

Transformation strategy and training plan for:
**BUILDING THE ADAPTIVE CAPACITY OF SUGARCANE
FARMERS IN NORTHERN BELIZE (BAC-SUF)**



Submitted to: Caribbean Community Climate Change Centre
(CCCCC)

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1. Introduction

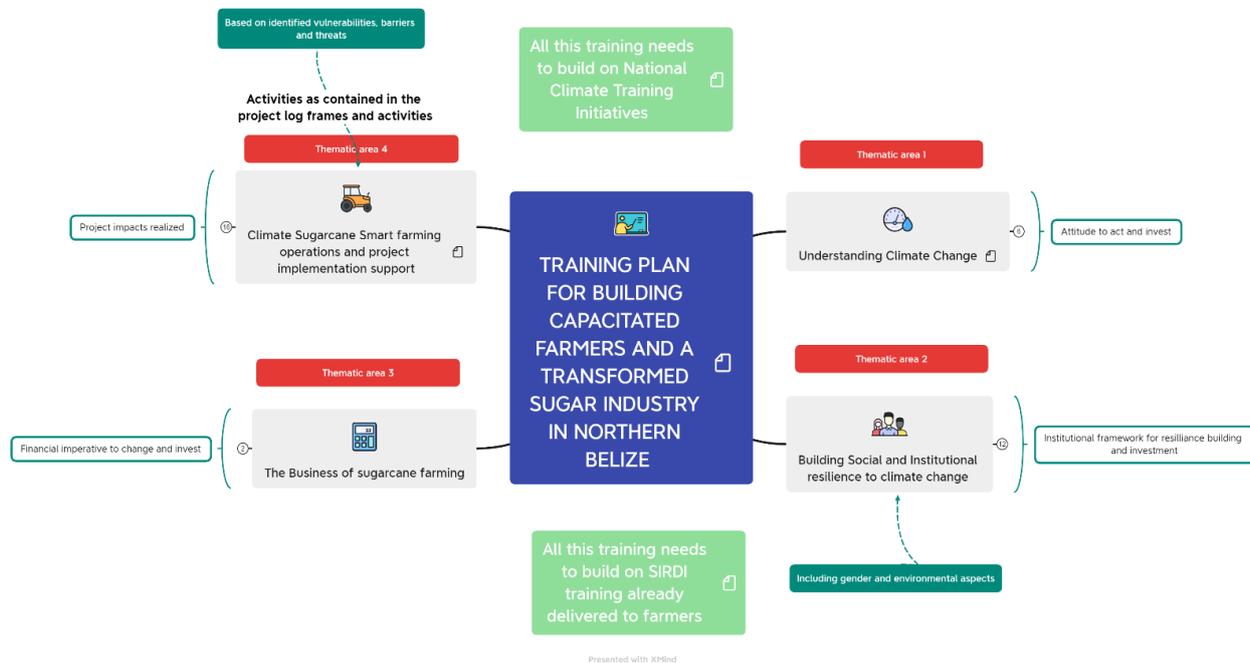
The project design for the project “**Building the Adaptive Capacity of Sugarcane Farmers in Northern Belize (BaC-SuF)**” has been developed to address the physical, financial and institutional aspects of climate vulnerability identified among the sugarcane farmers in northern Belize. The project has been divided into three components. Component one and two look at building physical and financial resilience through the introduction of new climate adapted varieties, replanting and managing the sugarcane crop using climate smart practices and managing moisture through the introduction of irrigation and drainage. Component three has been designed to build the knowledge and knowledge systems to enable the farmers and other industry stakeholders to implement the physical changes in the farming systems envisaged in components one and two but also to transform industry practices and systems to enable the project to realize the transformational and scaling up elements envisaged in the project design and in order to ensure maximum project impact. The transformation strategy and training plan proposed in this note is meant to be the framework for the implementation of this component of the project.

It is important that a holistic approach was adopted when developing the transformation strategy and training plan for the project. Because at a superficial level, the project could be perceived to be about sugarcane and the impact of climate change on the sugarcane crop, the risk could be to develop a narrow transformation strategy and training plan which just focuses on teaching farmers and industry stakeholders about very narrow sugarcane growing aspects and techniques albeit in the context of climate change. This project is however as much about changing people's mindset, behaviour and changing farmer organizations as it is about changing sugarcane growing activities. Therefore, the transformation strategy and training plan needs to include aspects of change management (why do we need to change, do we have the confidence to change, how do we organize for change) and processes leading to new organizational design (to address the vulnerabilities and overcome barriers) alongside the technical aspects regarding sugarcane cultivation in the context of a changing climate.

This transformation strategy and training plan has been developed in conjunction with all industry stakeholders and takes note of all the training that has taken place in the industry to date along with other pieces of work that have been undertaken by the industry to look at transformational pathways. A workshop was held in Belize in April 2022 as part of the consultation process in which stakeholders and farmers attended and where a high-level outline of the strategy and plan was presented and discussed. This report captures some of the principles that were presented at the workshop and gives an idea as to the strategy that should be adopted in undertaking component three of the project. There is however a specific activity in the project design which looks at developing an industry transformation strategy and detailed training plan. It is therefore envisaged that the project implementors should use the principles contained in this report to guide the thinking in developing a full industry transformation strategy and training plan.

2. Overview of the proposed transformation strategy and training plan

The transformation strategy and training plan that is proposed for the project focusses on four thematic areas as seen in the diagram below:



Thematic area 1, Understanding climate change, looks at getting the farmers to understand the impact of climate change on their sugarcane crop and their livelihoods. This thematic area is the call to change and helps farmers understand their vulnerabilities in the context of climate change. Thematic area 2, Building social and institutional resilience to climate change looks at how the farmers can organize themselves to better take advantage of some of the physical changes that need to occur to build resilience in their farming systems and adopt climate smart agricultural practices. Thematic area 3, the business of sugarcane farming looks at the financial and business aspects of farming sugarcane, the financial implications of not acting in the context of a changing climate and the cost benefit of implementing the proposed physical changes brought by the project. Thematic area 4 looks at delivering training in order to ensure that the farmers and other industry stakeholders have the knowledge and skills to implement the physical changes (varieties, irrigation, drainage) as well as the new industry systems (seed cane scheme, contractors, smart sugar cluster) needed to support the project implementation activities.

2.1 Thematic Area 1: Understanding climate change

The key outcome of this thematic area is that the farmers understand what climate change is, the expected impacts of climate change in Belize and on their farming operations and to comprehend their and the sugar industries vulnerabilities to climate change. Once farmers and industry stakeholders have attended this training, they should understand the need and urgency to act and should be willing to invest time and resources in building their resilience to climate change.

Details of the different training interventions from this thematic area can be seen in the diagram below:



Modules in this thematic area should cover the following:

- a) The expected climate change in Belize: this should look at simple concepts of climate change what drives climate change and discuss concepts such as risk, impact and vulnerability.

Session one: talking points 



1. What is climate change?
2. Why should we care about climate change?
3. What is the impact of climate change?
4. What are our vulnerabilities, as farmers in Belize?



- b) Simple techniques should be used in a participatory manner

Timeline exercise: What are the changes you have noticed? 

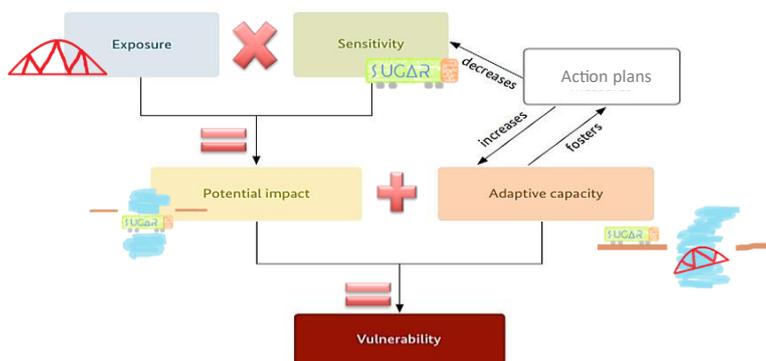
Try to remember what the weather was like 30 years ago.

- What crops did you grow?
- In which months did the rain fall?
- Which were the hot months?
- Which were the cool months?
- How often did you experience extreme weather events (floods, droughts)?



- c) Understanding the crop and industries vulnerability to climate change using simple illustrations

Vulnerability assessment methodology



d) Understanding the concept of building adaptive capacity

Thinking about our adaptive capacity



If we have a healthy **adaptive capacity** we will be better prepared for dealing with our vulnerabilities



If we don't have good **adaptive capacity** we will be overwhelmed by our challenges

e) In a participatory manner use games such as the snakes and ladders game to illustrate the impacts and opportunities to build resilience to climate change.





2.2 Thematic area 2: Building social and institutional resilience to climate change

The outcome from this thematic area will be farmers and stakeholders understanding that building social and organizational resilience is a key element to ensuring overall resilience to the impacts of climate change. The modules in this thematic area should provide some of the social skills needed to begin the process of working together (through a series of trainings collectively referred to as training for transformation) provide the legal and institutional framework for new organizations to form and evolve and provide some of the business criteria relating to organizing differently. Once farmers and stakeholders have understood the need to organize themselves differently the training can then show them options with regards to pathways to change as well as different farmer models.

Why must we change the way we organize ourselves?

MANY OF THE NEW TECHNOLOGIES AND CULTIVATION METHODS PROPOSED ON COMPONENT ONE AND TWO OF THE PROJECT WILL REQUIRE DIFFERENT ORGANIZATIONAL STRUCTURES. FOR EXAMPLE, IF FARMERS WANT TO IRRIGATE, THEY WILL NEED TO WORK CLOSELY TOGETHER TO ENSURE THAT THE EXPENSIVE INFRASTRUCTURE (PUMPS, MAINLINES ETC) ARE OPTIMIZED AND USED BY A NUMBER OF FARMERS. THIS WILL MEAN THEY WILL NEED TO CHOOSE A DIFFERENT OPERATIONAL MODEL IN ORDER TO OPTIMIZE THE USE OF THIS INFRASTRUCTURE

Some Benefits of grouping growers

Harvest Preparations

- o Fire breaks
- o Field inspections
- o Road infrastructure
- o Potential for ripening

Crop Removal

- o Single point of management
- o Equipment in single location
- o Effective carry-over management
- o Growers will know when fields will be harvested

Pest and Disease

- o Easier for P&D committee to visit blocks
- o Remedial action simplified

Operations

- o Better estimates
- o Easier operational planning (weeding, fertilizer, herbicide etc.)
- o Potential for mechanization
- o Potential for Irrigation

Finance

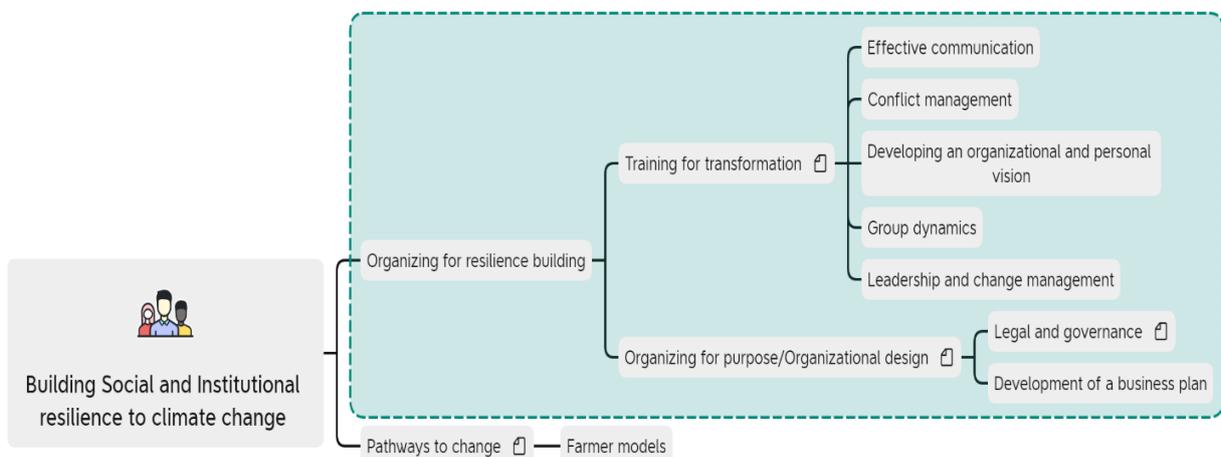
- o Better history of field production and grower performance
- o Credibility with banks

Safety

- o All Machinery and Equipment is focused in known areas



A breakdown of the different modules that will form part of thematic area two are contained in the diagram below:



Presented with XMind

The training for transformation element looks at some of the softer skills needed to ensure people work together in a cohesive unit. These concepts need to be simplified and presented in such a way that they lead to better working together and the development of a common vision. Some examples of the type of training material that could be used are included below:

2.2.1 Communication (example)

TOP 10 COMMUNICATION DON'TS		TOP 10 COMMUNICATION DO'S	
Don't be AGGRESSIVE	Don't JUMP TO CONCLUSIONS	Positive Attitude	Smile!
Don't GOSSIP and SPREAD RUMORS	Don't FIDGET	Show Respect	Show interest and understanding
Don't SWEAR or CALL NAMES	Don't be IMPATIENT	Keep Open Mind	Give other person time to talk.
Don't INTERRUPT	Don't look DISINTERESTED	Clear and Simple	Ask Questions
Don't YAWN	Don't LOOK TIRED or BORED	Listen!	Honest & Sincere

2.2.2 Group formation (example)

GROUP DEVELOPMENT – STAGE 1 - Forming	GROUP DEVELOPMENT – STAGE 2 - Storming
	 <p>The groups starts to set realistic objectives and procedures</p>

2.2.3 Leadership (example)

TRAINING OUTLINE		
<ol style="list-style-type: none"> 1. What Is Leadership 2. Principles Of Leadership 3. Leadership Styles 4. Personal Qualities of a Leader 5. Process of Great Leadership 6. Human Relations 	DEMOCRATIC STYLE 	Sharing the decision-making abilities with members by promoting the interests of the group.
	HANDS OFF STYLE 	A person may be in a leadership position without providing leadership.



Once the soft skills have been taught and people are communicating well, trust the process and each other one can begin the process of training in organizational design and discussing the formation of new legal entities (if applicable) Important in this is to get the farmers to understand the different legal structures available to them, the process of forming these legal structures and then developing an organizational and business plan that will support the operation of these structures. Example of training material that could be used in this process are included below:

WHAT DOES AN ENTITY REQUIRE TO OPERATE EFFECTIVELY? WHAT DOES "GOOD GOVERNANCE" MEAN FOR AN ENTITY?

**Constitution
(rules)**



**Leadership
Group**



Members



Provides rules by which the business is managed and controlled



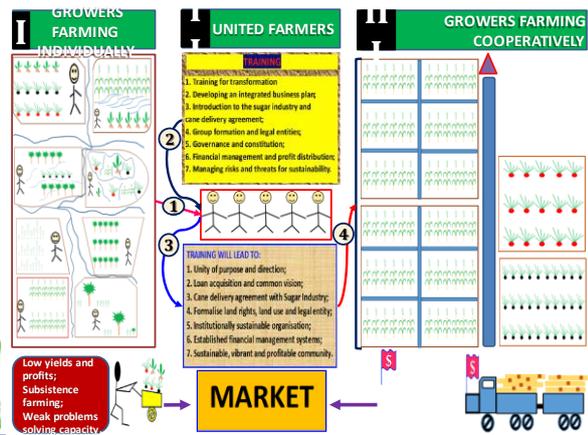
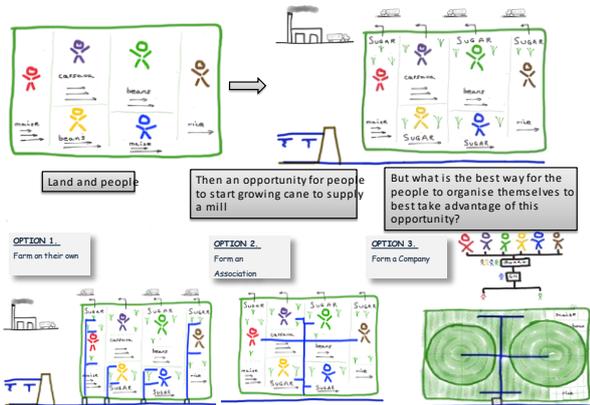
Determines the rights and responsibilities of the entity members



Ensures that decision making rules are aligned with the constitution



THE DEVELOPMENT STORY



OUTGROWER MODELS IMPLICATIONS OF EACH OF THE MODELS

EXISTING OUTGROWER MODELS : WHO DOES WHAT			
MODELS	INDIVIDUAL	SUPPORTED	JOINT
LAND OWNERSHIP	INDIVIDUAL	INDIVIDUAL OR GROUP	GROUP
LAND AGGREGATION & OPERATION	INDIVIDUAL	BOTH	GROUP
CSA CONTRACTING PARTY	INDIVIDUAL	GROUP	GROUP
CANE PAYMENT	INDIVIDUAL	GROUP	GROUP
PROCEEDS TO MEMBERS	INDIVIDUAL	DEPENDING ON LAND SIZE, OR SPLIT EVENLY BETWEEN MEMBERS	SPLIT EVENLY

Profit shared equally (Model1) and Profit shared according to land size (Model-2)

For both models job has to be done, but there are some advantages and disadvantages in those models.

Advantages

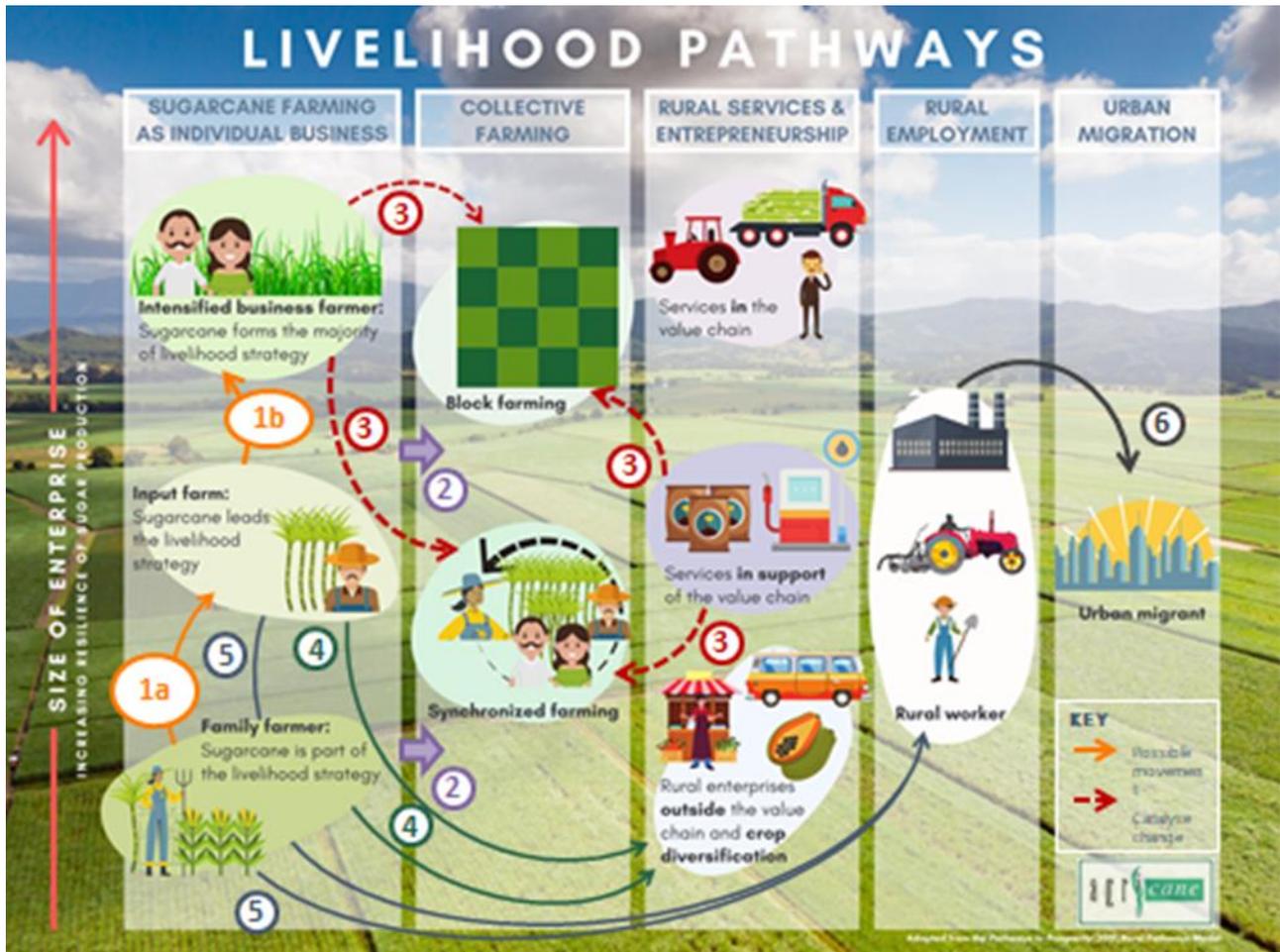
- ✓ The entity pay rental fee of the land to the member;
- ✓ The members also share the risk equally;
- ✓ The members contribute with same amount of production inputs;
- ✓ The income is shared equally;
- ✓ The entity sign the contracts of loan and can supply agreement;

disadvantages

The land that they rent out to the entity maybe, it would be more productive if they farm it.

The training should also provide guidance as to possible pathways that could be taken to develop each of the possible new organizational structures. This is an important step in the process as the project needs to be careful not to be prescriptive in its approach to farmer reorganizing. Farmers and stakeholders need to be guided through the options that are available to them and need to be aware of the mechanisms needed to realize the changes that need to be made and then make the change decision themselves.

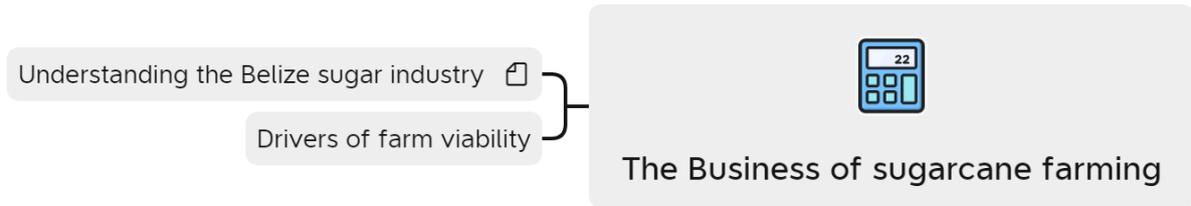
The following framework is proposed to guide the farmers and stakeholders through the pathways available to them:



A full explanation of the theory behind this pathways model along with the drivers and barriers to change can be found in the document "A people centred approach to ensuring resilient farmer livelihoods and reliable cane supply-Changing the sugar production ecosystem to support the introduction of new agricultural technologies in a transformed agricultural state in the sugar industry in Belize" which will need to be read and understood by the project implementors in order to guide the farmers along the different pathways.

2.3 Thematic area 3: The business of sugarcane farming

In order for the farmers and industry stakeholders to make informed change decisions they will need to understand the financial implications of their actions or inactions. The following diagram shows the modules that will need to be presented as part of this thematic area (Some of this training may have already been delivered as part of ongoing training presented to farmers)



Presented with XMind

Understanding the Belize sugar industry provides an overview of the industry, costs and income from an industry perspective along with industry risks and opportunities. This module will allow farmers to understand how they fit into the sugar value chain in Belize and how their action/inaction impacts on the viability of the entire value chain.

Module one outcomes

We will have a clear understanding of:

- The sugar industry in Belize
- Process of sugar production
- How the price is established
- How Good Agricultural Practices undertaken in a climate smart manner can help us to be more efficient, so that we can improve our revenues

What are we farming?

The diagram shows a vertical stack of sugarcane stalks. From top to bottom: cane tops are removed; about 70% is water; about 30% is dry matter, which is further divided into 15% fibre and 15% brix; the brix is further divided into 12.5% sucrose and 2.5% non-sucrose. A vertical arrow on the left indicates that the content of sucrose decreases from the base to the top.

How do we share the proceeds?

The diagram shows three jars of coins. The first jar is labeled 'Sale of Sugar in the market'. The second jar is labeled 'What the grower gets: MCP/Small Producer Organizations (SPOs)' and contains 65% of the coins. The third jar is labeled 'What the mill gets (factory)' and contains 35% of the coins. A plus sign is between the second and third jars, indicating that the grower's share plus the mill's share equals the total sale.

How can we increase our revenue?

We can increase our revenue through these important actions:

Good Agricultural Practices

- Selection of appropriated varieties
- Good land preparation
- Good fertiliser management
- Good pest and disease management
- Good irrigation systems
- Good maintenance of drains
- Good weed control
- Reduce losses in cane quality caused by burn to crush delays

Reduction of Costs:

Applying in-put:

- Right amount
- Correct type
- Optimum time
- Best way to apply



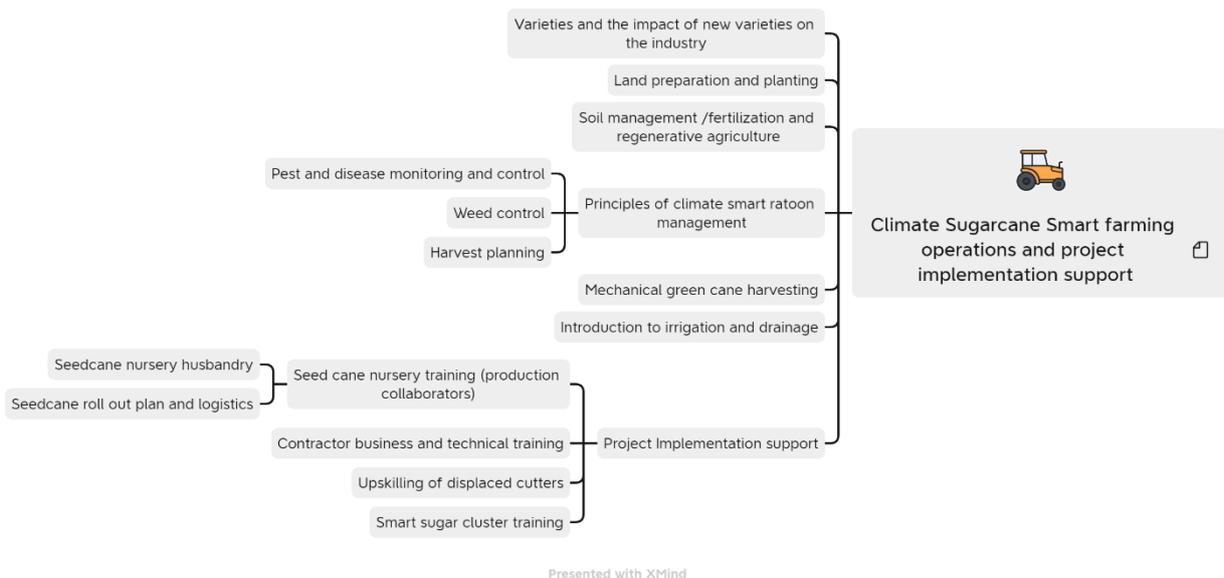
The second module in this thematic area looks at drivers of on-farm viability. This module will assist farmers make investment decisions regarding their farming operations and will shown them the benefits of investing in the climate smart initiatives proposed in the project.

As part of the resource material that has been developed to support project implimentation, an on farm financial model has been developed. This model has been linked to possible climate change scenarios and shows the financial impact of the loss of yield that will be brought about by the impact of climate change.

2.4 Thematic area 4: Climate smart sugarcane farming and project implimentation support

The final thematic area looks at providing project specific knowledge and knowledge systems. That is knowledge needed to implement the project focussing particularly on component 1 and 2.

The following diagram shows the different modules envisaged in this thematic area:





2.5 Transformation and training roll out delivery plan

It is envisaged that the training will be rolled out through a collaborative effort between the Project Management Unit (PMU) and the two project collaborating partners, SIRDI and BSI. Both SIRDI and BSI already have training programs which they deliver to the farmers. It is planned that this training be aligned with this transformation strategy and training plan to ensure the transformation required to support the project activities.

There are a number of funded training activities in the project log frame and budget. The following table lists the preparatory funded activities and explains how these activities relate to this transformation strategy and training plan.

Activity number	Description	Alignment with Transformation strategy and training plan
3.1.2	Development of CSA transformation strategy and training for industry stakeholders	This activity aims to ensure that all stakeholders understand and commit time and resources to the transformation strategy and training plan as contained in this document.
3.2.1	Develop wholistic training strategy and training material to build climate resilience	This activity aims to achieve the following: <ol style="list-style-type: none"> 1. Allocate training roles and responsibilities (PMU, SIRDI, BSI) as per agreed transformation strategy and training plan 2. Plan training roll out and methodology, target audience and timeframe 3. Allocate budget (project and elsewhere) for training roll out 4. Develop training modules and training material

Once this initial training planning has taken place as part of the project implementation, the training can commence.



Other training that has been specifically budgeted for in the project focusses mainly around activities in support of the implementation of component 1 and 2 and includes the following:

	Year 1	Year 2	Year 3-5	
Industry	3.1.2 Development of CSA adaptation strategy and training for industry stakeholders	3.1.2 Development of CSA adaptation strategy and training for industry stakeholders	3.1.2 Development of CSA adaptation strategy and training for industry stakeholders	Industry
Contractors	1.3.2 Identify and train suitable contractors on business practises 1.3.4 Training on Climate Smart Agriculture for replanting	1.3.2 Identify and train suitable contractors on business practises 1.3.4 Training on Climate Smart Agriculture for replanting	1.3.4 Training on Climate Smart Agriculture for replanting	Contractors
Farmers	3.2.1 Develop w holistic training strategy and training material to build climate resilience 3.4.2 Training on acceptable farming models 1.1.2 Farmer seed cane sensitization and training 1.2.2 Training of seed cane nursery collaborators	3.4.2 Training on acceptable farming models 1.1.2 Farmer seed cane sensitization and training 1.2.2 Training of seed cane nursery collaborators 1.4.4 Training for displaced cane cutters 2.2.3 Water management and irrigation scheduling training	3.4.2 Training on acceptable farming models 1.1.2 Farmer seed cane sensitization and training 1.4.4 Training for displaced cane cutters 2.2.3 Water management and irrigation scheduling training	Farmers

2.6 Summary and conclusion

The GCF funded project “**Building the Adaptive Capacity of Sugarcane Farmers in Northern Belize**” has been designed to transform the sugar industry in Belize through the introduction of a number of climate smart agricultural initiatives. In order to ensure that the impact of these initiatives is maximized and all farmers and industry stakeholders benefit from the project investment, the project needs to roll out a comprehensive transformation strategy and supporting training plan. This transformation strategy needs to balance the physical (agricultural and technical) changes that need to be introduced with supporting social and institutional changes. This transformation strategy and training plan will need to be implemented by the project PMU along with all project partners in order to be a success. The project will however be the catalyst which starts the transformation and provides the leadership and drive for change.