolas, silvopastoriles y agrosilvopastoriles en el país.

En el diagnóstico participaron técnicos de instituciones públicas, organizaciones no gubernamentales (ONG), academia y productores. Se identificaron los mecanismos para la promoción y difusión de la agroforestería, así como para la participación general de las mujeres en la misma.

"Pocas veces se analizan los aspectos que se deben considerar para incorporar la perspectiva de género en las políticas agroforestales. Este diagnóstico permitirá incorporar la perspectiva de los actores involucrados para asegurar la participación efectiva de las mujeres rurales en esta política agroforestal, lo cual será un hito en Belice y en la región centroamericana", mencionó Ramírez.

En este sentido, la elaboración de esta política se vislumbra como una excelente oportunidad para incluir el enfoque de género en un sector donde el tema es marginal.

"Las acciones estratégicas que deriven de la política permitirán, a la vez, articular esfuerzos con las instituciones rectoras del sector agropecuario y forestal e ir avanzando hacia la igualdad de oportunidades y el empoderamiento de las mujeres rurales e indígenas de Belice", concluyó Ramírez.

- productoras
- GEOCATIE presente en el mayor evento de Sistemas de Información Geográfica de la región
- Municipalidades de Costa Rica buscan transición hacia una economía circular
- Formando profesionales de América en el manejo diversificado de bosques
- Instituto Tecnológico Superior de Cintalapa y CATIE estrechan su relación de cooperación
- Proyecto "Mecanismos y redes de transferencia de tecnologías de cambio climático en Latinoamérica y el Caribe" realizó su presentación de cierre
- Reconocen al CATIE y a la Unión Europea por su compromiso contra la desnutrición
- Jardín Botánico del CATIE es ahora un atractivo Safe Travels
- Hacia el escalamiento del Sistema de Información Departamental de Seguridad Alimentaria
- Inician en Chiapas una comunidad de aprendizaje para capacitar a mujeres en temas de género



Felicia Ramírez, experta en género del CATIE, y Hellen Chocó, graduada



instituciones rectoras del sector agropecuario y forestal e ir avanzando hacia la igualdad de oportunidades y el empoderamiento de las mujeres rurales e indígenas de Belice”, concluyó Ramírez.



Felicia Ramírez, experta en género del CATIE, y Hellen Chocó, graduada del Centro, durante la realización del diagnóstico en Belice

Mayor información y redacción:

Guillermo Detlefsen
Investigador
Programa de Agricultura, ganadería y agroforestería
CATIE
gdetlef@catie.ac.cr

Felicia Ramírez
Experta en género
CATIE
framirez@catie.ac.cr

Final Draft of the Belize National Agroforestry Policy

“The best time to plant a tree was 20 years ago. The second-best time is now.”

Chinese proverb

“Until you dig a hole, you plant a tree, you water it and you make it survive, you haven't done a thing. You are just talking.”

Wangari Maathai, Kenya

Chapter 1: Introduction

Belize became independent from the United Kingdom in 1981, and today it is a thriving democracy with a population of some 397.6 thousand of diverse cultural heritage comprising Mestizos (or Latinos), Creoles, the Maya, Garifuna, Mennonites, East Indians, Europeans, and many others, as well as mixtures of all the above.



Belize is an active member of the United Nations, Organization of American States, Caribbean Community, Central American System of Integration, and therefore is a signatory and abides by their multi-lateral conventions, agreements and programs. Belize also has bilateral relations with numerous friendly governments such as those of the European Union, United States of America, United Kingdom, Republic of China on Taiwan, Cuba, and Mexico, which provide technical cooperation and financial assistance.

Like many developing countries, Belize has made significant progress, doubling its per capita income, in the last 20 years and raising the socio-economic standards of living of its people. However, the country is hampered by the persistent socio-economic problems caused by declining productivity in the primary and secondary sectors, rural poverty and food and nutrition insecurity, and insufficient jobs and income generation. There are bio-physical problems related to natural resource conservation, deforestation and forest degradation, and environmental concerns. Belize is highly exposed to the hazards and risks of climate change impact with respect to devastating droughts, excessive rains/flooding, and hurricanes, and with increasing frequency.

Based on the experience in other countries with similar characteristics of Belize, agroforestry (AF) has demonstrated excellent results in addressing some of the above-mentioned social-economic, bio-physical and climate change challenges confronting Belize today. AF is an old practice but a new science, which is defined as land-use systems or practices involving the management of trees on the same land with agricultural crops and/or animals, in some form of spatial arrangement or temporal sequence (Steppler and Lundgren, 1988; Somarriba, 1992). AF can increase agricultural production, food security, nutritious feed for animals, construction materials, medicinal plants for rural communities, as well as other products of great value to society, such as bio-energy, conservation of natural resources, and ecosystem services, sustainability and resilience (Nair and Garrity, 2012).

Although some local institutions in Belize have been experimenting with AF systems and components, AF development today continues to face various challenges such as inadequate dissemination of knowledge, legal constraints, lack of incentives, and poor coordination among sectors that is needed and to which it contributes (CATIE, 2020c). From preliminary assessments and dialogue with international experts on the topic, AF has great potential for Belize at this stage of development. However, such potentials cannot be realized without a clearly convincing and effective policy at the national level, a policy that would lay out a solid justification, succinctly explain how AF can contribute to the economy and sustainable development, and above all, delineate what exactly is needed to make that potential a reality for Belize.



With that purpose, the Ministry of Fisheries, Forestry, the Environment and Sustainable Development (MFFESD) through the National Climate Change Office (NCCO) along with technical assistance of the Climate Technology Centre and Network (CTCN), has requested the Tropical Agricultural and Higher Education Center (CATIE), an expert institution in AF, to assist Belize in developing an integrative and comprehensive Belize national AF policy (NAFP). The overall objective of the NAFP development is to mainstream agroforestry development in Belize.

This NAFP was developed in a stepwise process. This process was carried out under the supervision and with the support of a National AF Policy Development Team integrated by the relevant institutions with experience and/or interest in the field of AF, which are:

- National Climate Change Office, Ministry of Fisheries, Forestry, Environment and Sustainable Development (MFFESD)
- Department of Agriculture, Ministry of Food and Agriculture (MFA)
- Forest Department, MFFESD
- Department of Environment, MFFESD
- Lands Department, Ministry of Natural Resources
- Belize Livestock Producers' Association (BLPA)
- Environmental Research Institute, University of Belize (UB)
- Department of Agriculture, University of Belize, UB
- Ya'axché Conservation Trust (YCT)
- Program for Belize PFB)
- Belize Agro-Productive Sector (BAPS)

The process followed in the work plan included:

- Review of relevant literature and legislation
- Consultations with key stakeholder representatives across the country
- Drafting the national policy outline and sections
- Consultations and feedback inputs in each district
- Redrafting and improving the original draft, and
- National stakeholder validation meeting to agree on the final draft.

The proposed NAFP was also reviewed and supported by international partners (i.e. CATIE, CTCN) who have invested in its development as a basis for mobilizing technical and financial resources for AF development in Belize.

Chapter 2: Justification for a National AF Policy

There is convincing and compelling evidence to justify the need for this AF policy in terms of the strategic needs, opportunities and contributions that AF can make at this stage of



development in Belize. As is evident in other countries' experiences (Buttoud et al, 2013, Government of India, 2014), a national AF policy is timely and relevant, and will be found to be attractive to the national policy makers, farmers, producers, environmentalists, investors, and citizens interested in the sustainable development of the country.

The External Context

The Sustainable Development Goals (SDGs)

As a member of the UN, Belize is a signatory to 17 sustainable development goals (SDGs) approved on September, 2015. In 2018, a technical report was published based on an extensive literature review of 1,000 scientific publications about practical AF projects and the impact on environmental, social and economic benefits (Andersson, 2018). The report presents evidence of how AF can contribute to 9 out of the 17 SDGs. It has the strongest impact potential on:

- SDG 1: poverty reduction
- SDG 2: hunger alleviation
- SDG 5: gender equality
- SDG 13: climate action, and
- SDG 15: biodiversity conservation and sustainable land management.

AF can contribute to other SDGs by improving human health (SDG 3), increasing access to clean water (SDG 6), sustainable energy solutions (SDG 7), and responsible agricultural production (SDG 12).

Climate change mitigation and adaptation

Today greenhouse gas (GHG) emissions in the world are more than 50% higher compared to the level in 1990. Global warming causes long-lasting changes to our climate system. Climate change severely impacts livelihoods around the world, and in particular those of most disadvantaged groups, i.e. small farmers, women, youth, indigenous people and ethnic minorities. They must cope with extreme natural disasters and degradation of natural resources. If Belize does not take action, climate change will cause serious, irreversible damage.

Due to climate change, various environmental protocols have been developed for countries to reach their environmental goals. The UN Framework Convention on Climate Change (UNFCCC) is an international environmental treaty adopted on 9 May, 1992. The Conferences of the Parties (COP) to the UNFCCC meet annually to assess progress in dealing with climate change. Under the UNFCCC, environmental agreements have been signed, such as the Kyoto Protocol, Doha Amendment of the Kyoto Protocol, and the Paris



Agreement. The latter aims to reduce emissions from 2020 onwards through country commitments for the provision of Nationally Determined Contributions (NDCs) which aims to keep global temperature rise this century well below 2 degrees Celsius above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius.

Belize is a signatory of the UNFCCC which mandates the country to develop and implement policies, strategies and plans for climate change mitigate and adaptation nationally. Belize signed the Paris Agreement on 22 April, 2016, and submitted its NDC on 20 April, 2016. REDD+ is considered to be one of main initiatives that form part of Belize's NDC, and is geared towards improving Belize's ability to adapt to the adverse impact of climate change, foster climate resilience, and lower GHG emissions. One of the ways to achieve this is through AF, which is recognized by REDD+ as a strategy with great potential. Agriculture and forestry are both identified as priorities, emphasizing sustainable forestry management (SFM) and increasing resilience against climate change without threatening food production. REDD+ includes policy reforms and advocacy actions that address the drivers of deforestation and forest degradation, land tenure issues, forest governance issues, gender considerations, and environmental and social safeguards.

Belize recognizes the need for action on the ground and recognition of the multiple benefits of REDD+ as it relates to enhancement of ecosystem services and the potential delivery of wider social objectives (Simmons & Associates, 2014). Although emission reductions and CC mitigation will remain at the core of REDD+ in Belize, there are many other ecosystem services flowing from forests and trees that contribute to human well-being and can be enhanced through REDD+. These services are largely underpinned by biodiversity which also supports ecosystem resilience, which in turn could contribute to human adaptation to climate change.

AF can contribute to REDD+ in many ways, such as improving forest governance and land tenure/access issues, building capacity among local farmers and land users, assisting in lowering carbon emissions, helping Belize to participate in the current voluntary carbon market and earn USD40 million per year with a reduction of carbon emission (10%), contribute to enabling SFM in Belize, and contribute to capacity building and training with key line ministries relevant to the agriculture, forestry and land use management issues (Forest Dept, 2020).

FAO, CATIE and ICRAF assistance

AF has been defined as a land-use system in which trees and shrubs interact, ecologically and economically, in a significant manner with crops and/or animals. Trees in AF are



multi-purpose, they have been evaluated for producing over a 100 products and services, for example, those related to food, timber, feed, fuel, soil fertility, water, shade, medicines, carbon sequestration, and aesthetic value. AF has attracted considerable attention from the scientific and development community as a very promising technology because:

- Farmers are already accustomed to practicing some forms of it.
- AF can address a rather wide range of household needs, and
- AF has a definite potential for smallholder farming systems from the perspective of sustainable resource management and environmental services.

Starting in the 1970s, ICRAF, CATIE and the UN Food and Agriculture Organization (FAO) have been conducting research and development (R&D) in AF and now are renowned scientific centers of excellence and leadership in the field of AF (Budowski, 1981; CATIE, 2020). They could potentially provide scientific and technical assistance upon request from Belize. The NAFPP will create the effective demand and tangible benefits in Belize from such organizations which otherwise would go un- or under-utilized.

The National Context

Socio-economic development challenges

According to the Table 1 below, Belize is a small country in terms of population and land area (22,806 km²) with a low but steadily increasing population density and with a high proportion of its land area under natural forests. In the first half of the 20th century, the logging industry used to contribute over 70% of the GDP, but at around 1983, agriculture replaced logging as the most important income and employment generator in the primary and secondary sectors. At present, the service sector, in particular tourism, has overtaken agriculture, contributing an estimated 43% of the GDP in 2019.

Belize is classified as a middle-income country because of its per capita income, which has almost doubled in the last 20 years from BZ\$ 5,746 to \$9,205. However, during the last 10 years, the real growth rate of the gross domestic product (GDP) has declined significantly, from 13% to less than 1%, to a level that threatens the basic standards of living, particularly for those at the bottom of the ladder. Deforestation is increasing due to population growth and the expansion of the agriculture frontier (Cherrington et al, 2012). As a result, inequality has increased; poverty incidence has doubled, from 23% in 2000 to an estimated 50% in 2019. In Belize, a family of 5 requires at least an income B\$678 per month (US\$2.23/person/day) to stay above the poverty line, and for comparison, one adult member working full time earns BZ\$ 612 per month based on the official minimum wage.



Table 1. Trends of selected demographic and socio-economic characteristics of Belize

Criteria	2000	2010	2019
Population	247,315	322,464	397,628
Persons/km	10.8	14.1	17.4
Per capita income, BZ\$	5,746	8,650	9,205
Real GDP growth, %	13.0	2.4	0.3
Forest lands, %	65	61	58 (estimated)
Poverty rate, %	23	41	50 (estimated)
International trade deficit, US\$ M	170.1	133.8	595.8
GoB debt/GDP, %	79	81	95

Sources: Worldometers.info/world-population/Belize; [Wikipedia.org/wiki/Economy of Belize](http://Wikipedia.org/wiki/Economy_of_Belize); Statistical Institute of Belize; GoB Budget speeches; IMF Article IV Consultation Reports

The public sector debt/GDP ratio is at 95% in 2019, a level way above the 60% considered financially sustainable by international financial institutions. The international trade deficit has been constantly growing. The value of imports has increased to approximately 50% of the GDP, and the value of food, feed stuffs and beverages accounted for BZ\$ 220 million per annum in 2019. The international trade deficit has been increasing rapidly. Now with the Covid-19 pandemic, the trade deficit will decrease substantially as foreign exchange is being limited to importing essential products mainly, but also because domestic exports, though already decreasing in recent years, are expected to decline further due to technical and economic constraints in domestic production and due to declining international market prices.

A Renewed and revitalized focus on agriculture

In 2010, the Government of Belize (GoB) invested in a major effort to articulate a long-term strategy and plan for the sustainable development of Belize, i.e. Horizon 2030 (Barnett & Co, 2011), which even now offers relevant guidance and support for all sector policies (GoB, 2015a and 2015b). However, since March 2020, Covid-19 has paralyzed the economy and caused a heavy financial burden on the GoB. Tourism, the leading economic sector, has suffered the greatest hit, and its recovery will be slow and will depend on containing the virus, not only in Belize but in the tourist-supplying countries, mainly the USA. Without a vaccine or therapeutic treatments up to date, the Covid-19 pandemic will be around for an extended period.

The agriculture sector is holding up. Food security is not an issue yet, but some people are going hungry due to the lack of jobs and income. Hence there are urgent needs that must be addressed in the short term for farm families. There are also medium- and long-



term measures that must be taken to strengthen and ensure the viability, sustainability and resilience of the agriculture and food chains.

Now there is urgency to prioritize income generation and the domestic productive sectors by introducing new products and foods, value-adding and recycling resources at home and community, and to create employment opportunities for women and youth, especially in the vulnerable sectors. There are development plans in gestation to strengthen micro, small and medium-size enterprises in production, processing and service sectors, with low interest (3%) loans, to expand the domestic economy to replace and substitute for the bulk of imported products and to increase exports to generate much needed foreign exchange. In this respect, there is great interest in the production of local foods, beverages, feed, energy, timber and construction materials, leather products, and other goods and services. In addition to the basic staples, there is increased interest in investing more on coconuts, pineapples, cocoa, indigenous fruits, non-timer forest products, beekeeping, and even domestication of wildlife species (e.g. deer, paca and crocodiles). This focus augurs well for agriculture, and AF development could make a valuable contribution in this regard.

Agroforestry for tourism

Pristine natural landscapes with flora and fauna biodiversity attract vast numbers of people to travel around the globe. No doubt, Belize is very popular tourist destination because of its rich tropical forest areas and reserves which are home to a magnificent array of wildlife, including jaguars, ocelots, pumas, tapirs, monkeys, snakes, toucans and other birds. Local communities are major beneficiaries of forest environmental services such as watershed protection, biodiversity conservation, atmospheric regulation, and scenic beauty; however, these services are also extremely valuable for ecotourism, recreation and for socio-cultural development, and most tourists are willing to spend large sums of money to enjoy them. In the absence of these services, ecotourism and the economic sectors would generate significantly less income (Groot, 2011). AF systems can create, protect and expand these environmental services. For example, the forest/cacao AF system in southern Belize is already being used as a tourism product, i.e. visitor tours and chocolate-making exhibitions, thereby diversifying its goods and services (Beltraide, 2018).

Deforestation or intensification

Agriculture can grow through intensification to meet the increased demand for food, jobs and income, since growth by expansion into the natural forest is no longer a desirable option. Although Mennonite large-scale agriculture (farming/processing/marketing) is a success story, it was based on expanding the agricultural frontier into the natural forests.



However, the forest-elimination strategy cannot go on indefinitely. Forests need to be managed as productive ecosystems, pursuing options of sustainable logging, harvesting non-timber forest products, and generating environmental services (i.e. water protection and carbon dioxide sequestration). These options have been demonstrated to be more productive, profitable, and sustainable than the traditional milpa and mono-cropping systems.

Deforestation and forest degradation in southern and western Belize are also caused by the milpa system, also known as the shifting cultivation, which is practiced by Belizean and illegal Guatemalan farmers in the west and south, and in the north and central regions of the country. Wildfires during very dry spells also destroy the rich quality of the forest-based resources. Although the milpa is an old AF practice, it is a minimum-input, low-productivity, and unsustainable system, and since the farmers have no alternatives to secure their food needs, they will continue with the milpa. If left unchecked and unimproved, with high population growth, all forest areas will soon disappear or be degraded. Alternatives to the milpa system, like improved AF fallow management, rotation with legumes, and others, must receive a high priority in order to control deforestation and forest degradation in Belize.

Ensuring the protection and conservation of forests is highly important in a country like Belize, which relies heavily on its natural resources and services. Illegal logging, illicit wildlife trade, land grabbing, drug trafficking and cross-border encroachment are just some of the plagues that lead to critical deforestation, degradation and other destructive practices. By practicing AF in natural forests, local communities can develop effective approaches against the climate crisis and assist in enhancing environmental services and achieving agreed-upon carbon neutrality goals. Environmental crimes are among the most profitable in the cross-border areas with Guatemala and Mexico.

Land management and land degradation

A national land use policy, drafted in 2019, aims to comprehensively address the use, management, distribution, enhancement and conservation of Belize's land-based resources, in order to achieve a well-ordered, effective and sustainable management of its land resources, including national lands, while developing the means to respond to the needs of the growing population and contributing to its resilience to the impacts of climate change in Belize (GoB, 2019).

In 2020, the MNR has defined national targets for achieving land degradation neutrality (LDN) as follows: achieving SDGs, contributing to low emissions and climate-resilient development, creating social impact, scaling up what works as it relates to proceeding from pilots to wide-scale adoption, building on good practices and enabling innovation,



enhancing national capacities through strengthening national institutions, using participatory approaches, and leveraging innovative financing (MNR, 2020). Accordingly, the MNR identified 7 on-going projects whose actions are related to LDN and 8 transformative projects for LDN. Many of these LDN targets and projects scoped are directly related and can be complemented with AF development.

Forests and tree planting traditions

Due to our cultural background in the rural and urban areas, many Belizeans love to plant trees, many different species of trees. The cultural heritage and the logging industry, which accounted for 70% of the economy in the early 20th century, exposed the people to the valuable timber species and the wide range of indigenous fruits that grow naturally in the forests. Local fruit trees are ubiquitous and very much appreciated, delicious and nutritious: i.e. cacao, mamey, custard apple, sapodilla, guinep, cohune nut, guava, soursop, avocado, mango, plums, ramon (breadnut), and coconut. Trees are also used for animal feed, well known are the ramon, pixoy, and others. People also have an old tradition of using medicinal trees. Local people have valuable experience on how to plant, take care of and use these trees. Many communities already use various tree species for multiple purposes; however, their processing and marketing are limited and need to be developed.

Participation of women and youth

Beyond the compelling evidence for gender representation at all levels of agricultural development, the arguments are even stronger in AF because women, compared to men, prioritize the wellbeing of the children and family (i.e. food, nutrition, health, house construction, and conservation of natural resources), above short-term productivity and cash income gains (CATIE, 2020b). The unconscious bias towards the male heads can distort critical decision making in terms of who makes decisions, what incentives are needed, who does the work, and who harvests the benefits. AF can be used to inspire women, train them, and offer opportunities to them to lead in AF work, to contribute in the field, school, or office.

It has been noted that young generations are more concerned than other age groups about the environment, climate change and sustainable development because these will be their inheritance and patrimony. Hence AF development can offer the youth an opportunity to act today in the interest of a better future for themselves. Their participation is also most desired in the rural productive sector, because due to the self-perceived gloomy outlook in agriculture, they are migrating to the urban areas in the pursuit of a better future.

Uncoordinated AF project efforts



Several government departments or units (Agriculture, Forestry, and Environment), the University of Belize and non-government organizations (e.g. Program for Belize and Ya'axché Conservation Trust (YCT)) are engaged individually in AF initiatives, because they can appreciate the valuable contributions AF can make to their own missions and mandates (CATIE, 2020c). However, there is not enough inter-ministerial coordination and collaboration among these AF initiatives. The usual strategy of each ministry is to work independently, and therefore in the absence of a national AF policy, there is no reason and no motivation or effort to do otherwise. Furthermore, because of the small size of each ministry or organization, there is limited capacity to mount the minimum interdisciplinary team in each institution. A minimum “critical mass” is absolutely necessary in AF to have competent programs to produce the scope and quality of work required to make a credible impact on the productive sector and, more so, on the national economy.

Investment stimulation and mobilization

AF cannot grow and be mainstreamed without investment, hence the highest priority of any NAFP is precisely to stimulate and secure investments from those who have resources. The argument to be made is about income, profits, and better return on the limited resources of land and capital in Belize. AF can offer good economic returns for all, even for low-income families.

Chapter 3: Agroforestry Practices and Potentials in Belize

The Rise of Agroforestry

The John Bene team's report in 1977 on trees, food and people noted the existence of AF and recommended the establishment of the International Council on AF to study its practices (Bene et al, 1977). AF is an old practice of farmers who were planting trees on cropland and pastures, contrary to the conventional recommendations of the experts in agriculture. Today, AF is also an area of science that studies, improves, tests and evaluates, for example, different spatial and temporal arrangements, below- and above-ground interactions, and the yield and services provided by the components of crops, livestock and trees, over time, albeit tangible and intangible.

There are three general types of AF based on the presence of the main components: agrosilvo (crops and trees), silvopastoral (trees, pastures and livestock), and agrosilvopastoral (crops, trees and pastures and livestock). The predominance of any AF type is a function of the cultural, ecological and socio-economic characteristics of each area or country. In Central America, for example, CATIE's work on understanding the potentials of AF had its origins in its research on multiple cropping systems with annual



and perennial crops, farming systems (including livestock) of small farmers, and its work on watershed/forest management systems. By the 1980s, CATIE had already established an AF program in this region, recognized as a leader in the world, similar to that of ICRAF in Sub-Saharan Africa, followed and complemented by other efforts in United States, Europe, Brazil, and India (Nair & Garrity, 2012).

Starting in the 1990s, ICRAF and other collaborators started a global research program to develop alternative to slash-and-burn agriculture (SBA) in Africa, Latin America and Asia (Bandy et al, 1993). The program focused on: a) selection and improvement of tree species, b) understanding the physical and economic interactions among components, c) design of new systems to improve productivity and sustainability of the SBA cycle, and d) the identification of socio-economic constraints for adoption recommended alternatives, i.e. land tenure, institutional policy, household decision making and gender issues. Improving the cropping and fallow phases of the SBA systems as well as the natural forest ecosystem were important to reduce demographic pressure for forest conversion.

In East Africa, the farmers are experimenting with a diversity of approaches and projects for what they call restoration ecology. One example is reforestation conducted with local communities who are not only planting trees but doing so in a way that can secure access to carbon markets. This is implemented by following a quality standard for monitoring, training and employment of the farmers who participate, to ensure a high rate of success on long-term conservation. These are incredible initiatives designed for improved socio-economic and environmental impact.

In Costa Rica, the payment for environmental services program is executed through the National Fund for Forest Financing and the National System for Conservation Areas (Ortiz & Kellenberg, undated). The payment program aims to protect primary forest, allow secondary forest to flourish, and promote forest plantations to meet industrial demands for lumber and other wood products. The program makes direct payments to landowners for ecological services which their lands produce when they adopt land uses and forest management techniques that do not have negative impacts on the environment and which maintain the people's quality of life. The program recognizes forest ecosystems for four ecological services, i.e.: mitigation of GHG emissions; hydrological services, including provision of water for human consumption, irrigation, and energy production; biodiversity conservation; and provision of scenic beauty for recreation and ecotourism. Financing comes from taxes on fossil fuels and from national and international payments for environmental services. The program has also negotiated payments with three hydroelectric companies, a private beer company, sale of Certified Tradable Offsets derived from forest ecosystems, and donations from the Global Environmental Facility.



Payment for environmental services in Belize could be an option to increase added value of AF systems, to be derived simply by planting more trees in all landscapes to compensate for carbon emission into the atmosphere. AFSs can be promoted as a dual-performance system for carbon and water footprint and as a high value system for ecological compensation or restoration (Hannachi et. al 2017).

Agroforestry in Belize

AF began to receive some attention in Belize in the late 1990s (CATIE, 2020c). The Program for Belize (PFB) promotes the conservation of biodiversity and sustainable development of Belize through proper management of the Rio Bravo Conservation and Management Area (RBCMA) to conserve forested land and other natural ecosystems in north-western Belize threatened with deforestation and fragmentation. The PFB started some work on tree nurseries to produce seedlings of valuable timber species for AF with village farmers' groups. However, that work ended soon due to farmer group conflicts, money issues and lack of funding to continue.

Key government departments have also been promoting this type of sustainable agriculture. The Ministry of Agriculture started its AF work with tree nurseries, selling seedlings to farmers at subsidized prices, which continued for some time but at a slow pace. Today, the Ministry's interest has increased since it is promoting various AF-related innovations, such as:

Mixed farming systems: these include integrated farming systems, intercropping, alley cropping, organic production and sustainable agriculture; each system promotes "diversity". For example, the Farmer of the Year national competition puts considerable emphasis on farms that have tree/crop/livestock components.

Regenerative agriculture: the objective is to improve and conserve soil quality (soil amendments, cover crops, bokashi, compost), water management (irrigation, draining, water harvesting), and more recently, educating and promoting principles and practices that increase biodiversity, carbon sequestration (above and below ground).

Protein and energy banks: the objective is to produce forage with high protein and energy content, to discourage the producers from expanding grazing areas and teaching them better practices to improve the animal nutrition through intensification.

Silvo-pastoral systems: this includes rotational grazing of animals, live fences with *madre cacao*, improved pasture species, scattered trees in pasture, and riparian buffers.

Agro-silvo-pastoral systems: this is focused on crop production with livestock and tree components.



Beekeeping: this program addresses forest preservation, creates adequate micro-climates for bee populations, and uses trees to protect hives from extreme weather events and to provide buffers for community safety and pollination.

AF nursery: Tree seedlings are made available to farmers, even though there is not any campaign or strategy to encourage tree planting on farms at present.

A natural characteristic of trees is that many species can serve various functions simultaneously or at different stages of growth. Depending upon location, management, needs of a household, or usable parts of a tree, the same tree species can be used for food, feed, fuelwood, timber, medicines, soil improvement, shade, barrier, and medicines, hence the use of the term “multipurpose trees” in the AF literature.

Although the Forest Department does not have an AF program per se, the recently adopted National Forest Policy which, inter alia, seeks to promote AF (GoB, 2015a). Thus, the Department works with forestry partners such as YCT in the Maya Mountain North Forest Reserve (MMNFR) and the Friends of Vaca group in the Vaca Forest Reserve along with the support of Friends for Conservation and Development (FCD) in integrated farming systems.

YCT empowers and builds climate-resilient communities, protects wildlife, soils, forests, rivers, and the reef for a sustainable future in Belize. Their Community Outreach & Livelihoods program has successfully implemented climate-smart farming practices, such as the first cacao AF concession in Belize, beekeeping, *Inga* alley cropping, and works with fruit trees, i.e. avocado, cocoa, mango, coconut, breadfruit, and oranges. The YCT is collaborating with the Toledo Cacao Growers Association (TCGA) to improve the socio-economic standard of living of its members through a competitive, diversified system of production that incorporates sound ecological practices through AF practices. This is the rationale for producing cacao under shaded trees (timber trees), along with intercropping leguminous trees, plantains, and other staples. YCT is also working with local farmers to manage bees for organic honey production in the MMNFR.

In June 18, 2014, the Forest Department granted a permit to YCT to cultivate on 379 ha of land situated within the MMNFR for a period of 15 years. This said permit, which may be considered as a Co-management Agreement, was later amended on October 14, 2015. Certain conditions were imposed on the permit holder to abide by: i) clearly demarcate the area of cultivation, ii) assist Forest Officers in prevention and extinction of fires and other forest offences within the MMNFR, iii) if the conditions are breached, the permit may be cancelled within three months’ notice and all property may be forfeited to GoB, and iv) the permit holder must abide to supplementary conditions of describing demarcated area, administering, sticking to the purpose and scope of the permit, allowable and prohibited activities, forest inventory and topographic survey, and



providing the forest/AF management plan, royalties and fees, ecological consideration and requirements.

The Trio Farmers Cacao Growers Association (TFCGA) is a private, for-profit community-based organization in the community of Trio. Members organized themselves in 2010 to seek access to land in the Maya Mountain North Forest Reserve (MMNFR) to support their livelihood by implementing cacao AF practices through a concession. The YCT and TFCGA are pioneering a community AF concession model in a forest reserve, since there are other organizations interested in participating in these AF practices depending on the results of the YCT projects.

Another organization that is important to mention is the Belize Livestock Producers Association (BLPA). The goal of the BLPA is to provide the livestock industry and all its stakeholders with oversight at the national and governmental levels and provide access to both new local and international markets. They also provide and disseminate new technologies and information via extension officers, training, education initiatives and projects such as "Improving Productivity and Resilience to Climate Change in Livestock Systems". This program seeks to improve productivity, to increase resilience to climate change, and at the same time to reduce GHG emissions on small and medium-scale farms by promoting silvo-pastoral innovations.

The University of Belize (UB), Department of Agriculture (Central Farm Campus) is in the process of reviewing its Associates Degree in Applied Agriculture (Z. Zetina, pers. comm.). The review is being undertaken as part of the Skills to Access the Green Economy Project funded by Global Affairs-Canada. With the assistance of three Canadian universities, UB aims to develop a curriculum that focuses on AF and climate smart agriculture. For this reason, the Department of Agriculture has much interest in the NAFP currently under development.

In fact, the news media recognizes the value of forests as being worth more than gold or oil for multiple reasons: they make invaluable contribution to financial and physical health of our people and country; protect our water supply, our soil, and our air quality; provide medicine, prevent desertification, and enhance tourism; and provides a home for the other creatures of the earth that we were meant to share the planet with (Editor-Amandala, 2020).

Relevant AF Systems

From consultations in all districts of Belize, many farmers and producers do believe that incorporating trees into their farming systems can protect natural resources, the environment, wildlife, and mitigate climate change (CATIE, 2020d). They also believe AF



is good for farmers, children and grandchildren, and can improve crop yields. For some, AF is an old practice that needs attention, and as a result they would be interested and motivated to plant the trees.

From a CATIE study, a number of AF systems were identified as having high potential for Belize, some because they were already being practiced and others because they could address a very critical constraint or offer an excellent opportunity for farmers (Ibrahim & Beer, 1998). These systems are as follow:

- Home garden, or backyard farming, is a dense mixture of multipurpose trees, crops, vegetables, condiments, medicinal, small animals, and others. Traditionally the area is about an acre and had the highest total yield/acre of any agricultural system in Belize.
- Live fencing is trees planted on the borders and used as a fence or barrier with or without wire; the trees can produce fruits, fodder, or firewood.
- Pasture with trees scattered in grazing areas can provide shade, fodder, food, or fuel.
- Cocoa is managed under trees that provide the needed shade, and in addition the trees can be pruned periodically to improve soil structure and fertility.
- Farm or community forestry is tree planting in woodlots or planting trees in any open spaces on the farm or community.
- Border tree planting is planting valuable timber trees in row on farm boundaries; the trees can serve as protection and windbreaks too.
- Taungya involves short-period cropping (e.g. vegetables, grains, pumpkins, watermelons) during first 2-5 years of establishing tree plantation. Some shade-tolerant crops like ginger can continue to produce even after the tree canopy closes.
- Fodder bank is the intensive production of nutrient-rich biomass from trees or shrubs to supplement animal feed, especially in the dry season. Tree or shrub biomass has between 20 to 30% crude protein content which is as good or better option than a commercial concentrate with 18% CP content.
- Improved fallows are enriching cropland with nitrogen fixing trees to reduce the length of the fallow periods and also for generating valuable products of use of the farmers.
- Riparian tree planting is using valuable timber trees or fruit trees to stabilize riverbanks, thereby reducing erosion and producing desirable outputs.
- Multi-strata combinations: forests and plantations are enriched with shade-tolerant shrubs, fruit trees, spices, and small animals. NB: the cocoa/tree system is already noted above.



The rapidly growing eco-tourism in Belize has created an effective demand for beautiful natural landscapes of high ecological quality, which AF with multi-strata arrangements can offer, including the provision of environmental services to enrich the experience of visiting tourists. For this reason, Belize is now rated highly as an international tourist destination.

AF can also offer significant economic benefits, even for the rural poor. At present the timber industry accounts for less than 2% of the economy, and Belize even imports cured pine lumber from Canada, retailed at about \$3/ft² dressed. Farm forestry, a common practice, is planting valuable trees in unused niches around the homestead, small lots, boundaries, and subdivisions within the farm or in village spaces. Belize has excellent tree species for farm forestry, such as mahogany, Spanish cedar and teak. If a small farmer could plant at least 20 trees per year, in five years they would have 100 trees in development, worth about \$4,000 per tree when mature. After 20 years of growth for each batch, that asset could be worth as much as \$400,000 when harvested and sold in bulk. What if the small farmer could produce furniture, that asset could increase at least three-fold, a handsome return for their land and labor. Farm forestry can be an excellent investment for the future heirs or for a rainy day in the future. If 2,000 farmers did the same, then this conversation would be about a multi-million business operation, borne from micro beginnings.

Another effective mechanism that must be exploited for AF is public-private partnerships because introducing and cultivating trees are a medium to long-term investment in training, inputs, support services and incentives for farmers. This partnership is a win-win strategy for the public institutions which can provide training and extension, technical information and support, and networking and sharing experiences, whereas the private sector could assist with financing and subsidizing the investment and operational costs, and will benefit from downstream processing and marketing services. This partnership can be complemented with international or regional organizations engaging in research and development (R&D), infrastructure development and financial assistance or incentives for farmers and producers. This type of partnership arrangements can be a formula for successful AF development in Belize.

Chapter 4: Constraints to Agroforestry Development in Belize

After interviewing the current practitioners of AF in Belize, the main challenges presented to its development and adoption can be summarized under seven topics, as follow (CATIE, 2020c).



Farmers and Producers

Farmers and producers are genuinely interested in AF, especially in planting timber and fruit tree species on their farms (CATIE, 2020d). There is inadequate knowledge and awareness of the benefits of trees in their farming systems, there is insufficient persuasion to encourage farmers to incorporate trees into their farms, and there are few if any institutions they can turn to for technical assistance or training. Farmers admitted to mainly needing training, seedlings/nurseries, inputs and water, finance, fast returns, and land for AF adoption.

Limitations of time, financing and other resources prevent them from adopting AF in their farming systems. The present prices are low for agricultural products, such as cattle, grains, other food staples and even timber, at the producer level. The royalties paid on harvested timber from commercial plots appear to be higher than for timber harvested from the forest. Then there are general sales tax, land taxes and export taxes, that together significantly increase cash costs for them. The scarce resources for investment force them to invest in short term options instead of investing in trees with longer term benefits. There are significant costs they have to make in procuring seedlings, establishing the plants, protecting and taking care of them, yet financing for such operations are not available, and when available, the costs of accessing them are too high or have a high opportunity costs for rural households. Some cited that to work on the desired AF, they would need more land, which is increasingly difficult to access.

There are also people issues, customary practices and beliefs that present challenges for AF, i.e. working in groups, poor business practices, engaging the women, and motivating the youth, for participation. These social issues need to be analyzed and addressed, hence the critical importance of engaging the socio-economic professionals in AF development.

Knowledge and Data on Agroforestry

The level of expertise in AF and their land use management system is very low. There is need for sound empirical data, which are derived from formal R&D programs. Some specific areas highlighted include: good nursery practices to produce sufficient quality seedlings of trees in demand, competition of crops with trees, utilization of tree biomass produced, cost-effective methods to protect established trees, yields of combination of trees/crops and livestock over time, and performance AF prototypes relevant for specific objectives, farmers and regions.

Institutional and Technical Capacities

There is need to build the capacities in education, R&D and extension and training for AF among the relevant organizations. Mixing trees, crops and livestock requires a higher level of expertise, and based on experience there is minimum level of expertise that is required from the agronomy, livestock, forest and socio-economic sciences to forge a



“critical mass” to guide, plan and evaluate AF development (Avila & Scott, 1989). Because of the complexity and high level of interactions among the components, AF requires an interdisciplinary, systems approach that can integrate different structural components, can analyze different functional relationships over time, and assess the productivity of multiple components with criteria relevant to the technical staff and, equally important, relevant to the potential beneficiaries (Avila 1992). Implementation, although important and challenging, can be done by competent institutions or actors once the policy and game plan are well understood.

Legal and Regulatory Directives

Laws, regulations and measures define forest-related access, tenure and user rights of land and trees, taxes and duties, benefit-sharing and decision-making responsibilities (CATIE, 2020a). Legal and regulatory controls are put on forests because of over-harvesting and wanton destruction of some valuable species that would rapidly lead to their commercial extinction. This led to the list of endangered species in the CITES Convention, which justifies the legal controls in Belize. According to the Forest Act (Chap. 213 Rev. Edition 2003, under Forest Regulations, First Schedule), Section 5 states that no person shall convert primary or secondary hardwood and softwood into lumber without a license. Primary hard woods are mahogany, cedar and teak. Secondary hardwoods include any other tree not defined as primary hardwood and softwood are trees of any indigenous species and tree of coniferous class that have been introduced into Belize. Harvesting requires an application and granting of a permit/license if approved by the Chief Forestry Officer (CFO). According to Part III of the Forest Rules, no person shall clear, cultivate, or break up land for cultivation except by the issuance of a license issued by the CFO to camp, reside and cultivate in a nature reserve. This permit was granted to YCT along with the TFCGA.

The land tax regime of the country needs to be reviewed with the aim of offering incentives to producers and farmers to support new development and conservation priorities. A good example at present is the Government’s higher tax on undeveloped land, i.e. forested lands, than on developed land, i.e. land under crops and pastures, which leads land users to the conversion of large tracts of forests to crop cultivation and cattle ranching. A lower tax on forested land should increase forest conservation and reforestation.

Land and Tree Tenure

When introducing trees on rural spaces, there are a number of land and tree tenure issues that could potentially drive or impede the adoption of AF, hence the need to understand the legal regulations and customary practices in Maya lands, unused village areas, and boundaries between freehold properties. An AF policy should also enable the formulation



and implementation of land and tree tenure policies that can promote AF. This could be achieved, for example, by providing a clear legal basis for AF, understanding local resource use and tenure practices (i.e. rights of whom, for whom and for what), formalizing land values with specific species of established trees, and creating incentives that can lead to greater participation and equity in rural communities through the adoption and sustainable management of AF.

Consumer-ready Products and Market Development

In the agriculture sector, farmers complain about low product prices, unstable markets, low levels of processing and much waste at harvest season, particularly for perishable commodities. Since AF can generate a wide range of products and services, and perishables too (e.g. fruits), it is very important to develop each product so the presentation and quality, for wood products too, will fetch the best price in the domestic and export markets. Hence there is need to invest in processing to add value to all the main products, by-products and residues, and in packaging and marketing plants. In this context, the current Covid-19 pandemic has taught us some valuable lessons. Belizean leaders and people now realize that the local production and value chains in the food and agricultural sector must be given high priority and receive more attention to avoid high-level dependence on food and feed imports.

Financing and Financial Incentives

There is limited financing and the costs of borrowing is prohibitive for agriculture since policy makers have maintained that agriculture must compete with the industrial and service sectors. This has not worked for farmers and producers; hence the levels of investment are low, profits are low and investment risks are high due to climatic, biological, and economic factors. So, even if farmers can appreciate the potential pay-off and all positive impacts of AF, there is not much they can do if new investments, low interest loans, or in-kind incentives are not made available to them, and in the case of AF, though the risks would be lower, most of the benefit streams would be in the medium and long terms (CATIE, 2020d).

Chapter 5: National Policy Goals, Objectives and Principles

Vision and Goals

The vision is to mainstream the use of AF systems that are productive, competitive, and adoptable by small, medium and large farmers, producers and land users, in order enhance food and nutrition security, conserve natural resources (i.e. lands, forests, biodiversity and water), improve the environment, and strengthen the resilience of the agricultural sector to climate change.



In order to mainstream AF in Belize, the goals of the national AF policy (NAFP) goals are two-fold:

1. To propose and advocate for enabling legislation, legislative reforms, and complementary policies, and to coordinate and build synergies among the relevant sectors, institutions, and programs for its widespread adoption and development as a viable and sustainable option for Belize.
2. To improve the total productivity, resilience and sustainability of agriculture and forestry through the adoption of AF systems in Belize, in order to improve the livelihood and wellbeing of present and future generations, with particular attention to the participation of the youth, women, the poor and indigenous peoples across the country.

Policy Objectives

These are as follows:

1. Resolve the legislative and regulatory impediments and to mainstream AF in the policies of relevant sectors that will enable the widespread adoption and management of AF systems, such as laws, regulations pertaining to the tenure, access and use of land, trees and services and pertaining to monetary and fiscal measures.
2. Strengthen institutional capacities for research, training and education, extension, public awareness and promotion, to provide science-based data to professionals in public and private institutions, farmers, producers, processors, merchants, in the fields of AF.
3. Advocate for widespread adoption of agroforestry and promote tree planting in farming systems, villages and urban areas, to meet the ever-increasing demand of timber, food, fuel, fodder, fertilizer, fiber, and other products.
4. Develop AF alternatives to the shifting cultivation (milpa), cropping, livestock, and currently unsustainable farming systems, recover degraded lands, as well as improve the resilience/risk management of agriculture and forest ecosystems due to climatic change, climate disasters, biological attacks, or socio-economic shocks.
5. Develop AF as a way of reducing the pressure on existing forests, reducing deforestation and degradation, thereby complementing the REDD+ target of



increasing forest/tree cover for ecological stability and environmental services especially in the vulnerable regions.

6. Apply market-driven approaches and develop value adding, processing and packaging of a range of AF products and by-products, to penetrate domestic and international markets, including niche markets at home and abroad.
7. Mobilize investment and resources for AF programs and projects and to provide the appropriate incentives for AF beneficiaries, from local, national and international donors to complement the resources of GoB, local institutions, the private sector and farmers/ producers, in order to achieve the goals and objectives of the NAFP.
8. Organize a review, planning and learning conference, at least every 2 years, with representatives of the main AF stakeholders, i.e. producers, educators, researchers, developers in the public, private and non-governmental sectors, and the interested international partners like CTCN, CATIE and FAO.

The first conference, planned right after the enactment of the NAFP, should be carried out as a national stocktaking review on current and past achievements with the purpose of identifying future AF development priorities and a way forward.

Guiding Principles

The guiding principles and concepts implementing the NAFP are as follows (CATIE, 2020b and 2020c):

People-centered and inclusive development: the focus is on sustainable livelihoods and on indigenous people and the rural poor. The private sector (i.e. those motivated by profit), civil society (i.e. those groups, organizations and citizens interested in advancing community or common goals and agendas), and other stakeholders (those directly or indirectly affected by, or interested in, a given resource) will be courted to participate with government in the AF programs.

Gender and youth participation: this policy will empower men, women, and youth through their participation in the leadership and implementation of the AF policy, R&D, access to training and education opportunities, creation of economic opportunities, and their access to and ownership of land and tree resources. Special measures will be used to ensure that women and youth, boys and girls are safe, productive and secure in the mainstreaming of AF.



Systems and inter-disciplinary approach: because of its multiple components in space and time, AF is a complex, dynamic system, with below-ground and above-ground interacting processes. Hence AF development requires teamwork involving the experts and practitioners in forestry, agronomy, livestock, soil/water management, and socioeconomics.

Communication and transparency: the free flow of reliable information enables all collaborators and stakeholders to access, monitor, understand, and share in a timely manner the results and views on the progress of AF programs.

Compensation and incentives: motivation for action or provision for a service (environmental) or sacrifice (work or benefit foregone) requires payment or compensation, as part of the NAFP. In the case of AF, there are multiple options to mobilize funds to provide incentives for AF adopters, for example, because of the combination of commercial purpose, conservation of natural resources, environmental benefits (e.g. green market or payments for environmental services and carbon sequestration), and community support programs (e.g. poverty reduction, food and nutrition enhancement, and other SDGs)

Chapter 6. The Pillars and Expected Impacts of the Agroforestry Policy

Pillars and Building Blocks

The level of success in achieving the goals and objectives of the NAFP will depend on the following pillars.

Leadership and coordination

Leaders are key in terms of building consensus on the mission, setting priorities and planning the strategies and managing the programs to achieve objectives with limited resources. Leaders must know how to manage interdisciplinary teams who can work together and effectively achieve common goals. The leader needs to coordinate different institutions to get their commitment and support, and to mobilize and motivate a range of stakeholders with diverse interests and skills. Such leadership skills can be learnt, and every effort must be made to do so from the start.

Knowledge of the science and practice

This is reflected in the state of the art, data bases or library (physical and virtual), and previous and on-going experience on R&D and education programs. For AF to be



promoted, basic knowledge is required on all components involved (crops, livestock and /or trees), with respect to establishment techniques, adapted and quality germplasm or genetic resources (including use of seed, cuttings, scions and pollen), input and management regimes, pest and insect control, harvesting techniques calendars, product processing/ development, etc. In addition, empirical socio-economic data is required for the ex-ante or ex-post analysis of the AF systems or their components. Empirical data may be required on gender and policy issues, land use and tenure, etc, as the case may be.

Institutional capacities

Policy implementation will require having a basic capacity to conduct applied and adaptive R&D, education and extension or technology transfer to farmers and producers. A “critical mass” of professionals is needed, at least one or two from each of the basic disciplines of agronomy, livestock, forestry and socioeconomics, who can function as an interdisciplinary team for the national AF programs and projects. They could be drafted from the different institutions and AF projects, and would agree to work as a team for the critical phases, e.g. planning projects, evaluating results, and reviewing reports and publications.

Value chain and market development

In the short to medium terms, the market-driven approach must receive increased attention to ensure that AF can be profitable for all stakeholders, with special regard to vulnerable, marginalized groups, including women and youth. The consumer demand/market conditions (e.g. prices, product quality, sanitary and phytosanitary standards) must be understood, processing and value adding operations must be developed and integrated into AF projects, and farmers and producers, especially the small farmers and producers, must be organized, through business arrangements, associations or cooperatives, to access the markets, domestic and abroad, and to strengthen their market penetration and positioning.

Human resource strengthening

There is need to strengthen all the human resources with current or potential interest in AF development, i.e. policymakers, researchers, educators, extension staff, farmers, producers, and entrepreneurs. There is need to expose them to the latest information on AF approaches, good practices, and production possibility curves or services that can be generated for the well-being of people. This could be achieved through communication and networking, training, targeted support to project teams, creation of virtual platforms, and tools and methods for gender analysis and designing appropriate responses.



Investment and financing

Without investment and financing for short term and long-term AF development, there is no way Belize can mainstream AF. Although not all components of the AFS are long term in nature, the main benefits do require a longer time horizon, compared to traditional agricultural systems. In fact, agriculture in Belize is undergoing a very difficult period at present due the inadequate levels of investment in the public and private sectors, high interest rate, inadequate repayment schedules, and high administrative cost of financing for the sector. Hence, investment and financing will require some policy changes and innovations that would favor AF development. Looking toward the future, both the DFC and the credit union, which were consulted, expressed support for investing in AF, provided potential borrowers would meet the conditions and the supporting infrastructure and services would be available to ensure the success of the AF projects (CATIE, 2020d).

Outcome and Impact Areas

AF is capable of generating multiple cultural, social (and health), economic (and financial), and environmental (and conservation) benefits, **tangible and intangible**, at household, community and national levels. Therefore, depending on the priority needs of the beneficiaries, donors or investigators, evaluations of AF systems reflect inherent biases, thus giving more weight to the preferred benefits of interest. Hence, at micro and macro levels, benefits need to be prioritized, and their rankings may differ, but decisions must be made as to what is more important and relevant.

It is well known that AF can make a significant contribution to several SDGs on poverty, hunger, gender equality, enhancement of climate resilience, and others as listed previously, and especially for the vulnerable and marginalized populations of our country. Depending on the overall priorities of the Government, these should be monitored and evaluated.

Over the short and long terms, the successful implementation of the NAFP will complement the national plans and strategies developed in the country for the agriculture, forestry, and environmental sectors, as well as for mitigation of climate change. Accordingly, after consultations with the relevant stakeholders, specific targets and their ranking need to be clear in terms of being specific, measurable, appropriate, reliable and time-bound (SMART), such as these:

- Bring about innovative, diversified enterprises, hence improving food security, nutrition and health of the people, affecting at least 10,000 households after five years.



- Improve interactions and recycling processes (e.g. bring up water and nutrients from deep in the ground and build soil organic matter and thus soil carbon) in the productive components which will enable higher productivity and higher income and profits from the sale of crops, fruits, livestock, tree products, and non-timber forest products, valued at least B\$100 million in income every year.
- Increase the asset base with planted trees reaching maturity stages, creating better micro climates and rendering agricultural landscapes more attractive and resilient, thereby improving the value of some 20,000 acres in 10 years.
- Increase forest cover, conservation of flora and fauna species, and protect the biodiversity and water resources at the national level, affecting 50,000 acres in 10 years.
- Sequester carbon from the atmosphere, and estimated captured CO₂ at 40 million tons of carbon every year.
- Fortify our ecosystems and environmental services, such as providing wind barriers, restoring degraded lands (with established targets), improving water conservation, preventing soil erosion, and adapting to and building resilience to climate change, affecting another 50,000 acres in 10 years.
- Develop supply value chains and value adding capacities (plant capacity) for efficient input supply, processing, and marketing by the private sector, affecting some 5,000 enterprises over the next 10 years.
- Improve the trade balance in terms of increasing exports of agricultural, food and timber products and reducing the import of the same products, valued at some B\$300 million over 10 years.
- Train farmers and producers, at least 5,000 in all 6 districts of whom at least 30% are female. In 5 years.
- Train staff in public institutions and civil society, at least 50 with at least 20 professionals with MSc and 5 with PhDs; approximately 50% female, in 5 years.
- Mobilize resources for investment and financing of AF programs and projects, targeting at least \$5 million per annum during the first 5 years.



The successful implementation of this policy requires systematic, interdisciplinary and farmer- or producer-driven approaches. Future priorities for analysis must be based on:

- Understanding and quantifying farmers' dynamic management and exploitation of AF systems.
- Determining short- and long-term impacts and implications of differing AF potentials, and
- Defining relevant indicators and refining cost-effective methods to describe, explain and predict AF impacts, adoption potential, and sustainability.

In brief, this type of analysis requires a strong input from the socio-economic disciplines from the start in analyzing the target farmers in order to identify appropriate indicators, types of analysis, and hence data requirements for AF development and adoption.

Chapter 8: Organizational Strategy and Institutional Mechanisms for Sustainability

The NAFP, like any public policy, is an authoritative prescription for a specific course of action. Hence, once the policy is enacted or legalized, there must be a legal authority charged with the implementation and monitoring of the policy.

The main organizational authority for implementing the NAFP is a proposed National AF Council (NAFC) to be established with representation of the key organizations with interest and capacity to participate. The NAFC should be based in the MFA for several reasons such as:

- Having institutional capacities in crop production, livestock production, and farmer extension services in all districts
- Demonstrating strong interest, developing expertise and ongoing initiatives in AF development
- Expressing willingness to host and accept the NAFP and NAFC responsibilities
- MFA having the support of other partners to be the lead Ministry.

To ensure real partnership, the chair of the NAFC should be selected by the membership and rotated every three years.

The NAFC will have an executive secretariat, comprised of a full-time head and four full-time members who are actively involved in AF development programs in the public or non-governmental sectors. The members of the Secretariat will represent the disciplines of forestry, agronomy, livestock and social sciences.

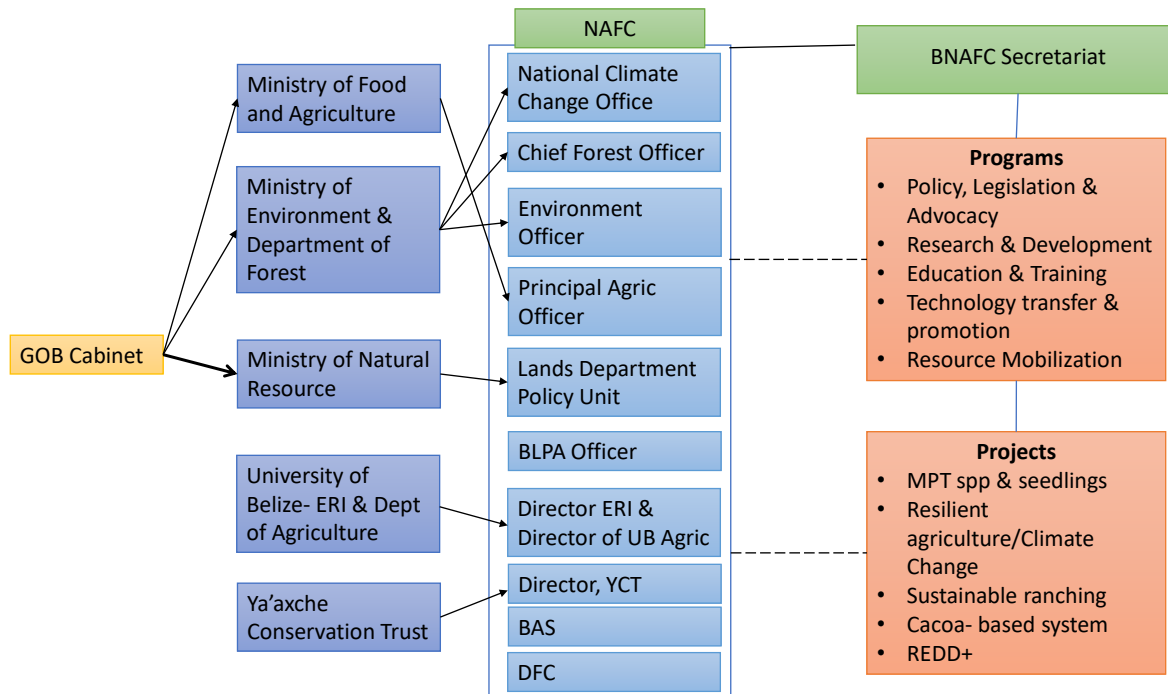
The NAFC Secretariat will carry out the substantive and administrative work as directed by the NAFC. The main functions of the Secretariat, in support of the NAFC, are to:



- Gather and prepare background information on various programs, projects and priorities of the stakeholders so that the Council can study the facts and make decisions as need be
- Implement the decisions made by the Council, track and facilitate activities and processes
- Organize periodic national planning and review meetings of the NAFP
- Keep the key stakeholders and general public updated about the work and achievements
- Monitor and evaluate organisational performance in terms of results, outcomes and outputs.
- Assist in preparing scientific and technical publications and communications
- Develop plans for the financial sustainability of the NAFP and support resource mobilization for AF development.
- Formulate and/or promote projects with national and/or international financing institutions that strengthen the AF sector (i.e. silvoagricultural, silvopastoral and agrosilvopastoral) at all levels.

The organizational structure for implementing the policy is presented in Figure 1. The main ministries are the ones responsible for forestry and agriculture, plus the University of Belize, YCT, the Belize Agro-Productive Sector (BAPS) and the Development Finance Corporation (DFC) are to be represented in the NAFC, who will appoint the NAFC Secretariat, which in turn will oversee and lead the AF programs and projects.

Fig 1. Organigram for implementation of the National Agroforestry Policy



Programs in this context are defined as strategic units mainly focused on developing technical capacities in key areas, each possessing an essential body of knowledge, differing and unique skills, all deemed necessary in a balanced way, to implement the NAFP. These programmatic areas need a medium to long-term strategic plan with clear, logical frameworks including objectives, actions and expected outputs and outcomes. The success in mainstreaming AF through the NAFP will depend on these programs, tentatively proposed as follows:

- **Policy, legislation and advocacy:** Identify and understand policies and legislation that can promote or discourage AF, and to bring about policy and legal changes that will enable the success of the NAFP.
- **Research and development:** Generate knowledge, conduct evaluations and solve problems identified on AF components, resources, management, performance, and adoption of AF systems.
- **Education and training:** Build capacity in AF at all levels, through formal and informal methods, for those in the school system, the public sector, private and productive sectors, NGOs and the youth and children. In the short term, curriculum development/adaptation should be a high priority.



- **Technology transfer and promotion:** Transmit AF recommendations and information to all stakeholders, especially farmers and producers, using traditional and innovative technology transfer methods, virtual platforms, empirical database, and specific communication products which are targeted to specific audiences and forums across Belize.
- **Resource mobilization:** Work with stakeholders (i.e. beneficiaries, partners and donors) to develop proposals to access human, technical and financial resources to implement the NAFFP, its programs and its projects.

Projects are defined as fixed term units with specific objectives, outputs and time-frames, confined mainly to its funding source. Depending on the investors and donors, projects entail a logical framework with combined elements of policy initiatives, research, education, and extension and/or outreach activities, all necessary to achieve the project's overall objectives. To plan and deliver on projects effectively and efficiently, programs should serve simultaneously as contributors and beneficiaries to projects.

Project Cycle Management

The project cycle management refers to the process followed for planning, executing and evaluating a project or program, while maintaining alignment with the strategy and objectives agreed upon with stakeholders at the onset. ICRAF developed and applied a practical framework for AF development which involved 4 iterative steps (Franzel & Avila, 1991):

- a. Characterization and diagnosis of existing land use systems in a particular area or region. The objective is to understand the community and household context, their production systems, their constraints, and in particular, identifying the potentials and opportunities for AF interventions. The role of the potential beneficiaries is paramount in this phase.
- b. Design of AF interventions, components and management regimes that could address such constraints in that particular area or region: this step includes a socioeconomic feasibility analysis to make estimations of the productivity, profitability and adoptability of the proposed AF systems. This step requires an analysis of household decision-making, resources, food and income, and an analysis of markets and prices for inputs, products and services.



- c. Testing of the AF recommendations either on stations, farms, or forests: This step involves R&D on the relevant AF components of trees, crops and/or livestock that provide empirical data and experience on whether AF interventions and components can resolve problems identified and deliver on expected performance, in terms of technical, social, economic or other criteria.
- d. Up-scaling of successful AF alternatives for wide-scale adoption in the target area and extrapolation to other areas. This step involves the assessment of AF adoption impediments in the context of institutional capacities and services that are ready, or lacking, for providing and sustaining the demand for training, extension, financing, marketing, etc. to the intended adopters and beneficiaries.

In consideration of the short and long-term horizon of AFSs, the design phase of cycle management does require greater attention to economic analysis (*ex-ante* or *ex-post*¹) to determine the profitability and rates of return for critical factors such as labor and capital. In particular, for bankable projects, the internal rate of return would need to exceed the going interest rate, a necessary condition for financing to be availed.

Monitoring, Evaluation and Learning System

The life blood of the mainstreaming process of AF in Belize is the planning, monitoring, evaluation, and learning process which will permeate all operations of the NAFFP.

The NAFFP will require a well-functioning monitoring, evaluation and learning system (MELS), to be implemented in the following six steps (Franzel & Avila, 1991). Based on the expected outcome and impact areas, indicated above, establish a consensus with target beneficiaries or stakeholders on a hierarchy of criteria and indicators to evaluate the performance of the AF interventions or components.

1. Agree on the SMART indicators for each AF system or component under evaluation, based on the expected results and outputs (or hypothesis in the case of an experiment).
2. Select the right tools and methods to measure each indicator, such as cases studies, field surveys, data recording or periodic measurements.
3. Assign responsibilities as to who will collect data, who will analyze and write up the results, and who will allocate resources, so these tasks are carried out.

¹*Ex ante* analysis uses hypothetical or best estimate data, while *ex post* analysis is based on empirical data on real-time observations.



4. Analyze results together among the team, and share the results also with all the stakeholders, in particular the farmers and producers.
5. Based on the analysis, improve the AF interventions for follow-up actions.
6. Use all the above to learn and design better AF programs, projects and above all, improve the NAFF, as well as the agriculture and forest sectors of our country.

The planning and MELS will be extremely vital to the success of the NAFF in that the most strategic output of the MELS will be the identification of new AF initiatives and proposals for projects that can attract financial and in-kind contributions from local, national and international donors.

Financial Sustainability

The NAFF requires financial sustainability which can be defined as the ability to mobilize resources to fund the AF programs and projects now and into the future to achieve the goals and objectives of the NAFF. The ability to do so will depend on a range of competences needed for planning and prioritization, execution and generation of outputs, communication and advocacy, and building alliances and cooperation (Yamron, 2020).

On planning and prioritization, project cycle management and the MELS provide a sound background for elaborating a strategic business plan which can clearly define the management structure, a strategic action plan with appropriate justification, skill sets and resources needed, as well as capacity development to address those gaps. The business plan can articulate the evidence-based demand or market for outputs and services of the program, involvement of stakeholders as drivers, and sources of funding including current and potential donors or co-operators.

On funding options, the best programs and projects in terms of mobilizing resources are those in which the Government and other national institutions are investing (about 20% of the total cost), farmers and producers are investing another 20% with in-kind contributions, and the external donors are investing the remaining 60%, usually providing those resources that are beyond the reach of the national stakeholders. If national stakeholders or beneficiaries are investing with their contributions, external donors will be quite convinced that such projects are of high value to national stakeholders, who would in turn be more committed to making the projects work for themselves. However, if the domestic contribution is very low or non-existent, the chances of receiving external support would be quite low. Forging alliances with different types of donors and partners (e.g. those interested in policy work, R&D, extension and production, training and



education, or financing) always pays off in terms of diversifying funding sources and enabling the AF program to respond to and serve a wide spectrum of national stakeholders.

Based on consultations with the DFC and La Inmaculada Credit Union, their interest in investing in AF was very positive. Financing is available, depending on the borrower, facilities and infrastructure that would ensure project success (CATIE, 2020d). There is need to demonstrate AF benefits. DFC has lines of credit with international financial institutions like CDB, EIB and CDF. With the support of GoB departments, the NAFP will attract financing, due to its environmental appeal, but concerted actions are needed on the campaign to inform the people, legislation and regulations, trademark and patents, the implementation plan, and a clear policy statement from GoB. The policy would need champions and executives with will power and passion.

To ensure efficiency and effectiveness of projects and operations, the AF programs must apply good practices on using human, logistic and financial resources, in order to generate good value for money. This involves understanding of logical framework analysis, timely implementation, M&E systems, and timely and transparent financial management. Donors will invest in programs that are well managed, that produce results and can account for every cent invested. It is logical - every donor must account to its taxpayers or investors. This requirement is non-negotiable.

With respect to communication and visibility, the AF programs need to define their audience, products to be delivered and best media of communication with each stakeholder. Being attractive is very important in order to appeal to and motivate potential beneficiaries to invest in the AF programs and projects. Potential beneficiaries and investors could include, e.g. government, farmers and producers, the private sector, NGOs, financing institutions, etc. There are also international development and financing organizations which may want to collaborate with Belize and therefore would be interested in investing in the programs and projects of the NAFP. Everyone loves success stories in terms of achievements, i.e. results, outcomes and impact. Hence, there is need to collect and analyze data, and report using the SMART performance relevant to each type of audience, which is an essential tool for self-advocacy.

The NAFP must have a well-designed strategic plan for financial sustainability. A complementary mechanism, proposed by the NAFP development team for financial sustainability, is the establishment of an AF fund or trust, similar to that of the Protected Areas Conservation Trust (PACT). Revenues for PACT are primarily derived from a conservation fee of US\$ 3.75 paid by overnight visitors, a 15% commission from cruise ship passenger head tax, fiduciary services, and interest earned on its Term Deposits. PACT redistributes the revenue by providing funding for projects that support



conservation and promote environmentally sound management of Belize's natural and cultural resources. Today PACT is an accredited national implementing entity for the Adaptation Fund and was granted a fiduciary role for the World Bank, Meso-American Reef Fund, Global Environment Facility (GEF) and the Belize Nature Conservation Fund (BNCF).

An AF fund could offer benefits for non-profit property tax exemption, the ability to apply for public or private sector grants, request tax-deductible contributions, and seek financial support from international organizations or funds, friendly governments and others.

The main purpose of the fund would be to mobilize financial resources to provide much needed assistance to small producers, processors and exporters, build technical capacity, strengthen professional and technical services, and provide incentives to these stakeholders, towards the wide-scale adoption of AF practices in Belize.

The fund could be registered like PACT or inserted under the PACT Act and governed by a Board of Directors constituted by interested and dedicated representatives of the public, private and NGO sectors of the country.

Chapter 8: A Start-Up Strategy - the Next Steps

For the immediate, initial stage of implementation, the draft NAFP would need to be disseminated and socialized among government entities, at the high levels of Government (i.e. Cabinet, National Assembly and Caucus of CEOs), the private sector, and NGOs. The draft policy would be appropriately analyzed, advocated for its adoption and approval, and decisions made on how to proceed with the legalization process. At this juncture, the NAFP will arrive at an opportune time to be inserted into the national dialogue on the policy directions and strategic priorities of the new Government starting on 12 November, 2020.

An Interim Working Group

For this initial stage, it is recommended to form an interim, Inter-Sectoral Working Group (IWG) comprising of one representative of the NCCO, MFA, FD, UB, private sector and NGOs. The WG could be chaired alternatively every 2 years by the MFA and the FD. The nature of its work would demand substantive "political" muscle, technical resources, and absorptive capacity, which can be provided ably by both departments working as a team. The work of the WG would focus on:

- 1) Analysis of convergence, synergies and dovetailing among current and new policies, programs and projects of the new Government taking office in December 2020. If



and where conflicts may arise with other public policies and programs, they must be addressed by revisiting national priorities and trade-offs.

- 2) Dissemination of and advocacy for enactment of the draft NAFP to receive the active support from potentially affected parties, including legislators, courts, interest groups, other units of government, etc. There may be a lack of interest or even active opposition from organized groups with the resources to combat the policy.
- 3) Capacity building for key institutions and stakeholders on the NAFP and AFSs, as a practical, short-term means for enabling cooperation, extension and networking, even if the legalization of the NAFP is delayed due to administrative issues.
- 4) Mobilization of resources by exploring and building alliances with regional and international partners, such as CATIE, CTCN, FAO and others.
- 5) Development of a 5 year AF development strategy and action plan, depending on the results of the above actions.

Resource Mobilization

The IWG, as a matter of priority, must mobilize financial and technical resources to implement the NAFP, followed by a preliminary indication of external donors which could be tapped for support. The IWG can explore various options for external support to implement the NAFP (CATIE, pers. comm.), such as:

- 1) GoB has an option of using part of its funds under the GCF Readiness. CTCN is a delivery partner of the GCF, and its role is to collaborate with country governments in proposal formulation. Belize could explore how to tap the resources of Readiness 2021. Also, every country has US\$1 M for projects related to institutional capacity strengthening, coordination, policy and planning, and programming of investment by designing bankable projects.
- 2) With GEF, Belize can access some of its STAR Allocation which each country receives, specifically for climate change, biodiversity and soil degradation, with flexible allocations for each area. In this case, CTCN also provides support for project formulation.
- 3) The Adaptation Fund is another option with which CTCN also collaborates. This Fund finances projects with vulnerable communities in developing countries, to adapt to climate change, based on country needs and priorities. Helping the most vulnerable countries and communities is an increasing challenge and imperative, especially because climate adaptation requires significant resources beyond what is already needed to achieve international development objectives. The Fund is financed in part by government and private donors, and also from a 2% share of proceeds of the



Certified Emission Reductions (CERs) issued under the Clean Development Mechanism projects.

- 4) CAF is a development bank created in 1970 and owned by 19 countries (17 of Latin America and the Caribbean, Spain and Portugal) as well as 13 private banks in the region. The CAF promotes a sustainable development model through credit operations, non-reimbursable resources, and support in the technical and financial structuring of projects in the public and private sectors of Latin America.
- 5) “One Tree Planted” in the USA is a 501(c)(3) non-profit organization. As an environmental charity, its mission is to make it simple for anyone to help the environment by planting trees! The principle is “one us dollar for one tree planted”. Planting trees is justified on the basis of SDG 8 (Decent work and economic growth), SDG 13 (Climate action), and SDG 15 (Life on land). The specific objectives of projects could be to stabilize climate, to protect biodiversity, and to empower local communities, by planting valuable hardwoods and other trees of importance to them.
- 6) CATIE is in a position to work with local organisations of Belize to secure funding. CATIE can assist in tapping potential support from well-known donors to countries like Belize, i.e. the Climate Change Fund in Germany, Green Climate Fund, GEF, Inter-American Development Bank’s Invest Fund, and the European Union (e.g. for capacity building).

These are but a few suggestions for resource mobilization which should be pursued with a comprehensive and concerted strategy (Di Biase & Ellis, 2012). Resources to be mobilized include financial, human services, goods (i.e. vehicles, computers, scientific equipment and others), and services (i.e. land clearing and preparation, maintenance, repairs, printing and others). Donors no longer want to be perceived as cash providers, but rather prefer to be treated as partners in decision-making, and there are many to be approached today with interest in AF, such as the UN system organizations, international development and cooperation agencies, international foundations, private sector companies, international NGOs, etc. These external partner resources can be well complemented with various local options such as community-based schemes, payment for public goods or services, and others. The NGOs in Belize have good expertise in resource mobilization because of necessity and the survival instinct, hence their involvement in the NAFC should bring tangible benefits in the short term.

The suggested options to mobilize resources, and others to be explored, should provide an ambitious, fruitful start for mobilizing resources towards the full implementation of the NAFC of Belize.



Second meeting with the National Agroforestry Development Team

Introduction

As part of the policy work for the development of the National Agroforestry Policy, the National Agroforestry Development Team was created and they are encouraged to oversee the agroforestry formulation process.

The first meeting was held with the team on August 17th 2020 to discuss the technical guidelines for the team and the first draft of the AF policy. The second meeting was held on the 30th of September, 2020 with participation from Offices of the National Climate Change Office, Forest Department and Ministry of Agriculture, and Ministry of Natural Resources from the Government of Belize, Belize Livestock Producers Association, Program for Belize, Ya'axche Conservation Trust, University of Belize, - Environmental Research Institute, University of Belize- Department of Agriculture, Central Farm Campus

Description of Task

The second meeting was held virtually via Microsoft Teams, on September 30th 2020 from 2pm until 4 pm. The agenda (**Annex 2**) of the meeting was:

- Welcome
- Introduction
- Review of the minutes
- Presentation of the second draft of the NAFP
- Revision and discussion of the draft of the NAFP with the team
- Proposal on the tentative agenda for the national stakeholders meeting
- Closing remarks

The documents reviewed and discussed was the second draft of the NAFP.

Objective of the meeting

1. Present the second draft of the National Agroforestry Policy to the national development team
2. Obtain feedback and comments on the said policy to strengthen the policy

Methodology

1. The meeting was held on via Microsoft teams on September 30th, 2020 and it was chaired by the Deputy Chief of the National Climate Change Office.
2. Dr. Marcelino Avila, presented the second draft of the policy and he highlighted the changes and improvement that was made in the document.
3. Comments and feedback were provided by the members of the team so as to improve the policy before taking to said policy to the national stakeholders meeting.



4. The provisional agenda for the National Stakeholders meeting was presented to the team for their comments and feedback as well.
5. Minutes of the meeting were taken see Annex 1.

Results

The main comments and recommendation given in the meeting were the following:

1. Highlight which ministry within the GoB would be the best place to house the agroforestry policy.
2. To determine a better strategy when it comes to the leadership and chairing of the National Agroforestry Council
3. Identify what and how AF can be marketed with an added value to the consumer so that it would attract sufficient income for farmers and thus, farmers would be interested in participating in AF practices but most importantly to attract and transfer investment.
4. Study PACT's strategy and approach so as to identify an adequate and appropriate ministry to house the policy.

Conclusion

Based on the feedback from members of the national agroforestry development team, the agroforestry team at the meeting and via emails. The agroforestry team made the necessary improvement on the policy before it can be taken to the general public for acceptance and feedback.

Following these steps, the policy was send to the NCCO's office and preparation for the national validation workshop proceeded. A draft letter of invitation to the workshop, provisional agenda and list of stakeholders across the country.

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Annexes

Annex 1. Results of the interview with each group or individual presently working in agroforestry

1. Name: Francis Reimer

Organization: Spanish Lookout Community Centre

Post: N/A

Contact: +501 672 5172

- 1) **What are your achievements with Agroforestry (AF) practices you are working with?**
Planted almost 100 teak trees in the backyard. The first plot was damaged by Hurricane Richard. Planting of trees in my backyard is just a hobby.
- 2) **What constraints or challenges are you facing in your Agroforestry (AF) development work?**



There is a constraint in the Timber Industry, royalties a higher on timber produced in commercial plot than those harvested from forest.

Agroforestry is a long-term investment, meaning it takes a while before people can see the benefit from (return in income) and there is also competition with other crops.

3) What can be done to accelerate the widespread adoption of your Agroforestry (AF) recommendations?

Limit royalties and taxes on trees that were harvested from commercial plots. Take away land taxes and other taxes to those who are going to export wood from commercial yard because Belize has a good potential to export timber and can create a good foreign exchange but the royalties that are paid to export products are too high.

The system should be self-sustaining, and should not scrutinize other productive system.

4) Have you addressed gender issues in this work? How?

N/A

5) Any specific recommendations for engaging the women and youth?

Financial donation where somebody would have to invest for women and you to encourage their participation and will grow the investment initially made.

6) What are the priorities that should be addressed in a future National Agroforestry Policy (NAFP)?

Agroforestry should be voluntary participation, and implement the AF system without harming or constraining other productive sectors.

2. Name: Melvin Navarro

Organization: KT Enterprise

Post: Accountant

Contact: N/A

1) What are your achievements with Agroforestry (AF) practices you are working with?

We do not practice agroforestry per se but we have a commercial plot that we plan to harvest for the business which is almost 24 acre of pine trees. We import most of our wood. We buy local (1%) harvested timber trees which are pine. These trees are bought from local farmers who harvest trees from forest. We also harvest trees in the Pine Ridge Area on a Salvage Permit to harvest pine trees that have been attacked by beetle.

We have a KT Reforestation Project, we plant imported pine seeds from Brazil and sell them.

2) What constraints or challenges are you facing in your Agroforestry (AF) development work?

Open market in the country is not favorable for example: cattle prices are not the best, need to create a solid foundation in Belize.

No access to land, no assistance to increase sale of products that can encourage exportation.

3) What can be done to accelerate the widespread adoption of your Agroforestry (AF) recommendations?

Organize an appropriate strategy with decent prices for exportation whether it is cattle or timber.

The GoB needs to work hand in hand with the people so that farmers can see the assistance of the GoB. For example. Assistance through funds that will start projects like Agroforestry as a long term



investment such as 2-25 yrs span so that they can become motivated. Open doors for people to produce livestock, poultry etc.

4) Have you addressed gender issues in this work? How?

We need women in the sector yes.

5) Any specific recommendations for engaging the women and youth?

While agroforestry is a man's work, we need women to participate through organization and administrative responsibilities. Recommendation: through awareness to stabilize and inform what activity is being done within the agroforestry sector for women and youth to participate.

Give room for women from the Government to participate and become more involved within the sector.

6) What are the priorities that should be addressed in a future National Agroforestry Policy (NAFP)?

Learn to reforest trees in the timber industry when they are harvesting from the forest so that trees that are being harvested can be replaced.

3. Name: Luis Tzul

Organization: Citrus Growers Association

Post: Coordinator of Extension Services

Contact: N/A

1) What are your achievements with Agroforestry (AF) practices you are working with?

Lime + Coconut

Citrus + pineapple

Farmers have lime and pineapple as secondary crop to fill in the income gap (first 2 years) of the main crop that is planted in the farm.

Mostly small farmers (5%) practices agroforestry

2) What constraints or challenges are you facing in your Agroforestry (AF) development work?

Challenges are limited. Not all farmers know about the combination for these crops. Awareness of these kinds of system is not there.

3) What can be done to accelerate the widespread adoption of your Agroforestry (AF) recommendations?

Education awareness- expose farmers to these types of idea, use long term crops with short term crop and create economic incentive.

4) Have you addressed gender issues in this work? How?

No, No issue with gender participation.

5) Any specific recommendations for engaging the women and youth?

We should encourage women and youth to participate so that we can ensure continuity within the farm and we can fill the generational relief gap. This is important for any country and to generate income.

Create the necessary market information, easy access to finance. Example Pineapple- show family that income is there and with the easy access to finance this will help them. This information needs to be promoted in a proper way especially for women so that they can be aware of these activities and they can be encouraged to participate.

6) What are the priorities that should be addressed in a future National Agroforestry Policy (NAFP)?

It needs to be demand driven so that it can reflect what are the things that people want and what are their needs. Example with the COVID- there was the need for mask, so the opportunity that was created was to sew. To sew mask and create an income.



In this case, have crops that are ready market, have crops that have high market value example: Pitahaya, passion fruit, sorrel fruit for the juice market which can be used for local sale and can also be used for exportation.

4. Name: Robert Graham

Organization: Texbel and Lime Co

Post: Supervisor for Maya Center compound

Contact: +501 615 4401

1) What are your achievements with Agroforestry (AF) practices you are working with?

Main practice is inter cropping:

Coconut + lime

Coconut + Orange

Coconut + Grapefruit

Coconut + Cacao

Coconut + Soursop

Main focus is to have production as our main goal but also, we would like to take advantage of soil spacing within the 25 x 25 area that is planted with coconut and we which of the intercrop system will give more production. This also helps with pest and disease control. We transition from synthetic to organic fertilizer, we have included drenching and mulching. We practice shredding of dried leaves and nuts are shreds are used for compost and as fibers from nuts are used for compost. We also plant arachis pintoi as soil cover and for nitrogen fixation in the soil.

We also have try to protect riparian forest and keep the zone buffer to 100ft from the river. All the land perimeter is planted with mahogany tree to protect riparian forest. We have a reforestation program due to the mass cleaning that was done while establishing the company. We also look out for forest poachers and keep a close communication with the chairman to prevent poachers from harvesting from these forests. We provide the community with fuel wood from older trees that are taken out from the production area.

2) What constraints or challenges are you facing in your Agroforestry (AF) development work?

Culture of people (maya)- they are use to slash and burn and milpa system.

Wild fire- fire enter the farm and reserves and causes great damage

Educational awareness- because they look at agriculture and they don't care about it because they are just consumers and they are just buying. They don't worry about how it is produced. They think that agriculture brings no income. So we need to educate them to let them see that agriculture is the backbone of any country and to lift any country's economy.

Sales and prices- are not stable, supply and demand fluctuate a lot and affect the business especially for pricing. For example, if there is too much lime in the market the prices get too low and when there is not lime prices get high.

Deforestation- deforestation from communities (poachers)

Biodiversity- near the border of the company there is a natural reserve The Cockscomb Basin, this reserve get affected by wildfire and damages the reserves and it biodiversity.

Flooding- in this area it gets flooded a lot and so we need to do cambering and lift the soil up to improve water flow.

Agriculture does not get the support from the GoB and it is needed in order to be successful.



3) What can be done to accelerate the widespread adoption of your Agroforestry (AF) recommendations?

Working with intercropping and having diversity of crops more economic and environmental impact. Better understanding of the market. The production must be sustainable and then there is always a crop to get income from.

Sustainable production is the way to go, it is a way to control supply and demand. There is always a cash back that is coming in and it will keep family floating.

4) Have you addressed gender issues in this work? How?

Female are more into agriculture production than male. Female are necessary in agriculture because they have the technical ability and they have the interest, they are more involved in the process and are willing to learn. Women empowerment in agriculture is needed because agriculture is the backbone of any country.

5) Any specific recommendations for engaging the women and youth?

Student program- we encourage student to come and work during the summer and giving them an opportunity to gain income that will help them with their school expenses.

The objective of this program was to teach them about agriculture production, what agriculture production entails and what is agriculture sustainability and to let them learn what are good agricultural practice through sustainable farming. In this way they learn a lot of what is natural resources and what can be used without depleting the resources.

6) What are the priorities that should be addressed in a future National Agroforestry Policy (NAFP)?

Have farmers focus on crops that are exploited the most, focus on industries that will strive for the next 10-20 years such as grains and livestock. Focus on social and economic impacts and how communities will benefit from agroforestry. How to reduce deforestation due to slash and burn. Educate on crop rotation, educate on drip irrigation to conserve water through utilizing water from river and from water catchment since we are in a subtropical zone and we have dry and rainy season. Create educational awareness for women and youth.

Provide resources that farmers need: example finance at least to start for land preparation, planting of crops and first fertilization application and minor hand equipment. Provide technical assistance through extension services. Lobby for quality seeds through importation of quality seeds.

5. Name: Jeffery Reimer

Organization: Livestock Marketing Association

Post: Member of the Association

Contact: +501 610 1438

1) What are your achievements with Agroforestry (AF) practices you are working with?

Ranch with 600 head of cattle for meat production

Board member of BLPA

Member of the livestock marketing association

We do implement planting of trees with the main purpose for shading because the cattle need the shade (rain tree and tambran trees), it is highly common in Spanish Lookout.

2) What constraints or challenges are you facing in your Agroforestry (AF) development work?

Cattle grazing of trees,



It is expensive to fence off small trees- cost is at 50\$ per tree.

3) What can be done to accelerate the widespread adoption of your Agroforestry (AF) recommendations?

I don't think agroforestry can work because and it is not recommended because they only produce half of what should be produced and the return of money is not quick and it is more expensive to implement agroforestry thus making the purchase/sale more expensive. It should be cattle only or trees only.

4) Have you addressed gender issues in this work? How?

Youth are finding a paycheck which farming does not give because return is not in a month's time. But because the money is quick to get in a month time they prefer to just find a job.

5) Any specific recommendations for engaging the women and youth?

If there is an opportunity to do this then there needs to be the opportunity to buy land with a reasonable price. Don't give them anything because we all know that giving someone something does not work out well and they don't make use of it. Let them buy it and let them make a small sacrifice so that they know that they work hard for it.

Due to my tradition women and men were created work together as a team.

6) What are the priorities that should be addressed in a future National Agroforestry Policy (NAFP)?

Give those who are interested in agroforestry a piece of land say 25 acres so that, that can give them an extra income like 10 000 per year along with a couple of animal which can fill the income gap if the long term investment. This can be a way to help farmers start their production.

Teach farmers to produce more food in smaller pieces of land. Find strategy where it can be fitted into this activity.

6. Name: Indira Williams

Organization: Humana: People to People

Post: Project Coordinator

Contact: +501 615 4492

1) What are your achievements with Agroforestry (AF) practices you are working with?

In the communities we practice mostly home-gardens, there are farmers who practice citrus + home-gardens, small animals +citrus, Moringa+ citrus, horticulture + citrus.

We work with farmers through a farmer's club, we provide technical assistance, basic equipment and weather equipment to monitor the weather in areas that are prone to flooding.

2) What constraints or challenges are you facing in your Agroforestry (AF) development work?

In some areas home-gardening cannot be done due to the landscape because the areas are easily flooded. Many farmers have reported burglarizing of crop and animals. There are times when Alcaldes and Chairman doesn't necessarily participate and promote agriculture strategies and/or programs especially if it has to do with women's education and empowerment, this is because these members are devoted to their traditions which is a gender base camp.

3) What can be done to accelerate the widespread adoption of your Agroforestry (AF) recommendations?

Educational awareness and agricultural training- the community members respond very well to these training and they are always interested in learning and always want to get a certificate.

Provision of equipment- because they sometimes lack basic equipment

4) Have you addressed gender issues in this work? How?

In some communities the traditions are deeply rooted where men go to the farm and work while women stay home and takes care of the children and the house. While in other communities it is



women who does the farming and builds their thatch houses because their husbands are out working as a police officer, BDF or Coast Guard. Their husbands are never at home, so the women fill in for the men who are out working.

It's a cultural situation and each community reacts and participate differently. There is even racism within the communities. Maya men doesn't like women to get involve in these activities.

5) Any specific recommendations for engaging the women and youth?

It is a challenge. Whenever we do any training or activity, we invite everyone, we try to make them feel equal, we include both men and women through interactive participation and when men see women doing the same thing, some men ease up and welcomes the idea of women to participate.

6) What are the priorities that should be addressed in a future National Agroforestry Policy (NAFP)?

It is necessary to note and it is recommended that whatever strategy that we want to implement in the NAP, we must speak to the communities first so that they can become part of the decision making within these activities so that when implementation of the policy comes they will accept the rules and regulations more easily because they know that they have some decision making and they participated in the development of these policies making.

7. Name: Marlin Jacob

Organization: BFREE

Post: Executive Director

Contact: +501 671 1299

1) What are your achievements with Agroforestry (AF) practices you are working with?

Developed AF on 1 115 acres using mainly cacao under forest trees. BFREE worked on a BCARP initiative program during 2012-2015 with Trio Farmers focusing on restoration and conservation. The objective of this was to help farmers transition from monocropping practices to agroforestry practices using cacao production. Within the program they have developed nursery, provided equipment, seeds, training and they have planted over 50 000 seedlings.

Conduct experiment and research:

-planting cacao in degraded area with trees (permanent shade) and temporary shade with trees (local species)

-understand the economic, social and environmental benefit obtain from AF practices

-Planting new varieties with high market value

-conduct data productivity and wildlife data (bird data) and invertebrate to understand how they use AF for habitats, understand the variety biological benefits and how wildlife is utilizing and impacting these systems

They conducted the first AF-cacao forum in 2018

-Develop AF platform to collect data on the cacao industry in Belize

-Work with local and international stakeholder for a non-deforestation cacao policy w/key stakeholder in the cacao industry. That does not degrade or deforest area for cacao production.

2) What constraints or challenges are you facing in your Agroforestry (AF) development work?

Major Challenges- people in the NGO & public GoB work in isolation. No framework for information sharing because they work in their own bubbles. There is no interaction.

Lack of platform and coordinated effort to work together

No financial mechanism for AF and lack of financing.

No incentive to practice AF

No incentive for private land owner to keep forest conservation in their land.

The economy does not support the development in AF



How can we link land owner to gain access to funding/financial support to keep forest or conduct AF in their land?

AF does not provide the same income as monocrop (fast income)

3) What can be done to accelerate the widespread adoption of your Agroforestry (AF) recommendations?

Firstly, there needs to coordinate effort to bring farmers together who are interested in AF to create structure and facilitation process for them to work together and share information and learn from each other.

-Help support with pricing or some sort of way to get fair pricing to get income from their products produced in AF

-Create financial incentives like reduction in taxes and other taxes, this will not help much but it will be a gesture to promote AF. And get an adequate financial mechanism.

-Marketing work along with institution like BELTRAIDE to promote AF produce

4) Have you addressed gender issues in this work? How?

Yes, it is an opportunity for women. Historically, it has been a men's work. Many of the cacao farmers are getting older and youth don't want to get involved because they don't see the value of forest and/or agriculture because there has been no finance. Therefore, there is a gender and age gaps within the AF and Agriculture sector.

5) Any specific recommendations for engaging the women and youth?

BFREE has created a Field School program for women and youth to develop a profession in AF, so that they can learn specific skills in AF and obtain specific skills within the field. Women can become manager and businessowner or workers. Unfortunately, there is not a lot of good examples of economic models of AF system in Belize.

6) What are the priorities that should be addressed in a future National Agroforestry Policy (NAFP)?

There is a need for restoration of degraded land with new productivity strategy.

No further deforestation for AF in protected areas

Land use policy

Creating platform for key stakeholders in AF

Bring people together to ensure that people are doing practices in AF

8. Name interviewee: Edilberto Romero

Organization: Program for Belize

Post: Executive Director

Contact: +501

1) What are your achievements with Agroforestry (AF) practices you are working with?

No much lately, the last major effort was with Alan Herrera. After that there some projects with the San Lazaro group (honey production and protecting the natural forest) and also a Limal group. Community issues got in the way and projects ended.

2) What constraints or challenges are you facing in your Agroforestry (AF) development work?

About 40% of their reserve is under sustainable forest management; this generates about \$1.2 m per year which is used to cover their operational costs. Has tried producing fruit and timber seedlings as a business, but there are always financial issues, group conflicts and poor business practices which in the end make them fail.



3) What can be done to accelerate the widespread adoption of your Agroforestry (AF) recommendations?

Their observations support that mahogany grows better in mixed stands, not open spaces (because of shoot-borer attack), and in fallow areas (with bush around). Price for a mahogany tree (50cm at breast height) is \$1000 to 2000 standing up.

Started a project in Hill Bank, never assigned a full-time person to the program. And it needed consistent technical support. Mixing trees and agriculture is another level of expertise.

4) Have you addressed gender issues in this work? How?

No gender projects really, but does use mainly women as hotel workers. PFB supports and promotes one women group, Orchedas in Indian Church, with their restaurant business for tourists and visitors.

5) Any specific recommendations for engaging the women and youth?

None but it is important to get in touch with women and youth groups. PFB tried to do so in Belize River Valley with the Biological Corridor project but they had no land for agroforestry, and the groups were not there and not organized to go forward with the project.

6) What are the priorities that should be addressed in a future National Agroforestry Policy (NAFP)?

The ecosystems approach which mimics nature could be relevant, capacity building, tying AF to ecotourism, food security, fishing and processing of waste, are all important for the AF policy. Also, could include procedures for managing money, non-timber forest products (e.g. chicle, harvesting palm leaves for thatching, etc. Mennonites in Blue Creek are interested in silvopastoral systems.

9. Name interviewee: Max Ortega

Organization: Belize livestock Producers Association (BLPA)

Post: Project Officer, Climate smart pilots with cattle producers

1) What are your achievements with Agroforestry (AF) practices you are working with?

One farmer (Mennonite) is experimenting with alley cropping to produce leucaena for high protein fodder for supplementing cattle feed.

The project is exploring ways of improving low-yields and poor-quality grazing areas. The pastures degrade rapidly due to the fact that farmers are at the basic level of knowledge on managing their pastures.

2) What constraints or challenges are you facing in your Agroforestry (AF) development work?

None yet Cattle are an extra or side activity for most farmers so it is an uphill struggle to get them really involved in implementing changes and dedicating time and resources to new initiatives.

3) What can be done to accelerate the widespread adoption of your Agroforestry (AF) recommendations?

The first step is to propose a relevant agrosilvopastoral system and establish some pilot AF systems to determine interest and response to adoption. I have observed that some cattle farmers are using their cattle to acquire more land, acquiring more land is an important motivation.



4) Have you addressed gender issues in this work? How?

No experience. However, there is a woman farmer in Indian Church, O.W., who wants to produce milk with her cattle. She could be interested in AF.

5) Any specific recommendations for engaging the women and youth?

None

6) What are the priorities that should be addressed in a future National Agroforestry Policy (NAFP)?

We should look at land issues. In their climate smart pilots, they are focused in order of steps: 1) water and feed options, 2) electric fences, 3) forage banks, and 4) paddocks and rotations.

Note that Mennonites have about 80% of the cattle in Belize and thus control the BLPA Board.

10. Name interviewee: Dr Luciano Chi

Organization: Sugar Industry Research and Development Institute

Post: Director, Research and Extension

Contact:

1) What are your achievements with Agroforestry (AF) practices you are working with?

None yet, but some farmers are interested in AF, but at this very moment, the situation is critical.

2) What constraints or challenges are you facing in your Agroforestry (AF) development work?

None so far.

3) What can be done to accelerate the widespread adoption of your Agroforestry (AF) recommendations?

We would need economic resources; we have the farm schools, a useful tool for training farmers. We need training. We could use land areas not suited to can growing or degraded areas. We would need incentives for the farmers or for farmer groups who have tree nurseries.

4) Have you addressed gender issues in this work? How?

In our industry, 40% of the farmers are women, so SIRD I has been engaging with them, even at leadership and decision-making levels. We have conducted courses for women, on the topics of business and enterprise management. However, we no longer have the IDB project which was supporting these activities.

5) Any specific recommendations for engaging the women and youth?

We have direct communication with women and youth. We also could use our FFSs for AF.

6) What are the priorities that should be addressed in a future National Agroforestry Policy (NAFP)?

You should include land policies and incentives because the sugar cane business is at its lowest price ever, and the farmers are suffering financially.



11. Name interviewee: **Wilber Sabido**

Organization: Forestry Department

Post: Chief Forest Officer

Contact:

1) **What are your achievements with Agroforestry (AF) practices you are working with?**

No AF program. We do have a National Forestry Policy which seeks to promote AF. We work with forestry partners like YCT and VACA groups, close to Arenal in Cayo District, and with Friends of Development and Conservation (FCD) in integrated forestry systems.

2) **What constraints or challenges are you facing in your Agroforestry (AF) development work?**

The main constraints are financing, technical capacity, nursery and seedling production. If we had these, much can be accomplished working in the field with farmers.

3) **What can be done to accelerate the widespread adoption of your Agroforestry (AF) recommendations?**

The most important action is to promote AF options that are relevant to the various beneficiaries, focusing on a combination of short term and long-term benefits. For example, culturally home gardens should be attractive for food and nutrition security, health, etc.

4) **Have you addressed gender issues in this work? How?**

We are involved with roundtables on forestry on best land use management practices with IUCN using the restoration open assessment methodology (ROAM).

5) **Any specific recommendations for engaging the women and youth?**

Women are the backbone of the households in the rural areas and very important for cash flow, hence we should include a support structure for women in the AF work.

6) **What are the priorities that should be addressed in a future National Agroforestry Policy (NAFP)?**

Priority functions should include food security, water security, and other important needs of the beneficiaries, the identification of suitable tree species (ideotypes), and well-planned pilot AF systems.

12. Name interviewee: **Cesar O. Majano**

Organization: TKO Farms

Post: Farm Manager and Assistant Farm Manager

Contact: 501 614 2292

1) **What are your achievements with Agroforestry (AF) practices you are working with?**

TKO has been planting teak, mahogany and Spanish cedar, soursop, coconut and citrus, destined for the US markets. The trees are in pure stands, but are aware of AF and would be willing to try some combinations of these plants with short-season crops.



2) What constraints or challenges are you facing in your Agroforestry (AF) development work?

None so far, no AF yet.

3) What can be done to accelerate the widespread adoption of your Agroforestry (AF) recommendations?

Not relevant at this time, but they think training and supply of some inputs would help.

4) Have you addressed gender issues in this work? How?

Not relevant.

5) Any specific recommendations for engaging the women and youth?

None

6) What are the priorities that should be addressed in a future National Agroforestry Policy (NAFP)?

They are willing and able to help in promoting farmers to participate in what TKO can export. TKO is keen to formalize such partnering arrangements for AF development in the that area of Teakettle, Cayo District.

13. Name interviewee: Belarmino Esquivel

Organization: Department of Agriculture

Post: Principal Agricultural Officer

Contact:

1) What are your achievements with Agroforestry (AF) practices you are working with?

Historically, agroforestry has always been practiced in Belize. While it has not been promoted using the exact term “agroforestry systems” and there is no specific program or strategy established by the Ministry, the Extension and Research Units to promote the related practices. In the south for example, Cacao and Coffee agroforestry systems, alley cropping & diverse home gardens can be found. In the Cayo and Northern districts, cattle rearing with linear arrangements, plantations, buffers and protein and energy banks are common.

Over the years, the ministry has promoted:

- **Mixed farming systems** (Integrated farming systems, Intercropping, Alley cropping, Organic production, Sustainable agriculture), each of these systems promote “diversity”. For example, the Farmer of the Year national competition puts considerable emphasis on farms that have tree/crop/livestock components.
- **(In the last 2 years) - regenerative agriculture** principles (Back to Basics): to improve and conserve soil quality (soil amendments, cover crops, bokashi, compost), water management (irrigation, draining, water harvesting), and more recently, educating and promoting principles and practices that increase biodiversity, carbon sequestration (above and below ground).
- **Protein and energy banks** (forage with high protein and energy content), to discourage the producers from making large expansions and teaching them to get more nutrition for animals by intensification.



- **Silvopastoral systems:** rotational grazing of animals, live fences with Madre cacao is common, improved pasture species, scattered trees in pasture, and riparian buffers.
- **Agrosilvopastoral systems:** crop production with livestock and tree components
- **Beekeeping** program to address forest preservation, create adequate microclimates for bee populations, and use trees to protect hives from extreme weather events, buffers for community safety and pollination.
- **Agroforestry nursery** - AF trees are made available to farmers, even though there is not any campaign or strategy to promote or encourage tree planting on farms at present.

So far, the most evident arrangements identified and supported by the ministry at the national level are: live fencing, dispersed shade trees in pasture, protein and energy banks, forest with coffee and cocoa, alley cropping, timber plantation, home gardens, apiculture with forest trees, and forest with medicinal plants.

2) What constraints or challenges are you facing in your Agroforestry (AF) development work?

Currently there is no AF development work per se but as mentioned above, there are elements that the ministry is promoting which are in line with Agroforestry practices. Some of the challenges to advance formally into agroforestry development are:

- Low level of expertise in agroforestry and other land use management
- Lack of awareness of the benefits and value for trees both in and out of the ministry
- Insufficient persuasion to encourage farmers to incorporate trees into their farms
- Some producers believe that incorporating trees into their farming systems reduce productivity significantly and as a result are not interested
- Low access to funding to develop AF
- Low demand for nursery plants compared to earlier years (example, the nursery in Central Farm has reduced production).

3) What can be done to accelerate the widespread adoption of your Agroforestry (AF) recommendations?

- Education and awareness
- Provide a market-led approach to agroforestry
- Assess what is existing with respect to agroforestry
- Classify the land available, what can be sectored or recuperated. Incentives to farmers (environmental services)
- Investment in infrastructure (roads, buying centers in communities, social media, online marketing, etc), and
- Implement other sustainable land use of the policy, by phases or steps.

4) Have you addressed gender issues in this work? How?

Traditionally the gender topic has not been discussed with respect to any type of agriculture system promoted by the Ministry; however, the Ministry strives to be non-discriminatory and all persons are able to access and benefit from its resources and technical support. It has been observed though, that women and young children play an important role in the selection of planting material and seeds, caring for young plants and establishing home gardens (perennial and annual crops usually with animals on the farm). An opportunity for greater involvement of women and youths clearly exist but for the moment, the Ministry does not have a gender expert to emphasize the importance of this critical area or provide training to its technical staff.



5) Any specific recommendations for engaging the women and youth?

We must prioritize and expand the promotion of agroforestry systems in Belize for everyone by:

- Adding agriculture to school curriculum with emphasis on the value of trees for the future and sustainability of agricultural systems
- Offer young farmers a voice during the consultation process
- Combine innovation and technology with traditional knowledge and experience.

6) What are the priorities that should be addressed in a future National Agroforestry Policy (NAFP)?

The policy should:

- Raise awareness on the roles of trees at the national level especially among agriculturalists in the sector (Research institutions, Extension and other Technical Officers) and producers (especially young people). Highlight the benefits of having agroforestry systems as it relates to achieving the sustainable development goals.
- Creation of a well-organized inter-sectoral advisory group to create a synergy in developing AF (Example: Agriculture, Forestry, Environment, Rural Development and Education ministries)
- Develop a regulatory system that would ensure proper land use management for sustainability of the sector
- Advocate and support payment for environmental services to landowners and farmers
- Advocate for the revision of existing forest laws that would hinder persons from wanting to develop agroforestry (unfavourable regulations and legal restrictions)
- Stimulate markets for tree products for income generation in rural communities
- Support agro-ecotourism as an option for rural communities to collectively improve livelihoods and at the same time create value for a balanced agro-ecosystem.

Other notes:

It is valuable to reflect that in the late 1990s Agroforestry was an ad-hoc initiative which was eventually discontinued by the Ministry, however, we are at an opportune time to restore the interest and seek support to develop AF and other land uses for the great contributions it can bring to the sector.

Furthermore, the Ministry must prioritize Agroforestry since it can effectively offer great benefits to the agricultural sector and the livelihood of all Belizeans. Once this is done, we can join the regional initiatives that have already built a commendable momentum so that we can achieve the SDGs.

Annex 2. Name of Interviewees for Gender participation in Agroforestry in Belize

TABLE 9. NAME OF PERSONS INTERVIEWED

N. Interviews	Institution	Position of person interviewed
Lester Muralles.	University of Belize	Farm Manager
Sergio Gomez	Univeristy of Belize	Lecturer
Fay Garnett.	Minity of Agriculture	District Agricultural Coordinator



Tania Santos.	Independent Consultant	Private Worker
Hanna Martínez. Departamento Forestal, 5/03/2020	Forest Department	Technical staff, project management, protected area and forest management
Young Indigenous (Yucatec Maya)	Private owner	
Adult Indigenous (Yucatec Maya)	Private owner	
Elberth Cowo.	SIRDI	Extension officer
Lettice Westby.	SIRDI	Executive Director
Julio Chub	Ya axché Conservation Trust	Technical staff
Cristina García	Ya axché Conservation Trust	Executive Director
Marvin Vásquez.	Ya axché Conservation Trust	Technical staff
Gustavo Requena	Ya axché Conservation Trust	Technical staff

Annex 3. District Consultations with YCT collaborators, Farmers and Producers, Processors and Marketers, and Investors, banker and credit union

Farmers and Producers

YCT collaborators done by Ms. Christina Garcia

Farmer Name: Jose Caal

Village: Indian Creek Village

- 1. What kinds of AF, if any are you practicing now and what do you perceive as the pluses or negatives of each kind of AF you practice?**

Response: I have milpa system mixed with different fruit trees. I also have 1.5 acres of cacao agroforestry. I also have chickens. I trying to move gradually from a milpa system to an integrated



farming system. I also want to start planting corn using the inga alley cropping. In the past I have harvest approximately 100lbs of cacao that is sold locally. I think an agroforestry system is good; but you have to wait a long while to get returns.

2. What type of trees do you want to plant on your farm, in order of preference: fruit, timber, fodder, fuelwood, medicinal or other? Where on your farm do you want to plant them?

Response: I prefer planting the timber and fruit trees. As long as I get seeds I am willing to plant. Its good to have the timber and fruit trees nearby since it needs special care and attention.

3. What topics about AF would you like to be trained on by the YCT or the extension service?

Response: I have received trainings on inga alley cropping but now I am ready to implement what I learned.

4. What kinds of support or incentives do you need to plant and grow more trees on your farm or your village?

Response: I just want to be given seeds or saplings so I can plant. I don't need anything more.

Farmer Name: Pablo Makin

Village: Indian Creek Village

1. What kinds of AF, if any are you practicing now and what do you perceive as the pluses or negatives of each kind of AF you practice?

Response: No negatives all is a plus. It provides food for the entire family, it is generating income for me and my family and now I have a connection with nature

2. What type of trees do you want to plant on your farm, in order of preference: fruit, timber, fodder, fuelwood, medicinal or other? Where on your farm do you want to plant them?

Response: All those valuable trees are all important. My plan was to expand my farm more into the forest (CRFR). I think farmers should gain access to these reserves that are exploited by others (Guatemalans). The land is a distance away; however I do believe that farmers can manage well.

3. What topics about AF would you like to be trained on by the YCT or the extension service?

Response: I am very interested in planting a second row of inga around my bay leaf plot. I have space to plant mahogany trees but I just need these seedlings. At the moment I don't have money to buy seedlings. I can also do good with additional trainings on agroforestry systems.

4. What kind of support or incentives do you need to plant and grow more trees on your farm or your village?

Response: I think all the farmers need is the opportunity to acquire seedlings especially for Mahogany. On a side note I think I also interested in getting help to start up a refinery for a small enterprise to make chocolate.

Farmer Name: John Rash

Village: Indian Creek Village



1. What kinds of AF, if any are you practicing now and what do you perceive as the pluses or negatives of each kind of AF you practice?

Response: I have an agroforestry system of cacao, coffee, mango, mami, soursop, custard apple, coconuts, oranges all combined with small livestock (pigs, a few sheep) and chicken, ducks, turkeys and I do beekeeping. I have been practicing agroforestry since I was 29 years old, now I am 50. The farm went through a huge change since my Dad used to burn a lot. I now know more about agroforestry systems and decided to make that change. My children are also involved in maintaining the farm.

2. What type of trees do you want to plant on your farm, in order of preference: fruit, timber, fodder, fuelwood, medicinal or other? Where on your farm do you want to plant them?

Response: I am definitely interested in planting more mahogany and cedar. If I get the opportunity to get timber saplings, I would expand my farm and plant these trees. Currently I have 54 acres of land which is not all converted into farming; so there is space to plant more trees.

3. What topics about AF would you like to be trained on by the YCT or the extension service?

Response: I have a small apiary and I would like to expand. I definitely need to build my capacity some more on beekeeping.

4. What kind of support or incentives do you need to plant and grow more trees on your farm or your village?

Response: It is not fair that a farmer invests so much time to plant timber trees and has to pay royalties on it. This should be removed from the law. I hope it does soon because it is our land and we should be paying to cut timber trees from our land. We buy and care for it and now have to pay to use it. It is unfair. Farmers should be given more support to plant more trees.

Farmer Name: Prudencio Cucul

Village: Indian Creek Village

1. What kinds of AF, if any are you practicing now and what do you perceive as the pluses or negatives of each kind of AF you practice?

Response: I do cacao agroforestry. The benefits I see is ecotourism, I have the ability to produce my own food and also it serves as a medicinal purpose. There are so many herbs that can be found in a well-kept system. I always take advantage of that.

2. What type of trees do you want to plant on your farm, in order of preference: fruit, timber, fodder, fuelwood, medicinal or other? Where on your farm do you want to plant them?

Response: I have fruit trees mostly. I also have a lot of timber trees such as Mahogany, Cedar. I want to plant more trees and use it as shade for the cacao. I would like to expand my farm and only have designated plots for timber trees. That is going to be my bank in the next 10-20 years. I might not be living but it will be for children.

3. What topics about AF would you like to be trained on by the YCT or the extension service?

Response: I would like to do a refresher training on biofertilizers, Biochar-Inga, Pest and Disease and also learn more on soil testing



4. What kinds of support or incentives do you need to plant and grow more trees on your farm or your village?

Response: The kind of support I currently need is seedlings, planting bags and some training on reforestation.

Farmer Name: Sebastian Shol

Village: Indian Creek Village

1. What kinds of AF, if any, are you practicing now and what do you perceive as the pluses or negatives of each kind of AF you practice?

Response: I have an inga-alley cropping system. The reason why I chose to work with inga is because I have seen how beneficial it is to the soil, it also gives good yields especially in corn and beans. I am very interested in expanding my plot. The only negative side to that is that an inga system could be susceptible to fire. The system has a thick mulch so definitely fuel for fire.

2. What type of trees do you want to plant on your farm, in order of preference: fruit, timber, fodder, fuelwood, medicinal or other? Where on your farm do you want to plant them?

Response: I am now planting mahogany. I planted some 3 years ago. I also have a lot of fruit trees on the hillside. Both are beneficial for the children love the fruits and a lot of people come and buy from the farm.

3. What topics about AF would you like to be trained on by the YCT or the extension service?

Response: I am very interested in all trainings offered. I only want to build my capacity and knowledge.

4. What kinds of support or incentives do you need to plant and grow more trees on your farm or your village?

Response: Having a farm requires a lot of cleaning, so the help is welcomed. I think farmers should get the opportunity to get affordable loans to help in the upkeep of farms. You also need to know which plants you should place in your system. Every year the dry gets worse, so identifying resilient plants is very necessary.

Farmer Name: Vicente Makin

Village: Indian Creek Village

1. What kinds of AF, if any, are you practicing now and what do you perceive as the pluses or negatives of each kind of AF you practice?

Response: I have cacao agroforestry. This helped me a lot in the land structure. I now have water and I don't have issues with erosion. This is by far the best practice.

2. What type of trees do you want to plant on your farm, in order of preference: fruit, timber, fodder, fuelwood, medicinal or other? Where on your farm do you want to plant them?

Response: I prefer fruit trees, medicinal, timber, firewood (inga), bay leaf for other forms of roofing materials. I would plant the timber trees on the hills, it can serve as an attraction for tourism.



3. What topics about AF would you like to be trained on by the YCT or the extension service?

Response: I am very interested in receiving trainings on farm design, site selection for farming practices, I would like to learn to write proposal to acquire funding. I also want to learn how to develop a farm plan.

4. What kinds of support or incentives do you need to plant and grow more trees on your farm or your village?

Response: I would like support in seeds, seedlings, and assistance in cleaning farm (sometimes it's too much for a farmer to handle).

1 Name: Andres Chi, Corozal

Contact:

1. Are you interested in a National Policy that promotes agroforestry? Yes, NO
If yes, why?

Yes, but I am old and have limited capacity. 73 years of age, but I am strong. I do all the work on my cane field and travel back and forth to my cane field which is 7 miles from home.

2. What types of trees or tree species would you be interested in planting?

Interested in fruits (avocado, mango, coconut, lime, and orange)

3. Where do you want to plant them? How much land area do you have available?

Have a piece of land, 12 ac. Which is leased, of which 4 acres are with cane. I can plant on the boundaries to protect against birds that attack our crops.

4. If and when this Agroforestry Policy would be approved, how could help in promoting and implementing the policy?

I will work on trying the AF practices; can't do much because I am tied up with the cane and he does all the work.

5. What kinds of support or incentives do you need to plant trees and start some Agroforestry practices?

Would need seedlings, fertilizers and training.

6. Do you know where you could receive those kinds of support now? Where?

Would go to the Dept of Agric, perhaps SIRDI

7. What advice could you give us to ensure success of this agroforestry policy?

Must ensure those interested have the correct, up-to-date info based on sound knowledge to go forward with the policy

Name: Doro Bustillos, Corozal

Contact:



1. Are you interested in a National Policy that promotes agroforestry? Yes, NO
If yes, why?

Yes, I want to do it especially for my child, even though he has passed the land and farm to his children already.

2. What types of trees or tree species would you be interested in planting?
Interested in fruit trees like citrus, guava and other fruits.

3. Where do you want to plant them? How much land area do you have available?
He has cane fields 250 acres, parts could be used.

4. If and when this Agroforestry Policy would be approved, how could help in promoting and implementing the policy?
Yes, they will plant the trees on their farms.

5. What kinds of support or incentives do you need to plant trees and start some Agroforestry practices?
Would need some finance, water well to irrigate plants and technical assistance.

6. Do you know where you could receive those kinds of support now? Where?
No assistance now from anyone. If you go for a loan, it is very expensive, as much as 18% rate per annum.

7. What advice could you give us to ensure success of this agroforestry policy?
Need to put ambition and passion or produce and continue to work hard. There will be good and bad times, and therefore we need to manage well at all times

Name: Cosme Hernandez, OW

Contact: 610 4207

1. Are you interested in a National Policy that promotes agroforestry? Yes, NO
If yes, why?

Yes 100%, has seen the effects of climate change, what the Mennonites have done to the forests, and cane farmers have abandoned some cane fields due to the drop in cane price.

2. What types of trees or tree species would you be interested in planting?
Prefer fruit trees, for emergency and crises, fruit trees for food and secondly interested in timber trees.

3. Where do you want to plant them? How much land area do you have available?
Plant trees on land in San Estevan village, 8 acres by the river. Also plant timber trees on cane fields in Freshwater Creek.



4. If and when this Agroforestry Policy would be approved, how could help in promoting and implementing the policy?

Could do personal campaigns with other farmers and showing the benefits of AF.

5. What kinds of support or incentives do you need to plant trees and start some Agroforestry practices?

Need brief capacity training in tree planting, supply to trees (consume and sell some), get assistance with fruit trees and tree maintenance.

6. Do you know where you could receive those kinds of support now? Where?

Expect support from Min of Agric, but those officers need to have passion.

7. What advice could you give us to ensure success of this agroforestry policy?

Stay away from partisan politics, need to get Govt involved, but in the business of the organization.

Name: Eliberta and Arsenio Carrillo, Orange Walk

Contact: 665 8862

1. Are you interested in a National Policy that promotes agroforestry? Yes, NO
If yes, why?

Yes, very interested in boundary planting and planting more valuable timber trees in more land they have.

2. What types of trees or tree species would you be interested in planting?

Trees for high future value, to leave for children and grandchildren. He like caoba Senegalensis because it is not attacked by the Hysipilla bug like the local mahogany sp. R&B (Mennonite family) planted 17 acres of Senegalensis close to San Carlos village.

3. Where do you want to plant them? How much land area do you have available?

Have a land by Indian Church, about 200 acres in total.

4. If and when this Agroforestry Policy would be approved, how could help in promoting and implementing the policy?

Could organize various activities, nurseries, training with farmers. Two (Aldo and Allan) were trained in the Forestry School in Honduras, but they are doing different type of work now. All of them would like help with the AF program.

5. What kinds of support or incentives do you need to plant trees and start some Agroforestry practices?

Needs some support for border planting and other AF arrangements, need water well for nurseries and irrigation, nursery production and training.

6. Do you know where you could receive those kinds of support now? Where?



No help available. They have a lot of tree planting – about 50 teak trees, 12 years old, and many mahogany trees by the river, already growing

7. What advice could you give us to ensure success of this agroforestry policy?

Provide seedlings, fertilizer, some financing (to the level of 50% of the average income of a worker).

Name: __Florencio Rodriguez__, OW

Contact: _6661755_____

1. Are you interested in a National Policy that promotes agroforestry? Yes, NO

If yes, why?

__Yes, he sees the beauty and importance to plant trees and protect the natural resources._____

2. What types of trees or tree species would you be interested in planting?

Mahogany, Cedar, Zericote, Teak. He is also interested on shade trees for his livestock. He also spoke of some shade trees in his community of Progreso which produce beautiful flowers. _____

3. Where do you want to plant them? How much land area do you have available?

__He wants to plant trees in his farm. He also intends to leave a patch of forest (corridor) for wildlife. He also expresses interest to raise captive wildlife. **Acreage?**

4. If and when this Agroforestry Policy would be approved, how could you help in promoting and implementing the policy?

__Help people without vision. Use demonstration plots to promote agroforestry. How much time you can plant crops until trees produce shade

5. What kinds of support or incentives do you need to plant trees and start some Agroforestry practices?

__Money alone will not work because it will be spent on other things. Provide plants, technical assistance and follow up to ensure the work continues. Assistance can come in the form of seeds, help farmers to clear land. Cover costs to open wells and provide material. Some road improvements would also benefit farmers. Help farmers live in harmony with wildlife such as jaguars (prevent losses of livestock).

6. Do you know where you could receive those kinds of support now? Where?

__No, he is registered as a farmer. He hears about projects and funds available but has not received any kind of assistance.

7. What advice could you give us to ensure success of this agroforestry policy?



___Ensure to follow up on actions and ensure investments grow. Provide technical assistance._____

Name: _Mike Hernandez, OW

Contact: __6551017

1. Are you interested in a National Policy that promotes agroforestry? Yes, NO
If yes, why?
_Yes, it will be beneficial to farmers. Unable to elaborate further.
2. What types of trees or tree species would you be interested in planting?
_Mahogany, Cedar, Zapote domingo (*Mammea americana*), and shade trees.____
3. Where do you want to plant them? How much land area do you have available?
He wants to plant them in his pasture. Acreage 500 acres.
4. If and when this Agroforestry Policy would be approved, how could you help in promoting and implementing the policy?
Share his experience with other farmers.
5. What kinds of support or incentives do you need to plant trees and start some Agroforestry practices? Seed collection, nursery development, no money, extension service._____

6. Do you know where you could receive those kinds of support now? Where?
_____No_____
7. What advice could you give us to ensure success of this agroforestry policy?
_____Reforestation is helpful for everyone; every tree planted is valuable._____

Interviews done by Helen Choco

Name: Juanita Edwards , Toledo

Contact:_____

1. Are you interested in a National Policy that promotes agroforestry? Yes, NO
If yes, why?
Yes
2. What types of trees or tree species would you be interested in planting?



Mahogany, Cedar, sapodilla, rosewood.

3. Where do you want to plant them? How much land area do you have available?

5 acres of land, all cleared out I have tilapia, 4 sheep, 2 cows.

4. If and when this Agroforestry Policy would be approved, how could you help in promoting and implementing the policy?

Yes, I won't mind at all. I would do in my smaller way by talking to people and encouraging them to start practicing agroforestry and using short term crops.

It would be good to promote agroforestry as a campaign and as an outreach program.

5. What kinds of support or incentives do you need to plant trees and start some Agroforestry practices?

We would need land to plant on and seedlings to plant.

6. Do you know where you could receive those kinds of support now? Where?

Forestry department should be going out and promoting these tree planting. They should be giving seedlings to farmers to plant.

The concessions should plant trees to every tree that is harvested.

Name: Mr. Yong, Toledo

Contact: _____

**1. Are you interested in a National Policy that promotes agroforestry? Yes, NO
If yes, why?**

Yes, plants are important to conserve biodiversity, to bring animals and species back like quail except the jaguar.

In long term concession a lot of illegal things happening.

2. What types of trees or tree species would you be interested in planting?

Mostly pine trees – harvest concession in Swasey/bladden reserve.

Hard wood trees are harvested from barranco and they sell lumber. Now they are not giving too much lumber.

3. Where do you want to plant them? How much land area do you have available?

Mahogany, I have 30 acres planted

4. If and when this Agroforestry Policy would be approved, how could you help in promoting and implementing the policy?

Yes, it is very important because of global warming. The people from other places don't respect nothing and only few people do anything and show interest. The timber industry is dying. The politicians needs to say that there needs to be change.

We are tired of trying to do good and stay in the law but when the foresters do illegal things and corruption is happening and we get tired.

They don't inform us when they change operation system. They fine us because we buy lumber that have no stamp but they never say that to buy locally the lumber has to be stamped.



5. What kinds of support or incentives do you need to plant trees and start some Agroforestry practices?

Give people who are serious and plan how many people and for how long will they be needed. There is no way we can compete with saw mill (chainsaw). Most people need technical knowledge, the young people need to get trained. Some don't like the job and they don't come back. It is hard to find workers, people need to have some sort of knowledge. Before older people was willing to learn but now, I guess the younger people have more opportunities.

We need technical support to get added value from furniture and get access to the expert furniture.

It is ok to go long term concession but we also need to work hand in hand with the farmers because they are destructive due to slash and burn.

The pineapple are the worst because they use a lot of chemical and they damage the soil.

It's getting frustrating, I think I reach to the point where I don't care anymore.

6. Do you know where you could receive those kinds of support now? Where?

None

7. What advice you give u to ensure success of this agroforestry policy?

The best thing is to get the private sector involved. Everyone needs to work with people. Who are willing to work together and plant trees and use value timber to reforest.

Put the policy in the hands of the NGOs and get stakeholders like us who are interested to assist. I can provide mahogany seedlings.

Meetings is good but we need to execute the plan because meeting cost money nad time consume especially for us when we go all the way to Belmopan. And we have to travel back to Toledo, it is very far. Nothing will get done with meeting.

Stann Creek

Name: **Husney Coleman**, Farmer

Contact: _____

1. Are you interested in a National Policy that promotes agroforestry? Yes, NO

If yes, why?

Yes, I have mahogany, psalm wood, prickle yellow, cedar. I have a mixture of trees along with fruit trees.

2. What types of trees or tree species would you be interested in planting?

I am trying to plant different kinds of trees in my plants that I can use later on.

3. Where do you want to plant them? Ho w much land area do you have available?

I have 3 acres with mix trees and timber trees. I have 12 acres but I have not planted out all.

4. If and when this Agroforestry Policy would be approved, how could you help in promoting and implementing the policy?

Yes, I don't see that as a problem.



5. What kinds of support or incentives do you need to plant trees and start some Agroforestry practices?

Financial and mechanical assistance to clear the land.

We also need land where we can plant trees.

6. Do you know where you could receive those kinds of support now? Where?

No, I don't know.

Name: **Quincy Coleman** Saw Mill Owner

Contact: _____

1. Are you interested in a National Policy that promotes agroforestry? Yes, NO If yes, why?

Yes, because it brings a lot of benefit like water catchment. Trees provide shade for animals, keep moisture in the air and biodiversity.

2. What types of trees or tree species would you be interested in planting?

Pine, Nargosta Santa Maria, Emory

3. Where do you want to plant them? How much land area do you have available?

Yes, we planted seedlings of mayflower (50) for our own reforestation in our land as a way to compensate for pine trees that I have harvested. I did this in a sense, because I had harvested some bigger pine tree that I didn't want to harvest but the bills have to be paid and I have to feed my family so I harvested the trees. Now I am trying to save the little that is left in my land.

4. If and when this Agroforestry Policy would be approved, how could you help in promoting and implementing the policy?

Yes, I don't see that as a problem. I can do that through example meaning I can use my farm as example and have trees in my farm and show it to people especially school. You know show by example and lead by example.

5. What kinds of support or incentives do you need to plant trees and start some Agroforestry practices?

Financial incentives because the poor will not invest in a practice like this because it is for long term. And Most ppl want a short term response because they want to see fast money.

6. Do you know where you could receive those kinds of support now? Where?

Cayo and St Creek

Name: Mr. Bustillos

Contact: _____

1. Are you interested in a National Policy that promotes agroforestry? Yes, NO If yes, why?

Yes, To promote better farm practices, hence creating greater/better crops yields in agriculture

2. What types of trees or tree species would you be interested in planting?

Santa maria, Mahogany, not sure what species is required.



3. Where do you want to plant them? How much land area do you have available?

Private land

150 acres is what I have available

4. If and when this Agroforestry Policy would be approved, how could you help in promoting and implementing the policy?

By planting more trees, using less fertilizer, using plants or trees that help the soil- such as nitrogen plants

5. What kinds of support or incentives do you need to plant trees and start some Agroforestry practices?

Technical help of both forest department and agriculture department agencies in their skills and expertise.

6. Do you know where you could receive those kinds of support now? Where?

Agriculture and forest department

7. What advice could you give us to ensure success of this agroforestry policy?

Obey the rule of FD and agriculture, try to implement whatever good they teach in regards to this.

Name: Mr. Joshua Harder

Contact: _____

1. Are you interested in a National Policy that promotes agroforestry? Yes, NO

If yes, why?

Depends on what it involves. Its not strange concept for us. At a very minimal level do these practices.

2. What types of trees or tree species would you be interested in planting?

When clearing land, I leave trees instead of clear cutting

Cohune, timber species.

3. Where do you want to plant them? How much land area do you have available?

Cohune, timber species

4. If and when this Agroforestry Policy would be approved, how could you help in promoting and implementing the policy?

When cutting pasture, leave seedling trees of timber sp.

Doing my part in clearing plant but most importantly keeping trees in pastures.

5. What kinds of support or incentives do you need to plant trees and start some Agroforestry practices?

Its already practices within our community.

6. Do you know where you could receive those kinds of support now? Where?

Community members, forest dept, agriculture, maybe BAHA, not too sure, what policy is.

7. What advice you give us to ensure success of this agroforestry policy?

Be more informative, hold community meeting/chairman

Name: Mr. Amerush Zriba



Contact: 650 0500

- 1. Are you interested in a National Policy that promotes agroforestry? Yes, NO**
If yes, why?
Because there should be a regulation especial with the size are being cut.
- 2. What types of trees or tree species would you be interested in planting?**
All types
Fruits and timber eg. Mahogany and pine
Moringa trees
- 3. Where do you want to plant them? Ho w much land area do you have available?**
I would plant these trees in my nursery in private land which would be disperse planted through my private land. 10 000 acres available.
- 4. If and when this Agroforestry Policy would be approved, how could you help in promoting and implementing the policy?**
By planting and distributing trees in an effort to educate others.
- 5. What kinds of support or incentives do you need to plant trees and start some Agroforestry practices?**
I have already started to planting trees.
- 6. Do you know where you could receive those kinds of support now? Where?**
Baha for Sheep
Unsure
- 7. What advice you give u to ensure success of this agroforestry policy?**
Advice for the FD- work with the agriculture department and traffic department; stop cutting small trees.
Give the FD weapons for enforcement
Doing agric courses to encourage and promote agroforestry.

Interviews of Dept of Agric

Name: Juan Tun

Contact: 602-4951

- 1. Are you interested in a National Policy that promotes agroforestry? Yes, NO**
If yes, why?
yes I am interested in a national policy that promotes agroforestry as I believe its long overdue and we all have seen the effects of climate change and by mitigating such it is import to plant more rather destroy.
- 2. What types of trees or tree species would you be interested in planting?**
I would be interested to planting a combination of timber trees. The most valuable are the cedar, mahogany, cabbagebark



3. Where do you want to plant them? How much land area do you have available?
I would love to plant them in my property. I have available approximately 26 acres in reserve with no agroforestry trees.
4. If and when this Agroforestry Policy would be approved, how could you help in promoting and implementing the policy?
I am not sure which approach would be best but I believe that leading by example showing the importance of agroforestry system is the way forward.
5. What kinds of support or incentives do you need to plant trees and start some Agroforestry practices?
First, finance is the main support needed. Without having money, you cannot buy or implement such project for yourself. Money is needed to purchase the plants, materials, labor, Maintenance etc. however, we also need Government support on initiatives like these eg. Agroforestry projects.
6. Do you know where you could receive those kinds of support now? Where?
Well, we are currently in the implementation of an agroforestry project funded by ACICAFOC. ACICAFOC is a non-Governmental funding Agent that help groups in the Selva Maya region. but nationally am unaware of any support.
7. What advice could you give us to ensure success of this agroforestry policy?
My advice is to involve all small, medium, large to be part of this policy in order to be successful. especially large producers and marketers are the ones that benefits of such activities in relation to the forest by extraction of timber and lumber. Better monitoring and control of the illegal trade of timber.

Name: Gilmer Guy

Contact: 607-0523

1. Are you interested in a National Policy that promotes agroforestry? Yes, NO
If yes, why?
yes indeed, there is the urgent need to mitigate climate change and in doing so I will also benefit not personally but for the future generation to breath fresh air and by doing so is to promote agroforestry to every Belizean.
2. What types of trees or tree species would you be interested in planting?
I would be interested to planting a combination of fruit trees and timber trees. The most scarce trees and of good quality an valuable are the cedar, mahogany, cabbagebark, hinge-hinge, Ramon, ceiba, Santa maria, nargosta, hobillo.



3. Where do you want to plant them? How much land area do you have available?
In order to avoid being stolen I would love to plant them in my property. I have available approximately 8 acres in reserve with no timber or agroforestry trees.
4. If and when this Agroforestry Policy would be approved, how could you help in promoting and implementing the policy?
Well I believe if the support is given likewise, I can definitely lead the example in many different approaches.
5. What kinds of support or incentives do you need to plant trees and start some Agroforestry practices?
Most of all the support has to come from someone, I wouldn't say financially but at least have someone provide the trees and I plant. I have a strong support to the environment by planting more trees in order to provide more oxygen to the atmosphere.
6. Do you know where you could receive those kinds of support now? Where?
I am not aware of such support or anyone providing such support to small farmers. But the government Forestry Department should be providing such support.
7. What advice could you give us to ensure success of this agroforestry policy?
My advice is to involve all necessary entities/parties to be part of this policy in order to be successful. Involve them by law to be part of such policy and force to plant agroforestry. Especially Mennonites communities clearing large acres of land for agriculture or livestock farming. The menonities are the ones destroying all the green lands of our beautiful Belize.

Name: Oscar Morales

Contact: 651-0710

1. Are you interested in a National Policy that promotes agroforestry? Yes, NO
If yes, why?
yes indeed, there is the urgent need to mitigate climate change by planting more trees. And in return benefit both with oxygen and timber. This is not for me personally but for the future generation, especially my grandsons etc.
2. What types of trees or tree species would you be interested in planting?
I would be interested to plant Ramon trees (brosimummalicasrum) which is a multipurpose tree, also hard wood species and mostly cedar and mahogany which are trees that are almost not found anymore.



3. Where do you want to plant them? How much land area do you have available?
In order to avoid being stolen I would love to plant them in my property. I have available approximately 8 acres in reserve with no timber or agroforestry.
4. If and when this Agroforestry Policy would be approved, how could you help in promoting and implementing the policy?
If the policy is approved, I would likely be able to help in promoting by teaching small, medium/ marketers the importance of agroforestry conservation.
5. What kinds of support or incentives do you need to plant trees and start some Agroforestry practices?
The most support is having someone such as a project to support financially in providing the seeds/plants and provide the necessary training to learn to manage and maintain Agro forestry system.
6. Do you know where you could receive those kinds of support now? Where?
At the moment I am not aware of such support or anyone providing such support to small farmers.
7. What advice could you give us to ensure success of this agroforestry policy?
My advice is to involve all necessary stakeholders to be part of this policy. Especially the Mennonites communities as they are the ones clearing large acres of land for agriculture or livestock farming. Not forgetting large marketers that benefits all the resources from the extraction of timber. I am in strong support of the unfairness of such act that the government support more to well financial persons than to the small producers.

Processors and Marketers

Name: Gregorio Choc, Toledo

Contact: _____

**1. Are you interested in a National Policy that promotes agroforestry? Yes, NO
If yes, why?**

Yes, I am interested in promoting agroforestry. I have been interested in promoting agroforestry because I see the benefits of it. I have work with the Toledo Cacao Farmers Association and I give extension services to the farmers. I work a lot with trees, I have an area dedicated to rescuing trees like mahogany, emory. I try to save the trees for my children so that they learn and see the different trees and they might need it in the future.

2. What types of trees or tree species would you be interested for your business?

Bajalote, mahogany, beef wood,



I log and have sawmill. I log from private lands only, I have never done concession. And forestry is not giving concession anymore.

3. If and when this Agroforestry Policy would be approved, how could you help in promoting and implementing the policy?

Yes, I always talk to people especially the younger folks, and I have been doing it. I try to explain to them that timber is very valuable and they should save the tree. Also some farmers have been practicing agroforestry along time only that there are some farmers who don't want to practice agroforestry because they say it is too much work.

4. What kinds of support or incentives do you need to expand your business in these products?

Encouraging recurring of tree and teach/educate them on the importance of tree. Teach them to think and learn why it is good to have agroforestry.

It is also good to have seedlings teach them to collect the seedling of rosewood and mahogany so that people can buy seedling from them.

5. Do you know where you could receive those kinds of support now? Where?

None, I don't know who can help and where I can get support. The only way to get ahead is to have financial support. The technical support is there but the financial support is not.

Sometimes you hear financial support is there but we are not sure if we might get the help.

6. What advice could you give us to ensure success of this agroforestry policy?

There is somebody out there like NGO's who can help to encourage the policy.

Name: Alfonso Villafranco, Toledo

Contact: _____

**1. Are you interested in a National Policy that promotes agroforestry? Yes, NO
If yes, why?**

Yes, agroforestry is not new. I know community who are doing sustainable harvest, they have mother trees. But the monitoring and APOs need to be careful when they leave those big trees because these trees may not be there after and sometimes, they don't give enough seeds. They need to plant back trees when they harvest.

If nobody plant back tree it causes damages because concessioners have to go hunting for the tree. Now a days, people are getting concession and don't have any equipment and they are getting concession and those who have all the machine and equipment don't get license.

2. What types of trees or tree species would you be interested for your business?

Santa Maria, Emory, Nargosta, whyka chew stick. There are no exotic wood like mahogany and hormiguero (amorum) . there are some tem (beefwood).



3. If and when this Agroforestry Policy would be approved, how could you help in promoting and implementing the policy?

Yes, there is no problem in promoting the agroforestry practices. government should also making it mandatory as a condition to harvesters to plant back trees when they cut down trees.

4. What kinds of support or incentives do you need to expand your business in these products?

Don't want to invest much because I don't know where to get those support and I don't know if there will be trees for the next 3- 5 years because in government land it is hard to find trees. If replanting would be happening a long time ago there wouldn't be the need to getting worried on tree.

We need to encourage people to plant in their land.

5. Do you know where you could receive those kinds of support now? Where?

Don't know where to get support. Disadvantage, GOB is giving concession to outsiders to harvest these forests. They give concession to big company, and they don't plant back trees

6. What advice could you give us to ensure success of this agroforestry policy?

The laws needs to be fair across the board because of politics its not being fair with everyone..

Planting of fast growing trees salmwood or emory so that there can still be tree and family can have something to sell to the saw mill. The communal land also influences the logging system eg.Conejo, Santa Teresa. They instruct how to do the harvest.

Name: Danny Edwards, Toledo

Contact: _____

**1. Are you interested in a National Policy that promotes agroforestry? Yes, NO
If yes, why?**

Yes

2. What types of trees or tree species would you be interested for your business?

Santa Maria, Nargosta, Emory

Now there is no Mahogany, No cedar, No rosewood because it is hard to find in the forest and it is still in high demand.

3. If and when this Agroforestry Policy would be approved, how could you help in promoting and implementing the policy?

Yes, why not

4. What kinds of support or incentives do you need to expand your business in these products?

To provide seedlings from these forest to plant in commercial plots like rosewood, mahogany and cedar.

5. Do you know where you could receive those kinds of support now? Where?

None, don't know where to get these concessions. And it is expensive to get concession, we spend around 600\$ as deposit and we need to look for the place where we can go and harvest and sometimes we don't get the concession and it is given to someone else.

6. What advice could you give us to ensure success of this agroforestry policy?



None

Name: Juanita Edwards, Toledo

Contact: _____

**1. Are you interested in a National Policy that promotes agroforestry? Yes, NO
If yes, why?**

Yes, I am interested in planting trees. Logging was challenging this year and it is good to have short-term crop like gardening because veggies are expensive to buy vegetables at the market.

Production wise, it was low and forestry was not given to us. Unfortunately, concession is given to those who are politically affiliated, they giving to big concessioners and they give to people who don't have equipment. Forest department don't give people like us who have all the equipment, they tell us we don't qualify.

2. What types of trees or tree species would you be interested for your business?

Santa Maria, nargosta, emory

Ideal timber we need is mahogany, rosewood, cedar, sapodilla, ideal timber because of high value.

3. If and when this Agroforestry Policy would be approved, how could you help in promoting and implementing the policy?

Yes, I would encourage planting. Looking for trees that can be harvested in shorter terms.

4. What kinds of support or incentives do you need to expand your business in these products?

they should do a serious vetting, when they look for organizations to provide seedling. Organization like yaaxche can help to provide seedlings.

The government should give land to people so that they can work the land and plant value tree like mahogany on their land and they can sell the trees.

5. Do you know where you could receive those kinds of support now? Where?

None

6. What advice could you give us to ensure success of this agroforestry policy?

Identify trees suitable for the soil Plant trees that have short term income plant casava, banana and other short-term plant. And create food bank in their agroforestry farm.

Name: ???? , Toledo

Contact: _____

**1. Are you interested in a National Policy that promotes agroforestry? Yes, NO
If yes, why?**

The general idea of forestry should be to harvest trees and plant back what is harvested

2. What types of trees or tree species would you be interested for your business?

Cedar, mahogany ,salm wood, rosewood.



3. If and when this Agroforestry Policy would be approved, how could you help in promoting and implementing the policy?

Yes, it's the best way to go and we can control the harvesting now because if we don't pay the necessary attention now we will not be able to control the harvesting in the future.

Harvesting of trees needs more support they need a proper management plan and GoB needs to get more involved. Sometimes when they harvest they waste the tree trunk. I don't understand why it is illegal for us to go and take out the waste of the tree trunk but it is not illegal for the farmer to burn primary wood in their slash and burn area. It makes no sense at all. The tree trunks that stay there are still good to make added value furniture and they don't allow us to take it out. We need the involvement of the NGOs like the Maya councils to work together and to help control how trees are being harvested. The NGO is not being effective in management of forest. Before we used to see the proper management but now we don't see that any more. Forest department don't want to go in the bush they only want to go into town or wait on the road side to check the lumber.

4. What kinds of support or incentives do you need to expand your business in these products?

Give land to the people and put a condition that they should plant trees in their land. This way we can help with the production of trees.

5. Do you know where you could receive those kinds of support now? Where?

Forestry does not help and assist in the harvesting of wasted trees. No support because forestry does not help us to get lumber or keep lumber in the Toledo district. They sell to big concessioners from Orange Walk. I need to go get lumber for my shop in Cayo and sometimes that lumber comes right from the Toledo District.

6. What advice could you give us to ensure success of this agroforestry policy?

Get everybody involved when a decision is to be made. If a small group of people submit a proposal it may not get the correct action. That is why we need to work together so that they can hear us and like that they don't take advantage of us.

COROZAL

1) Are you interested in a national policy that promotes agroforestry?

a. Why? Mr. Vasquez, San Victor

Yes, I am interested in a national policy that promotes agroforestry because in that way the remains of forests that have not been destroyed will be protected by law and those who do not comply will be penalized.

2) What types of trees or products are of interest for your business?

3) The type of tree or trees species would be interested in planting are the **African mahogany** because its life span is short compare to the mahogany we have in Belize and can contribute to an economy for the country. Also, the **Laurel tree (*Cordia alliodora*)** because this species has been scarce in the region and it is very important because it is a medicinal and commercial plant, especially the fruit.



4) How much of each product could you use very month or year? No info
5)) What kinds of support or incentives do you need to expand your business in these products? The initiative is to have nurseries
6) Do you know where you could receive those kinds of support now? Where? No
7) What advice could you give us to ensure success of this AF policy? Follow up to the project.

1) Are you interested in a national policy that promotes agroforestry? Why? Yes. Can be an extra income
2) What types of trees or products are of interest for your business? Fruit and Mahogany.
3) How much of each product could you use very month or year? No information.
4)) What kinds of support or incentives do you need to expand your business in these products? Re-finance from banks.
5) Do you know where you could receive those kinds of support now? Where? Banks, DFC
6) What advice could you give us to ensure success of this AF policy? Provide incentives.

1) Are you interested in a national policy that promotes agroforestry? a. Why? Mr. Flores, Buena Vista Yes. Can be an extra income.
2) What types of trees or products are of interest for your business? Coconut
3) How much of each product could you use very month or year? No information.
4)) What kinds of support or incentives do you need to expand your business in these products? Finance and information. Capacity building maybe.



<p>5) Do you know where you could receive those kinds of support now? Where? DFC maybe.</p>
<p>6) What advice could you give us to ensure success of this AF policy? Send information.</p>



<p>1) Are you interested in a national policy that promotes agroforestry? a. Why? Yes. Helps the country.</p>
<p>2) What types of trees or products are of interest for your business? Coconut, Mahogany, Fruit trees.</p>
<p>3) How much of each product could you use very month or year? Especially coconut- about a pickup per week.</p>
<p>4)) What kinds of support or incentives do you need to expand your business in these products? Grants.</p>
<p>5) Do you know where you could receive those kinds of support now? Where? Not presently.</p>
<p>6) What advice could you give us to ensure success of this AF policy? Help with finance.</p>

Orange Walk

Name: Martin Avila, OW

Contact:

- Are you interested in a National Policy that promotes agroforestry? Yes, NO
If yes, why?
Yes, AF would produce more timber for my business.
- What types of trees or tree species would you be interested for your business?
Mahogany, Spanish cedar, amapola (same color as mahogany but softer)
- If and when this Agroforestry Policy would be approved, how could you help in promoting and implementing the policy?
Could help to plant, expand market and help people and town to produce more.
- What kinds of support or incentives do you need to expand your business in these products?
Help with capital with low interest rate, then I would buy and sell more lumber.
- Do you know where you could receive those kinds of support now? Where?
Bank has loans, but I have not taken any since 4 years ago. Now I sell and buy all my raw lumber from my own income and savings.
- What advice could you give us to ensure success of this agroforestry policy?



Help the processors, like me, can borrow but at a lower interest rate, and provide training on small business operations.

Name: Francisco Lopez, Lumber yard (and construction materials), Belize District

Contact: 225 4988 or 610 3220

**1. Are you interested in a National Policy that promotes agroforestry? Yes, NO
If yes, why?**

Yes, he love to protect the environment, promote improvement of flora and fauna.

2. What types of trees or tree species would you be interested for your business?

Mahogany, Chechen and Santa Maria

3. If and when this Agroforestry Policy would be approved, how could you help in promoting and implementing the policy?

No idea, started his business lately and he (a Salvadorian) recently came from the USA to help hi nephews.

4. What kinds of support or incentives do you need to expand your business in these products?

Technical support, impact studies of AF on the environment, education on benefits and costs of AF, and investment projects.

5. Do you know where you could receive those kinds of support now? Where?

No, not yet

6. What advice could you give us to ensure success of this agroforestry policy?

That those who participate should contribute with an investment, he is interested in aquaculture with an integrated system, but they need technical training and support.

CAYO

Name: Steven Springfield (Sawmill Owner), Cayo

Contact: _____

**1. Are you interested in a National Policy that promotes agroforestry? Yes, NO
If yes, why?**

Yes, it is a good idea to plant trees but we don't have a big farm to plant trees.

2. What types of trees or tree species would you be interested for your business?

Mahogany,, red tambran, emory, cedar, psalm wood. These plants are good but we don't have a lot any more.



3. If and when this Agroforestry Policy would be approved, how could you help in promoting and implementing the policy?

it is possible because there are many places in farms that you could include trees.

4. What kinds of support or incentives do you need to expand your business in these products?

It is difficult to know.

5. Do you know where you could receive those kinds of support now? Where?

No, we don't have loans anywhere. If we need a loan the community lends us a loan without interest.

6. What advice could you give us to ensure success of this agroforestry policy?

If there is anything the concessioner needs to replant some percentage of what they have harvested because they just take out and they don't put back.

Name: Santa Elena Furniture Gallery (Palma) Furniture and Cabinet maker and Lumber yard

Contact: _____

**1. Are you interested in a National Policy that promotes agroforestry? Yes, NO
If yes, why?**

Yes, I have a farm, I have planted mahogany, cericote and teak plantation including sheep, cattle. I have done some replanting. I have some trees that I use for tree planting. I know and understand the value of tree timber.

I believe that everyone who gets the concession should plant back trees. Replanting should be important and we should have done this along time ago and we wouldn't be in the situation that we are in.

2. What types of trees or tree species would you be interested for your business?

Mahogany, cedar, exotic wood: granadillo, tobillo, hormigillo, purple heart, ciricote, rosewood, black poison wood, beef wood, psalm wood, barbajolote, (cola de coche, red tambran).

Selected hard wood: Santa Maria, Nargosta, my lady, cabbage bark, salam, emory, Juan petch, bullet tree.

3. If and when this Agroforestry Policy would be approved, how could you help in promoting and implementing the policy?

Yes, that would have been done a long time ago and lot of people would have benefited from it but nothing has been done to replant trees.

4. What kinds of support or incentives do you need to expand your business in these products?

Loggin Permit: give permits to those who fulfill the requirements to harvest, and those who will only harvest mature trees (who knows to do wood selection)

GOB should give priority to belizean builders to make furniture for tourism sector like resorts so that the money can stay in the country.

We need to work together as an association, cooperative so that we can unify and promote our product to export to other countries.

5. Do you know where you could receive those kinds of support now? Where?

No support from any institutions

6. What advice could you give us to ensure success of this agroforestry policy?



There are many people who know what to do but some don't have the opportunities to build and to create an alliance so that can have a say in decision making. Give permits to those who are actually in the timber business and know about trees because people are getting concession who don't know anything about harvesting. There is no proper monitoring and evaluation on the ground.

We should also do complete study to evaluate what species can be planted for exportation and what species we can use locally.

Name: Javier Velasquez Furniture Maker

Contact: _____

- 1. Are you interested in a National Policy that promotes agroforestry? Yes, NO
If yes, why?**

Yes, it depends because of the investment and its good to plant trees.

- 2. What types of trees or tree species would you be interested for your business?**

Mahogany, cedar. I mostly buy from Yalbac farms

- 3. If and when this Agroforestry Policy would be approved, how could you help in promoting and implementing the policy?**

Not sure because they have done so many surveys and I feel like all they do is use my and my farm to get help. They gives me false promises, they say they do surveys so that we can get help but I have never gotten any assistance from them.

- 4. What kinds of support or incentives do you need to expand your business in these products?**

Financial incentives- to maintain the farms and to provide reduction in prices for purchasing materials.

- 5. Do you know where you could receive those kinds of support now? Where?**

None, no support from government. Its ugly but that's the truth.

- 6. What advice could you give us to ensure success of this agroforestry policy?**

Name:

Contact: _____

- 1. Are you interested in a National Policy that promotes agroforestry? Yes, NO
If yes, why?**

- 2. What types of trees or tree species would you be interested for your business?**

- 3. If and when this Agroforestry Policy would be approved, how could you help in promoting and implementing the policy?**

- 4. What kinds of support or incentives do you need to expand your business in these products?**

- 5. Do you know where you could receive those kinds of support now? Where?**

- 6. What advice could you give us to ensure success of this agroforestry policy?**



Name: Linda Vista Lumber Yard

Contact: Scott Varro - Manager

- 1. Are you interested in a National Policy that promotes agroforestry? Yes, NO
If yes, why?**

Yes, on the condition that it is not a burden to loggers and wood workers, but long term beneficial to all parties involved.

- 2. What types of trees or tree species would you be interested for your business?**

Various hardwoods would be best, along with mahogany and cedar.

- 3. If and when this Agroforestry Policy would be approved, how could you help in promoting and implementing the policy?**

By simply implementing the recommended policy. It needs to be easy, functional, and beneficial – both long term and short term.

- 4. What kinds of support or incentives do you need to expand your business in these products?**

Don't understand this question... support for agroforestry?

- 5. Do you know where you could receive those kinds of support now? Where?**

No, I don't know...

- 6. What advice could you give us to ensure success of this agroforestry policy?**

Agroforestry is about replanting trees – replacing ones that are harvested/logged. I would recommend Gov(Forestry Dept) have tree nurseries in various locations throughout country, starting seedlings, which loggers can obtain and be required to replant 1 for every tree harvested, or 2. Royalties obtained from timber logged should be sufficient to cover these expenses, if handled carefully and diligently.

This also creates some more jobs.

Loggers should be paid (from funds generated by Royalties of logging) maybe \$1 or \$2 per tree, or this fee may be deducted from Royalties owed Forestry, thus providing further incentive to replant.

Stann Creek

Name: **Husney Coleman**- Furniture Maker

Contact: _____

- 1. Are you interested in a National Policy that promotes agroforestry? Yes, NO
If yes, why?**

Not Sure

- 2. What types of trees or tree species would you be interested for your business?**

Beef wood, Mahogany, Cedar, psalm nargosta



3. If and when this Agroforestry Policy would be approved, how could you help in promoting and implementing the policy?

Yes, I should think so because it will be for our children and maybe children's children.

4. What kinds of support or incentives do you need to expand your business in these products?

Regulate the price for material because the prices for material are too high and we need financial assistance.

5. Do you know where you could receive those kinds of support now? Where?

No support

6. What advice could you give us to ensure success of this agroforestry policy?

Name: **Adolfo Yascal** (Furniture and lumber yard)

Contact: _____

**1. Are you interested in a National Policy that promotes agroforestry? Yes, NO
If yes, why?**

Yes, it is something good because logs are finishing. Some are planting

2. What types of trees or tree species would you be interested for your business?

Mahogany, red tambran, emory, cedar psalm wood. All these materials are good but they don't have a lot.

3. If and when this Agroforestry Policy would be approved, how could you help in promoting and implementing the policy?

Yes, because everybody would want help to have something. Those trees are for the long term and trees can be left there and it will benefit their children's children. Trees don't need a lot of maintenance.

4. What kinds of support or incentives do you need to expand your business in these products?

Assistance from government: project that can help farmers on a longer-term basis, financial assistance to buy what is needed to plant and maintain the plant before they can get a return. We also need seedlings to plant.

Encourage small farmers to plant so that furniture makers can buy from the small farmers.

5. Do you know where you could receive those kinds of support now? Where?

No support.

6. What advice could you give us to ensure success of this agroforestry policy?

Name: **Karim Valeria**- Furniture Maker

Contact: _____

**1. Are you interested in a National Policy that promotes agroforestry? Yes, NO
If yes, why?**

Yes, it is good because concessioners are only cutting and nobody is planting in the forest.

2. What types of trees or tree species would you be interested for your business?

Psalm wood, mahogany, prickly yellow



3. If and when this Agroforestry Policy would be approved, how could you help in promoting and implementing the policy?

Definitely, of course

4. What kinds of support or incentives do you need to expand your business in these products?

Give land to plant these trees and financial support

5. Do you know where you could receive those kinds of support now? Where?

Nobody

6. What advice could you give us to ensure success of this agroforestry policy?

None

Name: **Quincy Coleman** furniture maker.

Contact: _____

**1. Are you interested in a National Policy that promotes agroforestry? Yes, NO
If yes, why?**

Yes, agroforestry is a good idea because it brings a lot of benefits like hold ground water, surface water, it attracts biodiversity and many other benefits.

2. What types of trees or tree species would you be interested for your business?

Mahogany, beef wood, psalm wood, red tambran, prickly yellow

3. If and when this Agroforestry Policy would be approved, how could you help in promoting and implementing the policy?

Yes, of course there should not be no issue with promoting agroforestry policy.

4. What kinds of support or incentives do you need to expand your business in these products?

Financial incentives to help the business so that it can turn into a product that the consumer can buy and it can generate an extra income. For example getting 500\$/year and people will get give it a try and to get into the business and plant trees.

5. Do you know where you could receive those kinds of support now? Where?

None, I don't know

6. What advice could you give us to ensure success of this agroforestry policy?

Investors, Bankers or Credit Union

Corozal

1) Are you interested in a national policy that promotes agroforestry? Why? Investor.... YES... Luis Gongora.....pro to sustainable development
2) Would your institution be interested in investing in AF? How much every year? Yes... unknown
3) If there was strong demand for AF, could you increase the available capital? Yes. yes



4) What kinds of support or incentives do you need to avail more capital for AF? financial
5) Do you know where you could receive those kinds of support now? Where? No
6) What advice could you give us to ensure success of this AF policy? Campaign to inform about the topic and people to be aware.

5. Are you interested in a national policy that promotes agroforestry? Why? Investor, Mr. Cruz Yes. Can have benefits to the country.
6. Would your institution be interested in investing in AF? How much every year? Interested but no info.
7. If there was strong demand for AF, could you increase the available capital? No info.
8. What kinds of support or incentives do you need to avail more capital for AF? Information and capacity building.
9. Do you know where you could receive those kinds of support now? Where? No info.
10. What advice could you give us to ensure success of this AF policy? Inform everyone.

Name: Mrs Yadelí Urbina, General Manager, La Inmaculada Credit Union
Mrs Maritza Gonzalez, Credit Manager; and Mr Rene Ku, Credit Adviser

Contact: yadeliorbina@licubelize.org; 501 223 2358

Date: 10 am, Aug 4, 2010

**1. Are you interested in a National Policy that promotes agroforestry? Yes, NO
If yes, why?**

Yes – we are interested in maximizing benefits for farmers by identifying good opportunities, but we need to be well informed.

2. Would your institution be interested in investing in Agroforestry? How much every year?



Yes. Our loan portfolio is about \$53 million per annum now. Agriculture is about 10% of the total .

3. If there was strong demand for Agroforestry, could you increase the available capital?

Our policy is to invest not more than 20% of our loan portfolio on any one sector of the six we have. So we could be speaking of some \$2.5 M per annum for AF.

4. What kinds of support or incentives do you need to avail more capital for Agroforestry?

We need an enabling environment and regulations. Technical training (training of trainers for us), M&E, showcasing of results so the youth could perceive what they could do with agroforestry.

5. Do you know where you could receive those kinds of support now? Where?

At present, we have good relation with the Dept of Agriculture, have an MoU with Small Business Dev Center of Beltraide, IDB's social entrepreneurship and Eco-micro projects, the Belize Credit Union League network, and the BLPA/CATIE project, and the CABEL/IFAD project. We need to expand our offices, and we are ready to build for more space but authorization to construct is being held back.

6. What advice could you give us to ensure success of this Agroforestry policy?

Legislation is always needed to ensure sound operation (e.g. what assets to take for collateral), need trademark and patents for project development, and work always within the regulations.

Name: Rudolfo Carcamo, Atlantic Bank, Belize City

Contact: rcarcamo@atlabank.com,

Date: Monday, Sept 7, 2020

**1. Are you interested in a National Policy that promotes agroforestry? Yes, NO
If yes, why?**

Yes, for sure we are interested in agroforestry. Currently we are investing about \$1 million in forestry, and agriculture accounts for about 35% of our total loan portfolio. I would love to see ourselves getting involved in this policy which can devise different strategies to favor investment in agroforestry.

2. Would your institution be interested in investing in Agroforestry? How much every year?

Yes, but it would depend on demand. We participate in providing credit resources. The amounts are variable depending on the client being considered.

3. If there was strong demand for Agroforestry, could you increase the available capital?

Of course, the demand is the key factor. And it depends on complementary facilities and improved infrastructure that can make the projects successful.



4. What kinds of support or incentives do you need to avail more capital for Agroforestry?

These are: a) robust infrastructure supporting the investment, b) value systems that connects the whole industry and ensure the success of these investments, and c) this Bank is ready to cooperate and accommodate to World Bank, IDB and other interests and alliances. All of these can be mobilized to avail more capital.

5. Do you know where you could receive those kinds of support now? Where?

We try to partners with other institutions, e.g. training MOUs with Beltraide, Extension Dept of Ministry of Agriculture. We need technical support from Agriculture, Forestry and Industry. We do have good networking with BAHA and Belize Chamber of Commerce and Industry.

6. What advice could you give us to ensure success of this Agroforestry policy?

The policy is a genesis of good projects. However, we need champions and executives with strong will, to drive the strategies, to come alive, to be creative, and to invest in new initiatives. Good strategy to involve other stakeholders such as the banks. For example, the cattle export program kept the banks out, which have an important role to play.

Name: *Franklyn Magloire, DFC*

Contact: *_610-2252*

1. Are you interested in a National Policy that promotes agroforestry? Yes, NO
If yes, why?

Yes. DFC has an Environmental Policy that restricts the use of its resources for funding projects which have adverse impacts on the environment. Given these circumstances, DFC only funds forestry/ logging projects which are cleared by the by the Department of the Environment and Forestry Departments. Agroforestry presents a sustainable way to utilize Belize's natural resources to provide livelihoods for Belize rural poor. This is in line with DFC's mandate to promote economic and social development through development financing. Also, one of DFC's strategic objectives is also to ensure climate resiliency in all its operations including its lending function. Agroforestry is aligned to this strategic objective.

2. Would your institution be interested in investing in Agroforestry? How much every year?

Agroforestry operations are aligned with the corporation's strategic objective of financing environmentally sustainable and climate resilient projects. While no specific budgetary



allocations are assigned to these projects, they can be funded under DFC's productive sector lending operations.

DFC has financed forestry projects in the past (machinery and equipment). Such projects must receive clearance from the DOE and must possess the necessary licenses/ permits for the undertaking. DFC also undertakes environmental and climate impacts assessments for these projects and ensure that mitigation actions are included in its loan covenants.

3. If there was strong demand for Agroforestry, could you increase the available capital?

Yes. DFC's long term objective is to fund projects which promote environmental greening and climate resilience. In order to mobilize financial resources for these programs, DFC is in the process of seeking accreditation to the Green Climate Fund (GCF) as a Direct Access Entity for project in the small and medium and low environmental impact risk categories.

DFC will also utilize its traditional funding partners (CDB, EIB, CDF) to finance such endeavors.

4. What kinds of support or incentives do you need to avail more capital for Agroforestry?

Access to concessionary funding sources. This will require GOB's support through the provision of sovereign guarantees and equity contributions.

5. Do you know where you could receive those kinds of support now? Where?

Traditionally the GOB has always provided sovereign guarantees for DFC's credit lines. DFC envisions that this level of support will continue. Additionally, DFC is currently receiving readiness support from the GOB through the NDA office for assistance with the GCF accreditations process. A gap assessment project has already been funded and concluded, and additional readiness support is being provided for consultancies to address these gaps in order to ready the institution for accreditation.

6. What advice could you give us to ensure success of this Agroforestry policy?

- 1) There must be a definitive implementation plan detailing specific activities, responsibilities and time lines for implementation
- 2) Broad-based stakeholder consultations to ensure collective input into the policy particularly from those segments of the community would will benefit from the policy
- 3) Buy- in and approval at the policy level (GOB) for the policy along with a statement of clear communication of the policy initiatives to all stakeholders.



Other Responses Received

Response of SIRDI to 7 questions received on 17 Sept 2020

1. Are you interested in a National Policy that promotes agroforestry? Yes, NO

If yes, why?

Yes, because it promotes sustainable production systems at all levels and the various industries in Belize which seek to reduce deforestation and degradation of our natural resources and assist in meeting the country's goal in SDG. It will align the different entities or institution in Belize towards achieving the AF policy.

2. What types of trees or tree species would your farmers or your Institute be interested in planting?

- a. Short or annual cycle crops – Beans, Corn, Cucurbits (edible seeds), Water melons, cucumber, Hot pepper, HEMP, Plantains, bananas, Root crops such as coco yams, cassava, ginger and dragon fruit, spices (Annatto, anise, ginger, turmeric, coriander etc.)
- b. Perennial crops - fruit trees: Citrus, coconuts, mangoes, avocados, sour sap, citrus (orange, lime, tangerines), guava, plum, custard apple, mamie, craboo.
- c. Long term – Timber species and species for firewood and house structure, palm trees for landscaping

During the fruit season there is abundance of these fruits in which require to consider the processing and value added component which will allow for improving the quality and provide extra income for the farmers.

3. Where on their farm would they want to plant them? How much land area do you have available?

Harvested area 73,824.8797 acres, the mill has a capacity of 1.3 Million, sugarcane industry is aim for increasing productivity (increasing tons of cane per acre to be competitive) increase tons/acre not all the land will be need for sugarcane production. Approximately 20,000 or more can be allocated for diversification. The fields will be identified according to the Land Use Management of the Sugar Industry.

4. If and when this Agroforestry Policy would be approved, how could your Institute help in promoting and implementing the policy?



SIRD can serve as the technical arm to transfer and disseminate the results and information. Different methodologies can be adopted for transferring the information to the farmers such as Farmer Field School (FFS), field days, demonstration plots, symposiums etc.

A Pilot project to prove and convince the farmers that an Agroforestry policy will be beneficial in improving the soil through green manure as cover crops and crop rotation. The planting of fruit trees, annual crops – for food security. Value adding would become a fundamental component for this program, particularly for production of fruits and annual crops to engage in packaging, processing and most importantly securing export market.

The timber species will provide opportunity for Women and Youth to become participants in the Community Nurseries to support the reforestation and intercropping agro-system.

Moreover, SIRD collaborate with various educational institutions (High School and Sixth form) in which students are directly involved in the overall management of a sugarcane field from establishment up to harvest. Thus, the AF policy can be institutionalized along the same process in which students will be evaluating each of the practices recommended for improving soil fertility, timber species and reduced the expansion of the area under sugarcane production.

Legend (Land Cover)

-  Agriculture
-  Forest
-  Lowland broadleaved wet forest
-  Lowland savanna
-  Mangrove and littoral forest
-  Ocean
-  Sugarcane
-  Urban
-  Water
-  Wetland

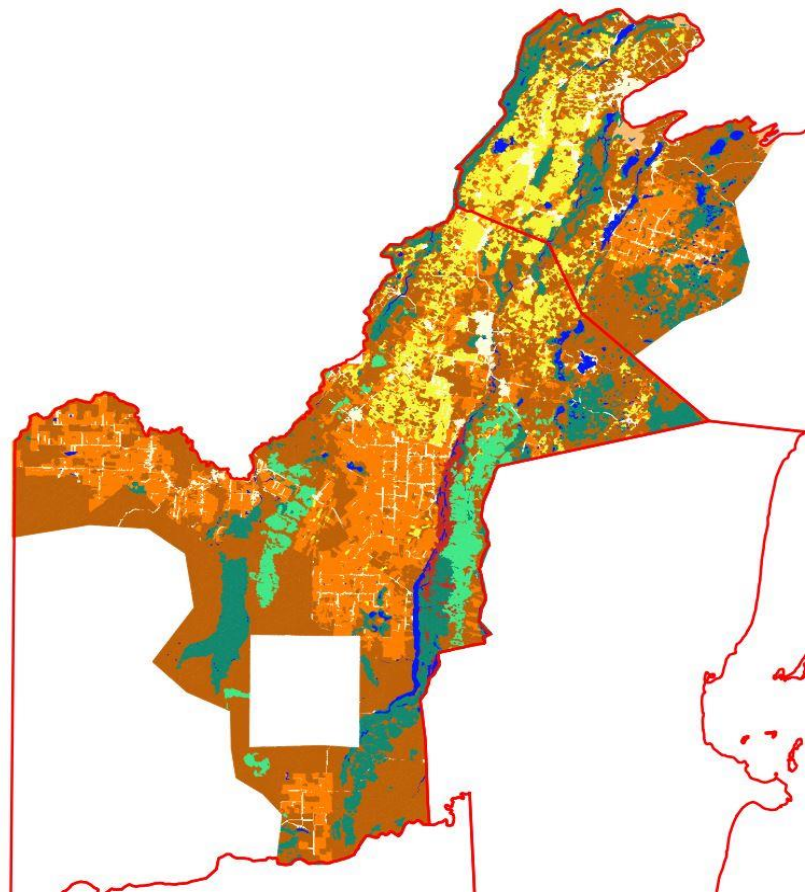




Fig. 1. Land Use / Cover Map of the northern sugar belt

5. What kinds of support or incentives do your farmers need to plant trees and start some Agroforestry practices?

- Financial support – starting capital for pilot project and farmers
- Technical support and guidance- “Know how”- Importance and why adopt agroforestry practices along dissemination of technical knowledge and skills gathered during the implementation.
- Awareness/ Education campaign – pamphlets, flyers, seminars, meetings.
- Planting materials –seedlings and other inputs.
- Based on the soil type to know for what it is suitable for (land use management)
- Land Tenure revision – in order to provide incentive to land owners to maintain forest cover.

6. Do you know where you could receive those kinds of support now? Where?

No

7. What advice could you give us to ensure success of this agroforestry policy?

In principle, agroforestry belongs to all sectors, but in practice, it belongs to none and rarely occupies a special line in a government ministry. It falls between the agriculture, forestry and environment departments, with no ministry taking a lead role in the advancement of agroforestry or its integration. Hence the reason:

- The Ministry of Natural Resources and Forestry Department needs to define their role and responsibilities as mandated by AF policy.
- The Ministry of Agriculture should be directly involved from the inception in order to provide technical support and guidance.

The expected result of the agroforestry policy is dependent on the level of government involvement in providing greater incentives, the level of private investment in agroforestry will be less than socially optimal. A joint collaborative support between the private and public stakeholders to ensure implementation and adoption of the AF policy. The policies should also ensure that monitoring activities are put in place.

At the level of field implementation, where Forestry Departments have a mandate for provision of quality tree germplasm, it needs to work with agricultural and environmental departments in identifying useful species for farms or riparian areas.

Response of Jes Christian Bech, Sept 20, 2020



In relation to interviewing of farmers, I do not get much around to interview farmers these days, but I will try to give an answer, which probably will encompass, what many farmers will say and think.

I do not find the interview questionnaires' very useful, since no farmer will be able to give honest answer to the questions without extensive knowledge of agroforestry systems. It is a bit idealistic and does not relate to concerns of the average farmer.

For a farmer it is all about economy. No doubt that many farmers have an integrated love of the land and concern for the environment, but over the board Belizean farmers and companies farming in Belize range from total ignorance to honest deep concern in relation to how they use land and environment.

One thing counts for all though - does it pay? How much yearly profit per acreage?

The existing Agroforestry projects here in Belize are mainly Permaculture, Food forest and Cacao/vanilla and turmeric production and none of those in present setting are economically attractive.

The Maya farmers depend on family help and do not calculate salaries for themselves - the production is valued in relation to, whether it feeds the family and pay school fees or not.

If salaries were to be paid the economy would be in deficit

Every farmer - whether big or small - faces the daily reality of paying salaries, bank payment and other bills and feed his or her family and ALL decisions are taking in relation to that reality.

So there is a task of convincing farmers that agroforestry can be a good business - and even without going into Agroforestry, that many things in relation to it; is needed in the face of climate change in order to maintain productivity of soil for the already existing productions.

Market - Funding/incentives - increased production levels are key notes.

Many small farmers have lost money, energy and effort in promised markets, which failed – cacao – turmeric – potatoes etc.

For large farming companies there will be different approach than medium and smaller farms and some model should be developed for land use and crop diversification. eg: Large Agro companies like Santander will not see any benefits to their existing production by introducing Agroforestry practices, but the Nation will have an interest in installing certain demands for long term protection of soil fertility and local biodiversity, so here practices like Wildlife corridors, tree covered drains, tree covered property boundaries and x percentage of total acreage left wild will be a must.

Large Belizean land owners, medium and small farmers on the other hand can easier see benefits, but some infrastructure much in relation to market is needed.

Model for land use:

- Private property more than 5 acreage - need to have x amount of wild land left
- Private property above 50 acres- x amount of wild land
- Private property above 100 acres - x amount of wild land
- Private land above 1.000 acres - x amount of wild land and so on



Models for farm land use - this is an example

- Primary cash crop - 40%
- Food for own domestic use – several products 15%
Spill over is sold locally
- 2nd cash crop – can be for exterior market or be one of the vegetables grown for own consumption and looks promising for local market cash crop - 20%
- Long term cash crop – Timber – fruit – firewood etc. 15%
- Wild area 10%

Just an example – combining livestock and Timber – can give a very different picture in acreage use.

It is important to have more than 1 crop for economic security.

Some issues to secure for success

- Carbon credit for leaving wild land for minimum 50 years in areas not demanded by law
- Carbon credit model for integrated regenerative farming – not recognized at the moment
- Funding/incentives for planting of trees – the many small plantations existing already are made from self-made profits
- Incentives for integrating farm crops/livestock with timber production
- Incentives for establishing wildlife corridors
- Incentives for establishing biodiversity strips/ islands favouring increased pest control by birds
- Market for Timber, for Timber from thinning, and for storm damaged timber trees
- Security/affordable insurance for storm damaged Timber plantations
- Network facilitating farmers access to local market
- Network for small farmer products on the international market
- Extensive network of field officers trained in integrated farming
- Workshop and training of farmers
- Low interest loans for investment
- Development of local processing and training in food storage

A main effort should be in changing the livestock production to Silvo pasture, since it has direct easy recognisable benefit to the farmer, environment and national economy with little input or effort. It will need investment funding schemes since that is the main hurdle. Incentives for farming companies to introduce smaller acreage for food production to/by or for employees and local community

This is to be seen as my personal input from my perspective of being farmer, forester and naturalist.

Best regards

Belize National Agro-Forestry Policy
Prepared by Mr. Belarmino Esquivel and Ms. Fay Garnett

Date: 5/10/2020

Comments/Suggestions for the Agro-Forestry Policy



1. In addition to education, training, innovation, and research, the Agro-Forestry policy/strategy should make provisions to **promote/public awareness of the Policy. A “buzz term” must be encouraged** that will encourage ALL Belizeans to identify with the cause and “Get Growing”, especially given that there is also opportunity for Belize to adapt urban Agroforestry.
2. With respect to institutionalization, The **value for integrating tree components** should be promoted among the public and private institutions.
3. The policy should aim to support and **empower men, women, and youths** (Gender inclusiveness - equality and equity).
4. One of the key methods for sustainability of the agroforestry interventions is promoting **participatory research between the various institutions and farmers**. All the work that is done must be systematized.
5. Emphasis must be made for improved management to increase production, productivity and, climate resiliency on land already developed. **Recovery of degraded lands and recovery of existing agroforestry lands**. (conserve/preserve, rescue)
6. Adoption of Agro-Forestry Practices should perceive some level of **direct benefit/incentives to promote and advocate for widespread adoption**. This should be done considering level of production (small medium and large-scale).
7. **A market driven approach to be able to penetrate and access niche markets** for products coming out of Sustainable and productive Agro-Forestry Production systems must be elaborated.
8. In promoting the adaptation of agroforestry practices, the policy must suggest the need for **cost/benefit analysis to demonstrate how the activities can affect income and improve livelihoods**. It would be helpful to also suggest what a possible support system would look like. For example, based on the roles of each institution (MoFA, Forestry, Environment....indicate/propose a **system of how producers can access technical support**.

In summary the Policy should make strong provisions for building **Agro-Forestry production systems that are productive/competitive**, adaptable, and one which mitigates the current vulnerable circumstances of the agro-productive sector due to climate variability.

Annex 4. Agenda of the meeting

National Agroforestry Policy Development Team



Second Meeting (Virtual)

**Wednesday, September 30, 2020
2:00 to 4:00 PM**

Provisional Agenda

Time	Topic	Presenter
2:00 pm	Introductory Remarks	Mr. Colin Mattis, Chair
2:05	Introductions	All Participants
2:10	Review of Minutes	Mr. Colin Mattis
2.15	Presentation on Second draft of the NAF Policy	Dr. M. Avila
3:00	Discussion of main issues	Mr Mattis and All Participants
3:45	National Workshop Proposal	Ms H. Choco-Galindo, CATIE, Belize
3:55	Closing	Mr. Colin Mattis



Annex 5. Minutes of the meeting with the National Agroforestry Development Team

Report of second the National Agroforestry Policy Development Team August 13, 2017 Via: Microsoft Teams

Mr. Colin Mattis gave the welcome address. He presented the agenda for approval. **Annex 4** includes the agenda used for the meeting and time distribution for each item on the agenda. He asked that each member introduced themselves.

Participants and brief comments they made:

- Mr. Colin Mattis (Chair)- Deputy Chief Climate Change Officer, National Climate Change Office
- Mrs. Johanna Noble- Adaptation Officer, National Climate Change Office
- Dr. Marcelino Avila- International Agroforestry Expert, CATIE Consultant
- Mrs. Helen Choco- National Agroforestry Project Coordinator, CATIE
- Mr. Belarmino Esquivel- Principal Agriculture Officer, Ministry of Food and Agriculture
- Ms. Fay Garnett- District Agriculture Coordinator, Ministry of Food and Agriculture
- Mr. Edilberto Romero -Programme for Belize. His work includes working with agroforestry practices.
- Keiyari Romero- Policy Director, Ministry of Natural Resources.
- Ms. Zoe Zetina- Campus Director, Department of Agriculture- University of Belize
- Mr. Francisco Tzul- Lecturer Department of Agriculture- University of Belize
- Ms. Gliselle Marin- Maya Forest Corridor Officer, University of Belize Environmental Research Institute
- Ms. Christina Garcia- Executive Director, Ya'axché Conservation Trust
- Dr. Elma- University of Belize Environmental Research Institute.

Revision minutes of first meeting held on August 13th 2020 via Microsoft Team

Ms. Zoe Zetina said that there needs to be a correction on page 1 from Director of the Faculty of Agriculture to Campus Director, Department of Agriculture and professor needs to change to lecturer, Department of Agriculture.

Ms. Gliselle mentioned that her name needs to be correct from Giselle to Gliselle and include University of Belize of Belize- Environment Research Institute

Mr. Belarmino Esquivel- stated that Ministry of Agriculture is now known as Ministry of Food and Agriculture.

Ms. Gliselle mentioned that there needs to be a correction on page 7 on Dr. Kay's statement from silence to working in solus...



Ms. Gliselle commented on behalf of Dr. Kay that the minutes were too verbatim and she expected the document to have had an executive summary of the meeting.

Mr. Colin then moved on Dr. Avila's Presentation.

Dr. Avila presented on the new version of the Policy and presented chapter 9, a new chapter that was integrated into the policy.

After the presentation concluded a space was open for comments and discussion on the new policy.

Discussion session on the new version of the policy

Zoe Zetina- commented on page 3 it's not the Faculty of Agriculture but the Department of Agriculture and page 21 its not the Faculty of agriculture and natural resources but the Faculty of Science and Technology.

Mr. Francisco Tzul asked a question on selection of beneficiaries

He asked if there will be an established mechanise scheme built in the project that will allow continuity of the project especially for new commers? He states that this is important because in most projects there is no mechanism is built in for the continuity of project.

When selecting the beneficiaries not much attention is given to the criteria established. He recommends that when this criterion is being developed the beneficiaries must be willing to give back to the community so as to encourage continuity of the project.

Dr. Elma Kay states that along in the line of sustainability in terms of the secretariat.

1. Has there been a mapping to determine where is the best place to house this secretariat?
2. How closely are we the consultants paying attention to the ROAM process and workshop in identifying the restoration opportunities for Belize because in that mapping and financial analyses that the Forest Department are doing, have been identifying priorities and priority areas for restoration and a lot of the recommendation for restoration fall right along the line of agroforestry.
3. The ministry of natural resources has sent the final version land degradation neutrality target. Thus, she would like to know if the consultants have had access to it because this can help us with the development of the agroforestry policy.

Edilberto Romero- institution mechanism

Where will this policy be instituted because it will depend on where it will be placed and how will it work in order to draw the attention of stakeholder and to secure a financial budget for the policy because a financial budget is not secured then the policy won't work.



Gliselle Marin commented along the lines of sustainability

When starting up the action plan for the policy it would be interesting to take into consideration Climate SMART Agriculture Prioritization Framework that prioritize appropriate strategy that included agroforestry.

Edilberto Romero added

1. For transition working group, co-chairing between the Ministry of Food and Agriculture and the Forest Department, is not the best way to go due to previous experience because having two leaders at the same often leads to having no leaders at all. He suggests that its better to have one being the chair and one the vice chair, or one chair for an established period of time say two years. Having two co-chair created dependency on each other and nothing gets done.
2. He did not see the species of trees mentioned by Dr. Avila. If the mahogany is species senegalensis, that specie of mahogany is not native to Belize thus, program for Belize wont use or plant trees that are not native to Belize. This is because of the organization's established policy.

Belarmino commented

1. In addition to the council secretariat and institutionality of the AF mechanism to ensure the development and implementation of the policy strategy and action plan, he would like to same formality approach be taken in terms of assigning and designating members of the team to be done when establishing the development and implementation of the policy strategy and action plan. He also added that he would like for the commitment and function of the future working team to be spell out and highlighted in the same manner as how the functions and commitment were highlighted in the **Technical Guideline: National Agroforestry Development Team** when developing the National Agroforestry Development Team.
2. What would be the hook to get farmers change, adopt, adjust, reinvent their production systems more so to adopt agroforestry production technique practices that are sustainable, that are productive and of course that they are withing the competitive edge to make business because at the end of the day it boils down to income and better livelihood. He would like to see highlighted in future or maybe in the strategy and action plan in the bankable proposal to capture investment to create added value in agroforestry and ensure efficient branding in the market.
3. How do we transfer and attract the investment necessary to transform the raw material and put into a geographical indicators for example with silvo-pastoral livestock that would place Belize and Agroforestry in a valuable niche market.

Zoe Zetina and Mr. Tzul



In terms of institutionalization of the policy he suggests that we look at Protected Areas Conservation Trust (PACT) approach on how they institutionalized their organization and they have business kind of approach and maybe they would be a potential body to execute such program.

Dr. Avila's Response

1. Corrections suggested from Ms. Zetina will be corrected
2. Agroforestry Fund is a good idea and it's a good strategy because international organization can account for all the monies spent and its important to have a financial system which can also be elaborated. Setting up the AF fund has the advantage of not only getting finance from donor but it can collect resources from farmers also so that it can be made into a revolving fund. Dr. Avila added that it's very important to note that we need to the GoB to fund at least 20% of implementation of the policy so that international partners would be encouraged to finance the remaining 80% of the project.
3. With respect to the institutionalization of the policy we should ask who would want to commit themselves to these functions of the council secretariat. we have to see how we can propose an institutional home who can carry out these functions and who can get access to these finances so that they can implement this policy because we know that government don't have the resource to implement this policy. Whatever we design or whatever we think we can do will all be predicated on whether we can mobilize resources on whether we can do it.
Ministry of Food and Agriculture along with the Forest Department needs to get involve because they have the people who have expertise in the main components of agroforestry and they also have some research and development capacity. We should include the Universities because their official duty is to educate people at all levels for the development of the country. In the long term its an excellent idea to include the university. We have to create the system so that they can have the resources to implement the policy. We need a minister to take on this policy so as to ensure that there will be an implementation of the policy.
4. We need to get copies from the restoration of committee to see what issues they are dealing with and see if we can piggy back or maybe learn from some of the mechanism they have set in place.
5. We should develop a strategy where we think we can get the support of the government and we have to be well informed of what are their priorities of the new government and we have to demonstrate that if they invest in agroforestry, we can achieve many of the priorities they want to achieve with their administration.
6. Branding is very important and we should look at it in follow up phases; if we can show that we are growing crops, trees and animals in green economy we can have access in many markets but we need to develop the system. IICA can helps us, they are very good at branding these approaches.



Propose National Workshop

Helen discussed the propose agenda for the National Stakeholders Workshop and she mentioned that the objective of this workshop is to consult the draft policy with other important stakeholders and get their feedback.

Helen also asked the team member to give feedback and comment on the proposed agenda.

Colin wouldn't want to accept the agenda as is and would take the agenda as a first draft and we will seek comments on the first draft.

Edilberto Romero suggested that it would be great to have a 5- 10 minutes presentation from the Ministry of Food and the Forest Department.

Colin proceeded to give the closing remarks and encourage everyone to provide feedback and comment on track mode which will be incorporated in the third draft of the Agroforestry Policy.