

Formulating a civil society agenda for climate change in Tobago

Documenting the process and outcomes of the meetings hosted 24-26 October 2012 to create a civil society agenda for climate change in Tobago

November 2012



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List of Acronyms and Abbreviations

CANARI	Caribbean Natural Resources Institute
CARICOM	Caribbean Community
CSO	Civil Society Organisation
DAMME	Division of Agriculture, Marine Affairs, Marketing and the Environment
DNRE	Department of Natural Resources and the Environment, Tobago
GPS	Global Positioning System
ICTs	Information Communication Technologies
IWCAM	Integrating Watershed and Coastal Area Management project
P3DM	Participatory Three Dimensional Modelling
UNESCO	United Nations Educational Scientific and Cultural Organization
UV	Ultraviolet light

1 Background

1.1 Project background

Caribbean islands are extremely vulnerable to the impacts of climate change. Natural ecosystems play a key role in boosting resilience, but are also susceptible to the negative impacts of climate change.

Livelihoods (see Box 1) based on the use of natural resources are in turn highly vulnerable. Enhancing stakeholders' knowledge of climate change and encouraging their participation in actions that encourage adaptation and improve sustainability are some of the climate change resilience building activities in which CANARI is currently engaged.

In 2011, CANARI piloted a [process of engaging civil society in Saint Lucia](#) to improve their understanding of climate change issues (see Figure 1). This exercise was funded through a grant from the Federal Republic of Germany, administered by the office of the Germany Embassy in Port of Spain.

Participants were guided through an exercise to develop solutions to the climate change impacts that they identified; and ranged from:

1. activities that civil society was already successfully doing;
2. areas of overlap between civil society and Government that provide opportunities for collaboration;
3. areas in which civil society can advocate for the Government to take action; and
4. solutions that Government has the resources and is mandated to execute.



Figure 1: Saint Lucia civil society engaged in group work to map climate change impacts, November 2011

Livelihoods: includes the capabilities, assets and activities required for a means of living. This includes the concept of human well-being and quality of life including, but not limited to, the ability to earn a living in terms of having an adequate salary or generating enough money to cover at least basic needs.

Box 1: Definition of livelihoods, adapted from: [CANARI \(2011\)](#).

From these solutions, CANARI assisted participants in developing a civil society agenda to address climate change. The agenda provided a statement of intent and a roadmap for action for civil society stakeholders.

CANARI facilitated a follow-up half-day event with other stakeholders from Government and the private sector, at which civil society presented its views and plans and encouraged dialogue among stakeholders. This activity proved timely, as Saint Lucia was then engaged in the review of its National Climate Change Policy and Adaptation Plan. One of the main benefits of the exercise was the agreement of civil society to form a coalition to address climate change issues, coordinated by the Saint Lucia National Trust.

CANARI felt it worthwhile to replicate the process to support civil society in other countries of the region so that they can undertake positive and meaningful action in addressing climate change.

Part of the process of developing the agenda in Saint Lucia involved a review of the National Climate Change Policy and Adaptation Plan; it was thus considered strategic to select, for this project, one island from among the three others in the Caribbean Community (CARICOM) that have a national policy and adaptation plan - Dominica, St. Vincent and the Grenadines and Trinidad and Tobago.

Tobago was selected as CANARI was able to leverage on work it conducted in [a recent project](#) on the island that involved the use of participatory Information Communication Technologies (ICTs) to address the impacts of climate change and extreme climatic events in a way that ensured effective participation by local communities and other stakeholders.

One of the ICTs used was participatory three dimensional modelling (P3DM) to develop a physical model of Tobago that allowed for the documentation, sharing and inclusion of traditional and other forms of knowledge on the impacts of climate change and extreme climate events and the policies and actions required for adaptation (see Figure 2).

Other ICTs (participatory video, blogging and social media) complemented knowledge sharing and capacity building of stakeholders.

CANARI felt that hosting the development of the civil society agenda for climate change in Tobago soon after the P3DM exercise was timely. As climate change and its impacts were already discussed during P3DM, the design of the Tobago workshop was therefore adjusted.



Figure 2: Top view of the southwestern end of Tobago in the participatory 3D model developed in September 2012

1.2 Understanding what is expected for Tobago

According to the Climate Change Policy for Trinidad and Tobago, prepared in July 2011, sea level rise, increasing temperature and decreasing rainfall are the key climate change impacts identified for the island republic with the latter two expected to be more extreme for Tobago.

The changes that are predicted to occur as a result of these expected impacts include increased vulnerability in specific sectors such as:

- **agriculture** (decreased yield, desertification of soils and increases in pests and invasive species);
- **human health** (increased vector borne diseases, reduced water supply and loss of food security);
- **human settlements** and infrastructure (flooding);
- **coastal zones** (inundation, erosion, soil salinisation; coral bleaching and ocean acidification affecting fisheries) and;
- **water resources** (reduced due to temperature increase, decreased precipitation and salt water intrusion).

All of the above impacts are expected to be exacerbated by human activities including inappropriate land use and poorly planned physical development and deforestation.

2 **Project goal and objectives**

2.1 Project goal

The **goal** of the project was to enhance the capacity of civil society to participate in decision-making and action to address the negative impacts of climate change on natural resources and natural resource-based livelihoods in Tobago.

2.2 Project objectives

The **objectives** of the project were as follows:

- To enhance the understanding of civil society about climate change, the impacts on natural resources and natural resource-based livelihoods, and potential actions to address this.
- To enhance the awareness and understanding of civil society about what the Government of Trinidad and Tobago officially plans to do to address the impacts of climate change on natural resources and natural resource-based livelihoods.
- To support civil society to develop a plan of action on what they will do to address the impacts of climate change on natural resources and natural resource-based livelihoods.
- To support civil society to communicate their priorities for action to address the impacts of climate change on natural resources and natural resource-based livelihoods to key decision makers in Government.

2.3 Products expected

This report represents one of the products associated with this project. Others include the civil society agenda for action on climate change and related internet based and social media products.

2.4 Expected outcomes

CANARI hoped to deliver the following outcomes through the execution of the project activities:

- Civil society organisations mobilised, energised, and supported to work collaboratively to address the impacts of climate change on natural resources and associated livelihoods.
- Civil society organisations effectively communicating to Government about what are the priorities for climate change adaptation and mitigation and what role civil society can play.

See Appendix 1 for the project concept note.

3 **Methodology**

3.1 Activities

To achieve the objectives outlined above, the following activities were conducted:

Step 1: Interview sessions were conducted by CANARI for stakeholders to discuss climate change impacts, actions being undertaken and actions needed

Step 2: A one-day national workshop was conducted in Tobago:

- a. to briefly review climate change issues
- b. to validate climate change impacts identified by stakeholders during interviews including actions being undertaken and actions needed
- c. to draft a plan of action to address the impacts of climate change on natural resources and associated livelihoods, that is, the civil society agenda for climate change
- d. to examine how to communicate different aspects of the agenda to different stakeholders

Step 3: A half-day presentation to Government stakeholders was facilitated which allowed for discussion, further validation and further identification of gaps. The workshop agenda is detailed in Appendix 2 and a full list of meeting participants for all activities can be found in Appendix 3.

Step 4: Finalisation and dissemination of the civil society agenda to a wide variety of stakeholders.

Step 5: Promotion and dissemination of the agenda using CANARI's website and social media.

3.2 Interview sessions

Interviews were conducted with stakeholders at their locations and via telephone and e-mail communication which solicited responses to a list of questions. CANARI was thus able to rapidly pull together views from a wide variety of civil society stakeholders allowing for more efficient discussions during the workshop session which followed.

During the interviews, especially those conducted face to face, CANARI was able to seek clarification on the responses to the questions listed in Box 2 (at right). Where stakeholders could not meet face to face, they were given the options of responding via telephone or e-mail.

CANARI used the opportunity of the interview sessions to improve the facilitation skills of staff of the Department of Natural Resources and the Environment of Tobago. One officer accompanied each CANARI staff member on the face to face interview sessions.

Notes on interview responses with further comments from workshop participants are detailed in Appendix 4.

What changes in climate have you noticed in Tobago?

Are these changes affecting the way you work/live?

As an organisation: What have you been doing to cope? What do you think you need to do to cope?

What type of action do you think is needed to address the impacts of

Box 2: Interview questions

3.3 Workshop activities

3.3.1 *Day 1: Civil society discussions*

3.3.1.1 *Welcome and background*

Keisha Sandy of CANARI began the workshop and welcomed attendees. She introduced CANARI and then invited participants to briefly introduce themselves to the group.

CANARI then introduced the project's goals, objectives, methodology and expected outcomes as outlined in Section 1, above, and as detailed in the Project Concept Note.

3.3.1.2 *Understanding climate change*

Keisha presented background information on climate change to ensure that all participants understood the definition of climate change clearly, along with the regional projections for temperature and sea level rise. This presentation is provided in Appendix 5. Participants in the workshop were provided with copies of the section of the National Climate Change Policy which pertained to adaptation (Section 9, pages 17-21) to enable them to have an awareness of Government's plans regarding adaptation actions to address climate change

3.3.1.3 Pulling the agenda building blocks together

A series of eight agenda building blocks were used to pull various aspects of the final document together as outlined in Table 1.

Table 1: Civil society agenda building blocks

Agenda building block #1: Mapping impacts	Climate change impacts were captured during the interviews and were reviewed and validated in plenary at workshop. Location information was captured at the workshop using the P3DM model.
Agenda building block #2: Categorising mapped impacts	Categories of impacts identified in the P3DM exercise were adopted and refined during the plenary session of the workshop.
Agenda building block #3: Creating and validating the choice of priority areas for action	
Agenda building block #4: Understanding our stakeholders	The definition of stakeholders was briefly reviewed at the workshop.
Agenda building block #5: Identifying guiding principles	Guiding principles were identified during interviews and were extracted by CANARI. These were presented to workshop participants for validation.
Agenda building block #6: Developing solutions	Solutions were identified at interviews and were verified and added during the workshop. A "solution continuum" was modified for Tobago: <ul style="list-style-type: none"> – what are organisations working on; – what activities they can collaborate on; – what activities can they collaborate with other stakeholders on and; – what they can advocate key stakeholders such as Government to do
Agenda building block #7: Understanding how to craft and communicate the agenda	Workshop participants were led through a simplified process of crafting messages targeting a range of audiences.
Agenda building block #8: Delivering the agenda	Civil society delivered the agenda to mainly Government stakeholders. Government stakeholders were keen to share their concerns regarding gaps in the agenda as well as to clarify and add to issues presented where applicable.

3.3.1.4 Identification of impacts

Hema Seeramsingh of CANARI reviewed the responses to the interview questions and participants were invited to move around the model to identify further impacts, verify and seek clarification on interview responses (see Appendix 6). Impacts identified were grouped under the following main categories:

- Water resources and availability
- Livelihoods
- Biodiversity
- Infrastructure
- Human impacts that exacerbate existing issues
- Food security
- Marine resources
- Land resources
- Financial resources

Interviewees and participants overwhelmingly identified changing weather patterns as a primary climate change impact. This was in keeping with impacts identified in the National Climate Change Policy. Many were able to describe in detail how the changes are being manifested.

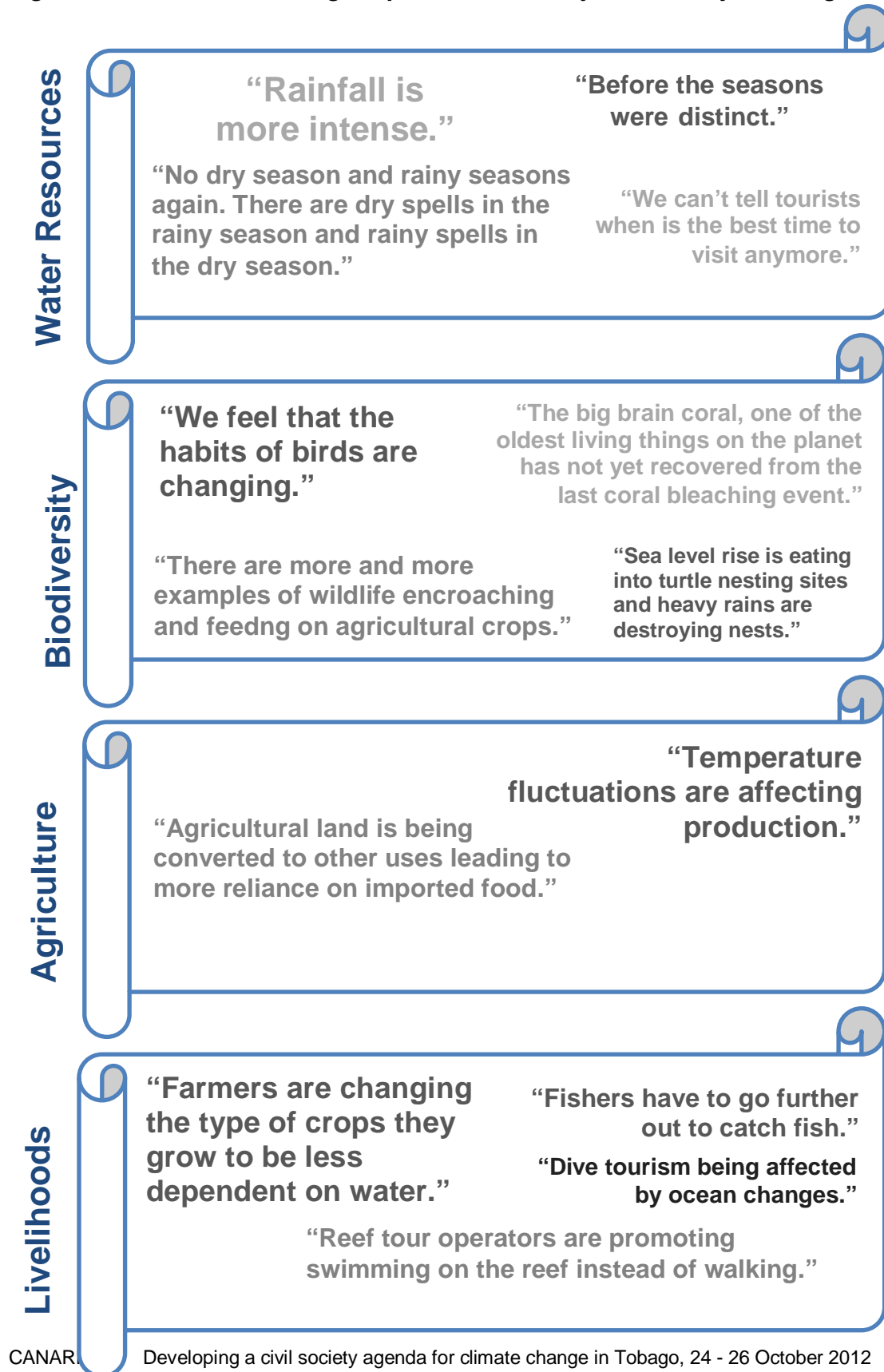
Interviewees and participants felt confident that the changes in biodiversity that they were observing were associated with changing climate.

Several impacts directly affect food security and stakeholders were in agreement about this challenge which is facing Tobago.

In some cases, adjustments to preserve and protect livelihoods that protect the natural resources on which these livelihoods depend seem to already be occurring in Tobago.

Some examples of the impacts observed by civil society are presented in Figure 3.

Figure 3: Some climate change impacts identified by civil society in Tobago



3.3.1.5 Using the model to assist in identifying and validating impacts

Further discussions were facilitated among workshop participants using the model to discuss climate change impacts and related environmental concerns. These additional impacts included:

Land Resources: Excessive runoff coupled with other environmental issues

- Belle Garden community member, Donna Toussaint, used the model to explain current problems due to excessive runoff and flooding from higher upstream areas of the Belle River that runs through the community. This is exacerbated by a poor garbage collection system in which collection bins are sited near water courses and are prone to attack from dogs and chickens. There is also a people factor, in that, persons are not getting their garbage out in time to be collected. Since garbage is entering the water course and in turn reaching the sea, fishermen are forced to go further out to sea to fish. Donna was able to get insight from meeting participants as to how to approach the solution of this problem.

Infrastructure: Poor infrastructure decisions and actions affecting ecosystems

- One participant shared that in Argyle, the coastal road is being undermined. It is believed that sea level rise will further damage the road and other infrastructure on the coast. In one portion that is a wetland area, no bridge or culvert was built so there is no interaction between the wetland and the sea. Part of the wetland area was also being filled in for commercial use. There are many deleterious effects as a result of blocking the natural path between swamp and sea as well as filling in of the wetland. The wetland is a shrimp nursery and replenishment of fisheries stocks will be hampered. It was felt that encroachment will cause the area to dry out and the natural 'sponge effect' of the ecosystem will be lost, leading to more flooding.
- Other participants suggested that DNRE and Environment Tobago collaborate on educating stakeholders to prevent further human actions that will exacerbate climate change impacts.
- Based on photographic evidence collected by Julianna Antoine of Environment Tobago, it is believed that preliminary works to facilitate construction was occurring in the Buccoo Lagoon, an area that *could* be part of the Buccoo Reef Marine Park and the related Ramsar site. Back filling of the wetland was being conducted by Alpha Engineering. Access to the site is restricted, so confirming the true extent of the activities proved difficult. Fish nurseries are expected to be affected. The activity was reported to the authorities through unofficial channels and Julianna was told that it was being investigated. Camille McEachnie, documentary producer for the P3DM exercise, who is also associated with Channel 5 News, asked that Julianna report this story to the newsroom for a follow up feature. Dameka Marshall of DNRE also suggested that a formal complaint be submitted.
- There is a role for civil society to play in monitoring and reporting development. Civil society can include climate change concerns in this process.

Human impacts that exacerbate existing issues: Resource extraction causing downstream effects

- Logging occurring in the Delaford-Speyside area on private property is believed to be causing erosion that can affect the reef in the area. The removal of logs is being done at night, raising suspicions that it may be an illegal act.
- Gravel mining is occurring in Goldsborough and is causing the watercourse to change, leading to flooding and the loss agricultural crops downstream.

Animal migration

- On the edges of the Main Ridge throughout the island, animals are migrating out of the forest . This is believed to be caused by lack of food. Animals are attacking humans in the search for food.

Using the model yielded more thoughts and information that should be captured on the model; these additional thoughts are listed in Appendix 6.

3.3.1.6 Priorities for action

Starting at the P3DM exercise and continuing with the interviews and plenary sessions during the development of the civil society agenda, the following **key sectors** were identified by civil society for consideration when dealing with climate change impacts in Tobago:

1. Food security including marine resources
2. Tourism including dive tourism
3. Infrastructure and utilities
4. Water resources and wetlands issues
5. Forest resources

These priorities will be reflected in the civil society agenda.

3.3.1.7 Guiding principles

Some of the guiding principles emerging from discussions during the development of the agenda included the following:

- Climate change has affected the livelihoods of everyone.
- Civil society wants to engage with Government and other stakeholders such as the private sector on climate change issues to develop a framework for collaboration.
- Tobagonians really should come together to work on climate change and not wait on Government.
- We are doing things that will make climate change and its impacts worse
- Civil society can play a role in monitoring and reporting human actions that can exacerbate climate change impacts



Figure 4: Stakeholders discussing climate change impacts and issues around the P3DM model on the final day of the workshop

3.3.1.8 Solutions

For each sector identified for priority action, solutions were proposed for dealing with climate change impacts, guided by the "solution continuum". As an example, in the food security sector, civil society developed solutions and options that will be included in the final agenda, as outlined in Table 2.

Table 2: Table of solutions using the 'solution continuum' for food security in Tobago

Priority for action: Food security			
What are organisations working on	What activities they can collaborate on	What activities can they collaborate with other stakeholders on	What they can advocate key stakeholders such as Government to do
<ul style="list-style-type: none"> – Anse Fromager, wants to plant crops to support bees – Some farmers are using shade houses to reduce the direct effect of the sun on crops 	<ul style="list-style-type: none"> – We should shred and incorporate tree cuttings and compost into soil which adds nutrients – We need to improve our soil structure to address soil 	<ul style="list-style-type: none"> – Education is needed as people traditionally burn to clear agricultural land and dispose of garbage and this can lead to larger fires – We should promote wildlife farming as the consumption of wild meat is a large part of Tobago's culture and a ready market 	<ul style="list-style-type: none"> – Goldsborough should be preserved and maintained as an agricultural bread basket as a way of protecting Tobago's food security. – Record keeping is important so that farmers can be correctly compensated for crop damage due to extreme

	erosion <ul style="list-style-type: none"> – We can use greenhouses to control the timing of planting 	exists <ul style="list-style-type: none"> – We should think outside of the box to deal with the Cocrico and parrot pests – Reforestation of appropriate species will provide food for animals and people. – Aquaculture should be considered 	events <ul style="list-style-type: none"> – Expert help in educating farmers and fisherfolk in adapting to climate change should be given – Marine protected areas will protect fisheries and other resources – We should invest in fishing gear such as fish finders, GPS and radios to support local fisherfolk
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3.3.1.9 Communication messages

Workshop participants were guided to develop messages to communicate their position to key stakeholders on climate change impacts and proposed solutions. Using as an example the food security sector, civil society identified a few target audiences and messages. For the target group of **Government stakeholders**, a series of messages was developed related to basic support, monitoring, stakeholder consultation, water conservation, proper use of resources and education. These messages are listed in Table 3.

Table 3: Messages to Government stakeholders on climate change impacts on food security

Basic support	<ul style="list-style-type: none"> – Give farmers more incentives to do agriculture by fulfilling promises like fixing roads – Give fisherfolk incentives such as subsidies, rights to facilities as fisherfolk operate on state lands and currently do not have rights to use such
Monitoring	<ul style="list-style-type: none"> – Monitor our existing resources to prevent their further degradation
Stakeholder consultation	<ul style="list-style-type: none"> – Consult with stakeholders in the sector before you make decisions such as building facilities for fisherfolk
Water conservation	<ul style="list-style-type: none"> – Let us reuse our water including grey water and promote rain water harvesting. Enact legislation if necessary
Proper use of resources	<ul style="list-style-type: none"> – Monitor incentives to ensure they are used appropriately. Civil society feels strongly that tax payers' dollars should not be wasted – Stop the destruction and the waste and then add to our resources
Education	<ul style="list-style-type: none"> – Educate people on how to adapt to climate change as a farmer/fisherfolk.

Examples of specific stakeholders in this target are:

- Chief Secretary of the Tobago House of Assembly
- Secretary for the Division of Agriculture, Marine Affairs, Marketing and the Environment
- Minister for Tobago Development

For the target group of civil society stakeholders, some of the messages developed by civil society are listed in Table 4.

Table 4: Messages to civil society stakeholders on food security

Share and learn	<ul style="list-style-type: none"> – We need to have transfer of information from who knows to who does not – Farmers and fisherfolk can educate each other – We can learn from the cocoa farmers who are using <i>len han</i>¹ to support each other during labour shortages to ensure that the crop is not lost – they have approached others beyond the Government for support in order to revive themselves
Say no to handouts	<ul style="list-style-type: none"> – We need to stop the "<i>gimme gimme</i>" attitude
Act	<ul style="list-style-type: none"> – We need to act: for example, farmers can store more water; undertake more mulching; composting
Be environmentally friendly	<ul style="list-style-type: none"> – Fisherfolk should use methods that are more environmentally friendly
Our needs	<ul style="list-style-type: none"> – Strengthen civil society capacity to act and move beyond our low capacity
How to engage other stakeholders	<ul style="list-style-type: none"> – Let's not be confrontational when dealing with the Government

It was further proposed that the above messages can be directed to Tobago Agricultural Society and Farmer and Fisherfolk Groups.

¹ *Len han* is a traditional practice used to solve labour shortages in which persons visit agricultural holdings to assist in crop picking and is reciprocated. It also provides encouragement, advice and skills transfer.

3.3.2 Day 2: Presentation to Government stakeholders

3.3.2.1 Feedback from Government stakeholders

On the final day, Keisha Sandy welcomed attendees and provided an overview of P3DM model, the civil society agenda and the basis for agenda. Civil society participants then presented the agenda to all present. With only 12 participants, half being Government stakeholders, CANARI did not facilitate a planned panel discussion, but opened the floor to general discussions on the draft agenda around the P3DM model. Some of the feedback received is outlined below.

Allan Stewart, Tobago Emergency Management Authority (TEMA) commended and supported the activity but felt that there should be stronger emphasis on the "people sectors", particularly human settlements and infrastructure. He cited an example of a risk analysis which yielded 20 high risk communities in Tobago, and highlighted Charlotteville, which has its 'critical assets' on the coast, and has the highest level of handicapped persons in Tobago that need to be taken care of in case of an emergency. CANARI requested that the location of these communities be included in the P3DM model.

Additionally, he disclosed that the location of telecommunications and electrical infrastructure poses a serious challenge to Tobago in case of an extreme event. His organisation is engaged in mapping resources and hazards at the community level in order to provide each community with a map. This is in response to increasing Government expenditure in responding to hydrological and meteorological hazards which are occurring with increasing frequency. He also suggested that the P3DM model be digitised and shared.

Allan Stewart further cited the need for a **legislative agenda** to help politicians to understand climate change issues as they currently may not have the information to make tough decisions.

William Trim, Assistant Conservator of Forests in Tobago reiterated, using the model, that particular attention needs to be paid to protecting the Main Ridge. It needs to be preserved as much as possible to protect the rivers and water supply. Tobago has been successful in doing so thus far, as there has been very little encroachment.

His department plans to establish rain gauges in the Main Ridge to allow for more accurate data collection on the rainfall in Tobago. When selecting species for reforestation, his department will use species that are found in the Main Ridge, those which are fire and pest resistant and species that are resilient to extreme storms and that have high coppicing character.

With respect to observations by civil society that plants are flowering outside of their normal cycle and in some cases, multiple times per year, he suggested that more research was needed to understand this phenomenon.

A comment that led to dissent among stakeholders concerned the encroachment of wildlife into man-made environments. William Trim felt that the solution to this lay in understanding the migratory patterns for wildlife. It becomes even more necessary to

keep the Main Ridge protected and establish corridors to support migration. Gordon Mitchell of the Wildlife Association of Tobago disagreed and felt that wildlife were being displaced from their natural areas by man's activities.

With respect to the water resources issues that were discussed, increasing sea level rise will lead to salt water intrusion. As a result, there will be more desertification of flat areas; a change in the vegetation profile and the migration of species to higher elevations is expected. While desalination may be an option, William Trim foresees a scenario in which Tobagonians may need to move their homes to higher elevations and will need to dam rivers at a higher level to ensure human needs are met. Rainwater runoff should also be collected and used.

Concerns with fisheries: CANARI questioned the representative of the **Department of Marine Resources and Fisheries** on what was being done to support fisherfolk in addressing climate change impacts. Jenise Kirk stated that the Department has encouraged fishers to form associations across Tobago. She also stated that they have started upgrading fishing centres and landing sites and have provided temporary sites in the interim. Data collection is limited, but she believes that the information collected on fish landings can be misleading as it cannot give an assessment of what quantity of fish stocks exists but can only indicate whether there may be an increase or decrease in populations.

Other stakeholders shared that the location of fish stocks are unknown and that information is not shared for concerns that others may poach stocks. In the face of climate change, most stakeholders felt that such information needs to be shared.

Fishers are believed to be potentially important in the evacuation of communities and can support emergency response. TEMA plans to train 125 fisherfolk and distribute communications equipment for use in emergency. This will complement the supply of radios that was distributed by the Division of Agriculture, Marine Affairs, Marketing and the Environment (DAMME) to fisherfolk to support emergency measures after Hurricanes Ivan and Emily in 2004 and 2005 respectively. Stakeholders discussed the need to boost the capacity of fisherfolk to participate nationally as their roles are important.

Other views: Other stakeholders expressed frustration that there is no synergy at the level of the political directorate, resulting in a lack of collaboration especially on environmental issues.

4 Evaluation

CANARI asked participants to share their thoughts on the value of the meeting. Their responses are noted in Table 5.

Table 5: Evaluation responses

Promoting understanding	– Participants, especially the community stakeholders, felt that the meeting, along with their participation in the P3DM exercise, made them more confident as they
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	<p>understood better how to discuss climate change issues.</p> <ul style="list-style-type: none"> – Participants expressed that through the use of the three dimensional model of Tobago, they were better able to understand climate change linkages and felt that such information should be shared with school children who in turn tend to teach their parents.
Sharing of views	<ul style="list-style-type: none"> – Some participants expressed that the meeting provided the opportunity to hear the points of view of other civil society organisations as well as Government stakeholders and that this was very valuable.
Supporting fellow civil society organisations	<ul style="list-style-type: none"> – Participants valued the ability to share their local concerns with other participants as they obtained input and feedback on how to tackle issues from fellow stakeholders and plan to take action using the suggestions.
Action is needed	<ul style="list-style-type: none"> – It was felt that Tobagonians really should come together to work on climate change and not wait on Government.
The need to share knowledge for better decision making	<ul style="list-style-type: none"> – For Government stakeholders, learning to dialogue with other stakeholders helped to broaden their perspective and was considered eye-opening. They felt that the Government stakeholders mistakenly think that other stakeholders know as much as they do but have realised that this is not the case and that they need to share their knowledge to empower all stakeholders to better manage Tobago resources.

5 Conclusions

The workshop objective of enhancing civil society understanding about climate change, the impacts on natural resources and related livelihoods, and potential solutions was achieved. As stated in the evaluation above, stakeholders felt empowered to discuss and take action on climate change issues.

The solution continuum for civil society identified two sets of opportunities for collaboration within civil society and with other stakeholders such as Government and the private sector; advocacy for state action formed a prominent part of the discussions of solutions to climate change impacts.

CANARI's session on identifying messages, as well as the presentation of the draft agenda to Government stakeholders on the final day, gave civil society a 'taste' of their ability to communicate with other stakeholders. These are empowering opportunities that CANARI can leverage in future work. CANARI and stakeholders agreed that the discussions can yield a document representative of civil society's views.

Participants were reminded that the P3DM model was created by Tobagonians for Tobagonians and they were encouraged to use it to populate and update the impacts of climate change on the island.

Next steps:

- CANARI will support civil society by finalising the plan of action crafted through the agenda document and will share physical copies of the agenda developed with civil society and provide a digital copy on its website

- CANARI will support the communication of the climate change agenda to key decision makers in Government
- CANARI has plans to host two follow up meetings from the P3DM process, to which civil society will be invited to address climate change issues
- CANARI will continue to provide participatory natural resource management support and assistance in networking in climate change related work to all stakeholders.

6 Recommendations and lessons learnt

Turnout at the workshop: CANARI noted the potential for low participation even though stakeholder focus was sharpened post-P3DM; it undertook the initial interview sessions instead of adding an additional workshop day to minimise disruption of attendees normal daily schedules.

However, as the participation at the workshop was still somewhat low, CANARI opted to have only plenary sessions at the workshop. Low participation could have been attributed to the timing of the workshop at the end of the month. Some stakeholders stated that due to the needs of their primary jobs, their time was limited.

CANARI may therefore consider holding workshops earlier in the month in Tobago rather than near month's end.

Capacity for participation: Overall, CANARI has seen the growth in the ability of some stakeholders to participate, capacity which was built from their involvement in P3DM.

CANARI therefore can effectively 'piggyback' projects of similar focus by scheduling these very close together to maintain the momentum of participants in addressing the topics at hand; that said, the Institute also has to be mindful to balance this against the risk of "workshop burnout".

Use of the P3DM model: The value of the model to this project was significant. There was little guess work or extra need to explain some issues and this was evident on the final day during interactions with Government stakeholders.

CANARI can therefore make use of visual aids in communicating with stakeholders both for conveying as well as receiving information, and stimulating discussions.

Interactivity and networking: Interactions and networking opportunities were apparent during the workshop and the presentation to Government stakeholders.

The process for development of the civil society agenda: While the development of the agenda was a valuable activity, it is clear that the experience in Tobago was unique and different to the experience in Saint Lucia. In this regard, replication in different islands should be adjusted to suit the specific needs of stakeholders.

Appendix 1: Project concept note



CONCEPT NOTE

Formulating a civil society agenda on climate change in Tobago

1. Background

In November 2012, CANARI facilitated a three-day workshop with representatives of various stakeholder groups in Saint Lucia to develop a civil society agenda to address climate change. The workshop incorporated discussion which reviewed the National Climate Change Policy and Adaptation Plan which was prepared by the Saint Lucian Government in 2003.

The timely development of this civil society agenda - held during a period of national review of the National Climate Change Policy and Adaptation Plan - enabled civil society representatives to present their views and plans for tackling this global phenomenon to Government officials at a follow-up half-day event, a few days before the start of the 2012 COP in Durban, South Africa.

The agenda document² detailed civil society's commitment to action within and among their organisations, support for Government plans and advocacy for areas of omission/actions not addressed by Government in the National Policy and Adaptation plan. The culminating half-day session yielded clarification of Government's plan for the National Policy update and yielded a commitment of civil society groups to form a coalition to carry their agenda forward through follow-up actions.

The very positive outcomes of this project have encouraged CANARI to replicate the process in other Caribbean islands, to aid civil society groups in considering and identifying the roles, responsibilities and actions that they may undertake to contribute to positive and meaningful action in addressing climate change.

Among the countries of the Caribbean Community (CARICOM), Dominica, St. Vincent and the Grenadines and Trinidad and Tobago join Saint Lucia as being the four states which have both developed and tabled a National Climate Change Policy document in their local parliament. These countries are therefore a step ahead of the other CARICOM states in identifying the action that is to be undertaken at the national level in addressing climate change, in accordance with international standards set through the United Nations Framework Convention on Climate Change (UNFCCC). Therefore,

² <http://www.canari.org/documents/CANARISLUAgendadraft4.pdf>

selection of one of these countries for development of a civil society agenda would be strategic.

There is a strategic opportunity to undertake this process in Tobago, to build on a planned process which will be facilitated by CANARI in September 2012. In early 2012, CANARI secured funding to undertake a project which pilots the use of participatory Information Communication Technologies (ICTs) as a new tool that can be used across the Caribbean islands to facilitate effective participation by local communities and other stakeholders in the identification of general policy priorities, as well as specific policies and actions needed on the ground at the landscape and site level to address the impacts of climate change and extreme climatic events. This tool will allow inclusion of relevant knowledge (including traditional/ indigenous knowledge), increase capacity, facilitate coordination and collaboration across sectors, and build buy-in for implementation of plans for resilience to climate change and extreme climatic events.

This project will facilitate the use of participatory three dimensional modelling (P3DM) in the island of Tobago to document, share and combine traditional and other forms of knowledge on what are the risks from climate change and extreme climate events and what are the adaptation policies and actions required. The project will therefore result in identification of specific priority adaptation measures needed in Tobago.

The P3DM process will be complimented by the use of other ICTs (participatory video, Web 2.0 social media), to facilitate sharing of knowledge at various levels and finally contribute to building the capacity of stakeholders to contribute to the development of island-wide policies for Tobago as a pilot case. A cadre of technical experts from across the region (government, inter-governmental organisations, civil society, and academia) will participate in a training of trainers conducted as part of the pilot in order to catalyse dissemination and use of the tool across the Caribbean islands.

Against this backdrop of training and sharpened focus by stakeholders, the roll-out of the process used in Saint Lucia in 2011 to facilitate civil society dialogue on climate change impacts and positive action on adaptation is a timely intervention.

2. Problem analysis

The core problem the project will address is that development and implementation of policy to address the impacts of climate change and extreme climatic events has been largely without the effective engagement of civil society and local communities, from which useful traditional knowledge exists and much of the action will need to be taken.

The effect is that policy responses in the Caribbean have largely been at the general policy level, with few specific policies or plans developed to address priorities at the landscape or site level. Sectoral considerations or traditional knowledge have not been adequately considered, civil society and local community stakeholders are not effectively engaged, and there has been little on the ground action to build resilience or to “climate proof” key sectors such as tourism and agriculture.

There are several root problems that are contributing to this including that:

- Land use and development planning do not effectively involve or integrate the concerns of government, private sector/developers and local communities into decision making.
- There is a weak culture of, knowledge of relevant tools, capacity and enabling institutional environment for facilitating participatory approaches to development.
- Development and risk management efforts are fragmented and uncoordinated across sectors.
- The impacts of climate change and extreme climatic events and responses needed are poorly understood by stakeholders.
- Communities are not aware of the need for and do not feel empowered to participate in community-based planning to respond to the impacts of climate change and extreme climatic events.

3. Target Audiences

Participants will be drawn from civil society in Tobago, comprising: non-governmental organisations (NGOs); community-based organisations (CBOs) - including those who have participated in the P3DM project managed by CANARI in the island; interested individuals; media; and academia engaged in issues involved in livelihoods and the management of natural resources.

Secondary target audiences will be representatives of government agencies, private sector companies, and technical assistance / donor agencies whose work primarily focuses on or potentially can support adaptation efforts in Tobago.

4. Target Country

The target country is Trinidad and Tobago, specifically the island of Tobago.

5. Project Duration

This project will take place over the period of five months

6. Overarching Goal

To build the capacity of civil society in Tobago to participate in decision-making and action to address the negative impacts of climate change on natural resources and associated livelihoods.

7. Objectives

- To enhance the understanding of civil society about climate change, the impacts on natural resources and associated livelihoods, and potential actions to address this.
- To enhance the awareness and understanding of civil society about what the Government of Trinidad and Tobago officially plans to do to address the impacts of climate change on natural resources and associated livelihoods.
- To support civil society to develop a plan of action on what they will do to address the impacts of climate change on natural resources and associated livelihoods.

- To support civil society to identify and communicate priorities for action to address the impacts of climate change on natural resources and associated livelihoods.

8. Methodology/approach

The project is designed to implement several strategies key to its success:

- **increasing knowledge and understanding** about climate change and its impacts on natural resources and associated livelihoods in Tobago in civil society;
- **building the capacity of civil society to assume a role** in decision making to address the impacts of climate change on natural resources and associated livelihoods;
- **strengthening civil society voice** so that the government will recognise and value their input in decision making to address the impacts of climate change on natural resources and associated livelihoods.

9. Indicative activities and budget

This project has three main activities.

- 1) The **proposal development and project management** component will include planning meetings and organizing and managing resources to support the activities under the project.
- 2) A **3 day national workshop** will be held in Tobago, to enhance understanding and awareness about climate change and to draft a plan of action to address the impacts of climate change on natural resources and associated livelihoods.
- 3) The final component, **“Preparation of “civil society’s agenda” and sharing of lessons learned and experiences”**, will entail the preparation and dissemination of 8-page civil society agenda, hosting of a discussion forum on the development of the agenda on CANARI’s Facebook page, posting YouTube videos and hosting a project page on CANARI’s website.

Support financing will be obtained under the CTA P3DM project (workshop logistics and materials), in-kind support from the Tobago House of Assembly (workshop venue) and CANARI (graphic design, printing and dissemination of agenda document) in the execution of this project.

10. Outputs

- **Report on 3 day workshop** summarising the findings and documenting the approach and lessons learned.
- **Civil society agenda for action on climate change** (8-page document, graphic designed and printed) describing what is at stake, identifying the need for a civil society agenda on climate change, detailing priorities, indicating key interests and proposing roles that civil society could assume to drive the implementation of the plan.
- **Facebook discussion** to contribute to sharing of lessons learned and experiences among workshop participants and the wider Caribbean on the process of developing the civil society agenda.
- **YouTube videos** to document and share experiences and lessons learned about developing a plan of action to address the impacts of climate change on natural resources and associated livelihoods.

- **Media releases** to the general public in Trinidad and Tobago and for CANARI's website to advise the public about the development of the civil society's agenda on climate change.
- **Project webpage** on CANARI's website to contribute to sharing of lessons learned and experiences among civil society organizations in Trinidad and Tobago and the wider Caribbean.

11. Outcomes

- Civil society organisations mobilised, energised, and supported to work collaboratively to address the impacts of climate change on natural resources and associated livelihoods.
- Civil society organisations effectively communicating to government about what are the priorities for climate change adaptation and mitigation and what role civil society can play.

12. Implementing Organisation

The Caribbean Natural Resources Institute (CANARI) is a regional non-profit organisation dedicated to working at multiple levels to develop, test, promote and support local, national and regional efforts aimed at improving the management of natural resources and the livelihoods of those who depend on them, through inclusive, participatory approaches. CANARI's mission is promoting and facilitating equitable participation and effective collaboration in the management of natural resources critical to development in the Caribbean islands, so that people will have a better quality of life and natural resources will be conserved, through action learning and research, capacity building and fostering partnerships. Its geographic focus is the islands of the Caribbean, including all independent countries as well as the dependent territories of France, the Netherlands, the United Kingdom and the United States.

CANARI currently has an annual budget of approximately US \$1.5 M which is financed principally through grants (approximately 80%) and provision of technical assistance to government agencies and other civil society organizations (approximately 20%).

CANARI has 501(c) status in the United States as well as charitable status in Trinidad and Tobago. The legal governing body is a regional Board of Directors. Elected Board members hold the positions of Chair, Treasurer and Secretary.

CANARI has extensive experience working on participatory forest management and has been awarded in 2009 the John D. and Catherine T. MacArthur Foundation prestigious Award for Creative and Effective Institutions for CANARI's exceptional contribution to biodiversity conservation in the Caribbean.

Appendix 2: Workshop Agenda

Developing a Civil Society Agenda for Climate Change



CARIBBEAN NATURAL RESOURCES INSTITUTE

Fernandes Industrial Centre • Administration Building • Eastern Main Rd. • Laventille • Trinidad W.I.
Tel: (868) 626 6062 • Fax: (868) 626 1788 • Email: info@canari.org • Website: www.canari.org

National workshop

24 - 26 October 2012

Blenheim Sheep Multiplication and Breeding Centre, Blenheim. Tobago

Goal

To enhance the capacity of civil society to participate in decision-making and action to address the negative impacts of climate change on natural resources and natural resource-based livelihoods in Tobago.

Objectives

- To enhance the understanding of civil society about climate change, the impacts on natural resources and natural resource-based livelihoods, and potential actions to address this.
- To enhance the awareness and understanding of civil society about what the Government of Trinidad and Tobago officially plans to do to address the impacts of climate change on natural resources and natural resource-based livelihoods.
- To support civil society to develop a plan of action on what they will do to address the impacts of climate change on natural resources and natural resource-based livelihoods.
- To support civil society to communicate their priorities for action to address the impacts of climate change on natural resources and natural resource-based livelihoods to key decision makers in Government.

Agenda

24th October 2012: Gathering the views

9:00 a.m. - 4:00 p.m.	Series of interview sessions held across the island of Tobago
-----------------------	---------------------------------------------------------------

25th October 2012: Collating and discussing civil society's perspectives and developing the agenda

9:00 a.m.	Introductions and outline of the project and introduction to the model of Tobago developed
9:30 a.m.	Climate change - What is it? What does it mean for the Caribbean?
9:45 a.m.	What the P3DM Tobago exercise revealed: <ul style="list-style-type: none"> • What climate change trends are already being observed in Tobago? • How are these impacting on the resources of Tobago?

	<ul style="list-style-type: none"> • What adaptation measures are taking place or are proposed?
10:30 a.m.	Break
10:45 a.m.	<p>A deeper analysis of climate change impacts and adaptation measures needed for Tobago:</p> <ul style="list-style-type: none"> • What needs to be done on the ground? • What are the institutional (policies, plans, structures) changes needed? - identification of specific vulnerable resources, areas and communities using the model
12:00 p.m.	<p>Analysing the role of stakeholders in Tobago in climate change adaptation</p> <ul style="list-style-type: none"> • Identifying key stakeholders and analysing their rights/responsibilities/interests and capacity for action • Identifying roles of civil society vs. areas where civil society needs to advocate for action by others • Identifying target groups and key messages generate as a table (give examples)
12:30 p.m.	Lunch
1:30 p.m.	<p>Planning to communicate:</p> <ul style="list-style-type: none"> • Identifying roles of civil society vs. areas where civil society needs to advocate for action by others • Identifying target groups and key messages
2:30 p.m.	<p>Assembling the draft civil society agenda by identifying:</p> <ul style="list-style-type: none"> • key sectors • resources being impacted • priority locations
3:15 p.m.	Planning communication of the document
3:30 p.m.	Assignment of roles for the presentation to Government stakeholders
3:45 p.m. - 4:00 p.m.	Evaluation and Wrap up

26th October: Presenting and discussing the civil society agenda

9:00 a.m.	Introduction
9:10 a.m.	Presentation of agenda by civil society representatives
9:50 a.m.	Break
10:00 a.m.	Panel discussion
11:00 a.m.	Open floor for audience feedback
11:15 a.m.	Wrap up and next steps
11:30 a.m.	Vote of thanks and invitation to view model of Tobago
12 noon	Lunch

Appendix 3: Participants and Record of Participation

Name	Contact Information	Interviews	Meeting	Presentation to Government Stakeholders
Allan Stewart	Tobago Emergency Management Agency Fairfield Complex, Bacolet Street, Scarborough, Tobago 660-7489 / 660-7657 nematobago@gmail.com allanstewart42@gmail.com			✓
Barry Lovelace	Former mentor of Speyside Eco-Marine Park Rangers	✓	✓	
"Big Dougie"	Association of Tobago Dive Operators P.O. Box 402, Scarborough, Tobago getinfo@tobagoscuba diving.com	✓		
Brian Bain	Belle Garden Wetland Association Main Road, Belle Garden, Tobago 395-1402 originaldagger@yahoo.com	✓		✓
Brian Dyer	Hunters Association	✓		
Camille McEachnie	Channel 5			✓
Charles James	All Tobago Fisherfolk Association and Trinidad and Tobago Unified Fisherfolk Whim, Tobago 776-0209 Jamesnew22@yahoo.com	✓	✓	✓
Dalia O'Neil	Betsy's Hope Village Council	✓		
Donna Toussaint	Belle Garden Village Council Belle Garden, Tobago	✓	✓	✓
Pastor Ein Kirk	Adventist Disaster Relief Association	✓	✓	✓
Giancarlo Lalsingh	Save our Sea Turtles Tobago 125 Black Rock Main Road, Black Rock, Tobago 290-3797 info@sos-tobago.org	✓		
Gordon Mitchell	Wildlife Association of Tobago Joefield Trace, Sherwood Park, Tobago 680-6962 tobagomitch@yahoo.com			✓
Harris MacDonald	President, Tobago Certified Tour Guide Association 759-0170 harris_jungle@hotmail.com	✓		
Jenise Kirk	Department of Marine Resources and Fisheries			✓

	Montessori Drive, Glen Road, Tobago 639-4446 / 776-6778 dmrf2010@gmail.com			
Julianna Antoine	Environment Tobago 11 Cuyler Street, Uptown Scarborough 660-7462 / 660-7467 envirtob@tstt.net.tt		✓	
Ken Sardinha representing Alison Sardinha	President, Tobago Bed and Breakfast Association Sandy's Bed & Breakfast, 5 Robinson Street, Scarborough. 639-2737 / 660-7748 / 352-8662 sandy@tobagobluecrab.com kensardinha@yahoo.com	✓		
Kevin Francis	Division of Agriculture Tobago House of Assembly, Tobago 344-1797			✓
Krystal Bascombe	Roxborough Police Youth Club 24 Bloody Bay Road, Roxborough 660-5109 / 660-5357 / 750-2727	✓		
Laura Williams	Anse Fromager Environmental Protection Organisation PO 133, Scarborough, Tobago 380-6171 ansefromagercamp@gmail.com	✓	✓	
Lyris Walker	Anse Fromager Environmental Protection Organisation Castara, Tobago 733-4005			✓
Orwin Dillon	President of Tobago Agricultural Society Smithfield Road, Scarborough, Tobago 639-2432 / 290-9479	✓		
Pat Turpin	Environment Tobago 11 Cuyler Street, Uptown Scarborough 660-7462 / 660-7467 envirtob@tstt.net.tt	✓		
Ron-Jerome Williams	Town and Country Planning Division Castries Street, Scarborough, Tobago 639-2663			✓
Shirley McKenna	Hoteliers Association Apt 1, Lambeau Credit Union Building, Auchenskeoch Road, Carnbee, P.O. Box 295, Scarborough 639-9543 thta@tstt.net.tt	✓		
Terrence Sandiford	President, Wildlife Association of Tobago 639-6275 / 359-6337 sandi.ford@hotmail.com	✓		
Veslin Alleyne Wright	Anse Fromager Environmental Protection Organisation Moriah, Tobago 317-6945			✓

William Trim	Assistant Conservator of Forests Department of Natural Resources and the Environment Tobago House of Assembly, Tobago 326-4364 trim200310@gmail.com			✓
Facilitators				
Darren Daly	Department of Natural Resources and the Environment, Tobago House of Assembly Montessori Drive, Glen Road, Tobago 639-2273 / 381-6908			
Dameka Marshall	Department of Natural Resources and the Environment, Tobago House of Assembly Montessori Drive, Glen Road, Tobago 639-2273 / 381-6908			
Keisha Sandy	Technical Officer CANARI, Bldg 7 Fernandes Business Centre, Laventille, Trinidad 626-6062 keisha@canari.org			
Hema Seeramsingh	Consultant hseeramsingh@gmail.com			

Appendix 4: Interview and workshop responses

What changes in climate have you noticed in Tobago? Are these affecting the way you work?

Effects and Impacts	Resources identified
<p>RAINFALL AND WEATHER</p> <ul style="list-style-type: none"> – Weather patterns have changed – We no longer have definite seasons – Rainfall pattern has changed – Before the seasons were distinct – no longer that way – No dry season and rainy seasons again – dry spells in rainy season and rainy spells in dry season – Rainfall is more intense – Shorter spells - shhours of rain instead of days of rain – We can't tell tourists what's the best time to visit Tobago – Drying signal for the region – Unusually high temperature – Construction schedules affected due to unpredictable weather – Intense rainfall leading to quicker erosion all the way to the sea – More rains in the mountains causing increasing flash floods in Argyle waterfall and also in Delaford – We believe that underground aquifers are not being recharged – We don't have enough water for people to use – People are stressed 	<ul style="list-style-type: none"> – Water resources/availability
<p>BIODIVERSITY</p> <ul style="list-style-type: none"> – Traditionally, it is believed that if you stack dead corals in the warmer areas of the reef, this can act as a breakwater to protect the rest of the reef – Reef tour operators are timing the reef tours to promote swimming not walking on the reef – The big brain coral, one of the oldest living things in the world³ has not fully recovered – Wildlife is encroaching and feeding on agricultural crops: swarms of parrots in Goldsborough are attacking oranges; squirrels are attacking coconuts and the agouti is eating cassava and other root crops – We believe that the predominant bird species at the rain forest periphery has changed possibly due to lack of food, for example, the the mot mot and some types of humming birds are not as prevalent – Insects such as the "may bee" used to be prevalent in large quantities once the rain starts but this is no longer the case; same applies to fireflies – Climate Change is affecting growth of the cabbage palm which is where parrots live; the palms fall over and the parrots are looking for other areas to lay – Seaweed is proliferating on the beaches in Charlotteville and the entire coastline 	<ul style="list-style-type: none"> – Biodiversity for food – Food as a resource – Livelihoods

³ See more information on the big brain coral at:
<http://www.cnn.com/2010/WORLD/americas/07/26/eco.oldest.living.things/index.html>

<ul style="list-style-type: none"> - Grass is drier so there are more fires - Increase in temperature has an effect on sea turtle populations as elevated nest temperatures will affect the sex of developing turtles and a change in the ratio of males to females 	
<p>LAND BASED EROSION/ COASTAL EROSION/ ENCROACHMENT BY THE SEA / FLOODING</p> <ul style="list-style-type: none"> - Encroachment by the sea onto the land is happening in Lambeau, Lowlands, Argyle, Pigeon Point (Swallows Point) and Roseau Bay; this is being exacerbated by construction on the coast. - Deterioration of beaches is occurring and natural beach replenishment is not happening on schedule; added to this we are mining our beaches - There is visual evidence of erosion - trees on the waterline - in Goldsborough and Bacolet - Streams, rivers and waterfalls are drying up such as in the Courland River, Kings Bay Waterfall, however manmade factors also contribute to these impacts - Heavy rains are leading to more soil erosion and washing more mud into the sea - Flooding in Renaissance in Roxborough is affecting infrastructure - Landslides are occurring in Betsy's Hope, Delaford and Speyside; not much rain is needed for these to occur - Topography of land has changed for example in Mason Hall and the Courland River rainforest tributaries; rivers are widening and not meandering as much (due to more intense and unpredictable rain: also due to removal of trees) 	<ul style="list-style-type: none"> - Land Resources - Infrastructure - Human Impacts Exacerbating existing issues
<p>AGRICULTURE</p> <ul style="list-style-type: none"> - Inconsistent weather is affecting planting as most varieties are EITHER dry season OR rainy season varieties - Temperature fluctuations are affecting production - The flowering of fruit trees is being affected leading to less honey production - Some years - no citrus fruits were produced - There are changes in the way woodland trees are flowering as well - Farmers have been changing the types of crops that they grow - they are shifting away from crops that need a lot of water 	<ul style="list-style-type: none"> - Food Security
<p>FINANCIAL/ ECONOMIC / HUMAN</p> <ul style="list-style-type: none"> - The cost of living is going up - Agricultural land is being converted to other uses leading to more reliance on imported food. - Government has changed the financial year to account for the change in rainfall patterns - Heat; electricity goes very regularly and slows down productivity; affects social life as people are not outdoors as much as before 	<ul style="list-style-type: none"> - Financial Resources - Food security - Planning cycles - Quality of life
<p>FISHERIES</p> <ul style="list-style-type: none"> - Heating up of the ocean - has caused problems to fisheries - Fishing further out - Fish is scarce and costly 	<ul style="list-style-type: none"> - Marine Resources
<p>MARINE RESOURCES</p> <ul style="list-style-type: none"> - Speyside's reefs: bleaching happened and is now recovering and was due to rise in sea temperature and acidification of the ocean 	<ul style="list-style-type: none"> - Marine Resources - Land Resources - Human Impacts

<ul style="list-style-type: none"> - Seismic surveys placing further stress on reefs and sea creatures - Changes in the rhythms of turtle nesting - Sea level rise is eating into the nesting sites and heavy rains are contributing to the destruction of nests - Culloden reef has grown quite a lot and waves are breaking further out this is important to protect as it in turn protects the coast from storm surge and other extreme events (the action of the surf also cools the water) - Unusual high tide - Increased storm surges 	<ul style="list-style-type: none"> - Exacerbating existing issues - Food security
HOTEL SECTOR / TOURISM IN GENERAL	<ul style="list-style-type: none"> - Human Impacts - Exacerbating existing issues - Livelihoods
<ul style="list-style-type: none"> - There used to be sustainable sharing of income – a visitor in the past could have "island-hopped" among the small hotels so the pie was shared - Liquid wastes are not treated before being released into the marine environment - Dive tourism is being affected by ocean changes: <ul style="list-style-type: none"> o Visibility is affected due to rainfall run off o Can no longer predict ground swells and diving conditions 	

***As an organisation:
What have you been doing to cope?
What do you think you need to do to cope?***

Agriculture	<ul style="list-style-type: none"> - Anse Fromager wants to plant crops to support bees including basil and other plants - Agrotourism at Anse Fromager to merge their campsite and agricultural activities - We can use shade houses: possible solution to reduce direct sun – covered building with open sides for crops like tomato and honeydew melons. Using UV plastic and shade cloth
Infrastructure	<ul style="list-style-type: none"> - Government should pave around roads to minimise erosion - Government is backing up the rivers by putting in boulders to prevent coastal erosion in Argyle in particular
Livelihoods issues	<ul style="list-style-type: none"> - The economic reality is that more than one source of livelihood is needed. Having more than one option is important – diversification as a mindset is needed as an adaptation strategy - People are doing more than one job without realizing it - Some people aren't serious enough – are content with life as is - Purchasing air-conditioning to deal with heat
Civil society readiness	<ul style="list-style-type: none"> - Some civil society groups have not yet fully embraced climate change issues as an organization (such as the tour guide association whose membership is still seeking help to build capacity to succeed at their livelihoods)
Awareness	<ul style="list-style-type: none"> - Strategically using projects to educate persons about what can be done to help with water shortages (e.g. using the IWCAM project) - Education at the school level is needed - SOS Tobago is monitoring sea turtle nesting beaches and is engaged in mitigating damage caused or related to climate change.
Research	<ul style="list-style-type: none"> - Research is needed in activities that build resilience - Make use of demonstration projects to pilot new approaches - We need to monitor wildlife
Collaboration	<ul style="list-style-type: none"> - Monitoring the actions taken by partners to improve the effectiveness of partnerships with

- the Government.
- Needed: Advocacy to work with private sector to form partnerships to adapt to climate change

What type of action do you think is needed to address the impacts of climate change in Tobago?

Land resources	<ul style="list-style-type: none"> – Government paving the river beds. This is needed in Roxborough. Controls the river flow. – Better monitoring of land policies – Artificial habitats - wetlands
Marine resources	<ul style="list-style-type: none"> – Marine protected areas are important
Biodiversity	<ul style="list-style-type: none"> – Emphasis on reforestation and agroforestry to provide soil stability and food for animals and people – Environment Tobago Project: Greening in North East Tobago (Carbon Sequestration) – Restock forests
Agriculture	<ul style="list-style-type: none"> – Record keeping is important so that farmers can be compensated for crop damage correctly – We need to improve our soil structure – re: expected erosion – Don't toss tree cuttings but shred and incorporate into soil which adds nutrients etc – But education is needed as people traditionally BURN and this can lead to larger fires: we have to say no to fires – We need to ensure that Goldsborough which is flat land within a height above sea level and with access to a large river (therefore high fertility such that even when dry the area can still be highly productive) is protected as an agricultural bread basket – Don't dump organic material – reincorporate into soil – Wildlife farming – culturally accepted market exists e.g. Harvest festivals – How to deal with the cocrico and parrot pests – think outside of the box – Use greenhouses to control timing of planting – Education from experts to give farmers advice on what can be done – Replant trees when cut them down in Delaford
Fisheries	<ul style="list-style-type: none"> – Invest in fishing gear such as fish finders, GPS, radios – Aquaculture
Extreme events	<ul style="list-style-type: none"> – Disaster mitigation is needed – we need to prepare for these events – Evacuation plan for climate change in Roxborough
Waste disposal	<ul style="list-style-type: none"> – Can't we reuse rather than dumping plastics and tyres? In Jamaica, plastics are shredded and used as planting medium with coconut!
Water resources	<ul style="list-style-type: none"> – Rainwater harvesting is important – we need to start doing this
Energy	<ul style="list-style-type: none"> – Green energy – Solar power – Implement more sustainable energy practices such as solar energy
Education	<ul style="list-style-type: none"> – No fires! – Wildlife farming as a food option – Stop tyre burning – Include training sessions on the radio on safety equipment – Partner with wetland and environmental groups to ensure that there are healthy wetlands

	<ul style="list-style-type: none"> – Green living campaigning
Research	<ul style="list-style-type: none"> – Too much agouti is a problem; too little agouti is a problem: We need to understand where the equilibrium lies – Meteorological stations are proposed – GIS database to understand what is happening – Environment Tobago has some; DNRE is developing some – Research on farming for types of crops that will survive in certain weather – Agrometeorology – working with met to predict weather patterns
Capacity needs	<ul style="list-style-type: none"> – We need wildlife vets – DNRE is trying to understand participatory processes in natural resource management
Advocacy	<ul style="list-style-type: none"> – Use influential people more effectively – Establish lobby groups within the communities – Governments need to form partnerships with environmental groups to empower them to act
Legislation	<ul style="list-style-type: none"> – Legislation that protects the safety of fishers at sea (not punitive)

Appendix 5: Introductory slide presentation



Developing a civil society agenda for climate change for Tobago



Tracing



Cutting

Gluing the layers



Smoothing





Putting on Labels



Part of Tobago with Labels



Developing map coordinates on the model



What is Climate Change

- Definition
- Projections
- Six major impacts

What is Climate Change?

- Climate change is an increase in the Earth's average temperature observed over a long period of time, usually decades or longer.
- Climate change can be caused by natural events or human activity.





Projections for the future

- Temperature of the land: Caribbean will be between 1°C and 5°C warmer by the 2080s
- Temperature of the sea: annual warming between 2°C and 2.9°C (Taylor *et al.* 2007).
- Sea level rise: increase of 13 to 56 centimetres by the 2090s relative to 1980-1999 levels (Parry *et al.* 2007).
- Rainfall: general future trend of drier conditions, 25% drier by the 2080s.
- Extreme events: Intense and heavy rainfall events interspersed with longer relatively dry periods (Taylor *et al.* 2007).
- Hurricanes: increased intensity.



How is climate change affecting Tobago

The story emerging from the P3DM Workshop



For each stakeholder group participating at P3DM:

- *What climate change trends are already being observed in Tobago?*
- *How are these impacting on the resources of Tobago?*
- *What adaptation measures are taking place or are proposed?*



P3DM

An example of a story

Climate change is affecting fisherfolk

- Fish stock is depleting
- This is because climate change is causing heavy rain and more storms
- The heavy rain is causing soil erosion and washing mud into the sea
- This causes coral bleaching
- We need government to take action to help increase the fish stock (e.g. FADs, set nets, fish farming)
- We need the hills to be forested to prevent soil erosion



Yesterday...

Groups participated in face to face or phone interviews:

- What changes in climate have you noticed in Tobago?
- Are these changes affecting the way you work/live?
- As an organisation:
 - *What have you been doing to cope?*
 - *What do you think you need to do to cope?*
- What type of action do you think is needed to address the impacts of climate change in Tobago?

Appendix 6: Discussing the value and adding to the P3DM model of Tobago

Understanding the Value of the model	The model is dynamic, things can be changed and it is recognised that some things are missing	
Additions to the model	Agricultural estates	<p>75+ agricultural estates have been identified for Tobago. Pastor Kirk asked that these be included and suggested that Orville Scott, a technocrat be contacted to get this information. One of the persons who participated in the development of the model, Carl James felt that the model should cater more to grassroots needs than technocrats with little on the ground knowledge. The group agreed to compromise that both sources of information were valuable. Keisha commented that not only can these be included but that the model can be used to map where they should be cited.</p> <p>Generally, the agricultural areas such as Goldsborough and Shaw Park should be included. These are available through agricultural extension and the Town and Country Planning Division.</p>
	Shelters	Muster points and shelters should be included on the model
	High risk communities	TEMA conducted a risk analysis which identified 20 high risk communities in Tobago. CANARI requested that the location of these communities be included in the P3DM model.
	Where are the lobsters?	Some information such as where the lobsters are located in the marine environment is not inserted. Some stakeholders feel that information such as this should not be shared. Should privacy be respected or is it time that we come together to share information to solve problems?
Improvements	Colour coding	Code villages using colours
	Fonts	Pay attention to fonts and font size
	Legend	The legend needs to be standardized