# APPENDIX I – PROJECT COMPLETION REPORT

**Implementing Organization**: Toledo Institute for Development and Environment (TIDE)  
**Project No.**: MOU#; GCFI2009_CaMPAM_19  
**Project Title**: Creating a marine protected area joint working group on risk and threat management in Belize.

## I. TECHNICAL REPORT AT COMPLETION OF THE PROJECT

<table>
<thead>
<tr>
<th>1. Summarized description of the project and mechanism for its implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>- Description of original project.</strong></td>
</tr>
<tr>
<td>TIDE will convene a meeting of managers/key staff of all marine protected areas in Belize, the Fisheries Department and Coastal Zone Management Authority and Institute. The marine protected areas in Belize include Bacalar Chico, Hol Chan, Caye Caulker, Glover’s Reef, Gladden Spit, Laughing Bird, Sapodilla, and Port Honduras. The two day meeting will combine learning and shared planning for future and current threats to marine protected areas. Training will focus on climate change and the potential impact. A facilitated session will allow each marine protected area to identify the threats the each faces individually and single out the common threats. The group will then prioritize three of the threats based on factors including potential of high impact, potential of current/early impact and potential for considerable damage.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>- Summarized description of the project implemented and the mechanisms for its implementation, including explanations of modifications made on the original project.</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Toledo Institute for Development and the Environment (TIDE) organized the two-day Workshop on, “Climate Change Communication: Training for Trainers”, in Forest Home, Toledo District, in an effort to build capacity on the phenomenon of Climate Change among middle management and field personnel of the NGO community and other stakeholder groups in southern Belize with an emphasis on marine ecosystems and watersheds as they impact the marine ecosystem. TIDE is cognizant of the need to increase community awareness and education on Climate Change at all levels, so that Belizeans may develop the capacity to cope with the negative impacts, through cost-effective adaptation measures and initiatives to reduce emissions. It is envisioned that this Climate Change Communication workshop and other future training will enable participants to better communicate the message of Climate Change to the communities in which they work. It will also arm them with the technical knowledge required to help implement future adaptation and mitigation projects that will build resilience among communities of southern Belize against the increasing tide of environmental degradation, extreme climatic events and sea level rise; all related to the projected warming of the climate system.</td>
</tr>
</tbody>
</table>

It proved difficult to gather key staff from all marine protected areas. Areas represented by staff included Gladden Spit and Silk Cayes Marine Reserve, Laughing Bird Caye National Park, Port Honduras Marine Reserve, Sapodilla Cayes, Payne’s Creek National Park (bordering the Gulf of Honduras, and the watershed areas of Deep River and Payne’s Creek impacting the Gulf of Honduras represented by SATIIM (Sarstoon and Temash Rivers Watersheds), Ya’axché Conservation Trust (Golden Stream Watershed) and TIDE (Port Honduras Marine Reserve, Rio Grande River and Monkey River Watersheds) and SEA (representing Gladden and Spit Cayes Marine Reserve and the Laughing Bird National Park).
Through the presence of Plenty Belize, Ya’axche Conservation Trust, Sarstoon Temash Institute for Indigenous Management, the Toledo Institute for Development and Environment, and local fishermen, all of the coastal communities were represented and virtually all of the villages and towns of southern Belize.

### 2. Proposed objectives, results and activities and level of completion

<table>
<thead>
<tr>
<th>General Objective</th>
<th>General Objective</th>
<th>% Level of Achievement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Achieved Indicators</td>
<td>Activity</td>
<td>Achievement of Indicators</td>
</tr>
<tr>
<td>Combine learning and shared planning for future and current threats to marine protected areas</td>
<td>Through presentations by Ramon Frutos and Dr. Joseph Palacio and group work with participation, learning and shared planning for future and current threats took place for inland communities, coastal communities, coastal and marine ecosystems.</td>
<td>100% Although not as many marine protected areas were involved, the inclusion of related inland and coastal communities enhanced the learning and planning.</td>
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</table>

<table>
<thead>
<tr>
<th>General Objective</th>
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<th>% Level of Achievement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Achieved Indicators</td>
<td>Activity</td>
<td>Achievement of Indicators</td>
</tr>
<tr>
<td>Facilitated session that will allow each marine protected area to identify the threats faced individually and single out common threats.</td>
<td>A summary of small group discussion on creating specific tools for inland communities, coastal communities, coastal and marine ecosystems is attached. This summary highlights the identification of the challenges of communicating climate change in various settings.</td>
<td>100% The achievement was enhanced by the inclusion of a full range of participants from related and coastal communities.</td>
</tr>
</tbody>
</table>

### II. RESULTS

<table>
<thead>
<tr>
<th>Expected Results</th>
<th>Results Obtained</th>
<th>% Level of Achievement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increased understanding of climate change and impact on marine protected areas allows managers to better prepare for current and future changes</td>
<td>The first activity conducted by the Facilitators was a brief, two-page survey on Climate Change with the objective of measuring the participants understanding of the issue. A short discussion followed on each of the 21 questions and responses. The following is a summary of the survey result: Seventeen persons filled out the questionnaire including Mr. Frutos and Dr. Palacio. All except two of the questionnaires were answered completely. The two that were incomplete had only one or two responses, showing that the participants probably had little awareness of the topic. One participant had difficulty with the English language and this could have been the reason for one of the incomplete</td>
<td>100%</td>
</tr>
</tbody>
</table>
In his first presentation Mr. Frutos spoke on the science of Climate Change, in which he explained the process of greenhouse gas emissions and the greenhouse effect; the observed warming of 0.7°C over the past 50 years; the natural and anthropogenic influences on the climate system, and the negative impacts on the different sectors with protracted, future increases in surface air temperature. His presentation stressed on the urgent need to halt Climate Change, but this can only be achieved if all countries and individuals reduce their carbon foot prints and move away from a fossil-fuel based economy, which is easier said than done.

In his second presentation entitled: “Belize: Impacts of Climate Change on Biodiversity”, Mr. Frutos discussed the temperature and rainfall projections under different Climate Change scenarios for the country of Belize. He noted that analysis of rainfall and temperature data for the past 40 years for the Airport and Central Farm showed that the annual rainfall trend depicts a slight increase at the Airport, but has remained steady at Central Farm. Temperature wise however, a warming trend is detected, with warmer night time minimums and warmer day-time maximums. The models project a 10 to 20% decrease in monthly average rainfall to the year 2020 and 2050, particularly over northern and central Belize. Meanwhile, temperature will be increasing from 1.5 to 2.0°C by 2050, becoming more accentuated towards the end of the 21st century. The Climate Change Severity Index, which is a measure of the stress of increasing temperature and rainfall variability on biodiversity, indicates that the index will be approaching significant change for most forested areas of Belize by 2020, particularly so in the vast expanse of the Chiquibul forest.

Next, participants were divided into three small groups and deliberated on the threats and impacts from climate change on: a) Inland communities; b) Coastal communities; c) Cayes/coral reefs/marine protected areas.

The presentation by Dr. Joseph Palacio and discussion focused on the perception of Climate Change at the community level indicates that:

- Climate Change is insignificant compared to
unemployment, cost of living, burglaries, excessive illegal fishing, drugs;
• We are too small and we are not causing the problem;
• We are not receiving help to understand what is climate change; and
• NGO’s rarely come to work with us. If they come, it is only for their specific projects.

Some impacts observed by villagers include the following:

• Rainy and dry seasons now unpredictable;
• More rain and more thunder and lightning;
• The beach is eroding faster as the sea level rise;
• Sun is getting warmer; and
• Farming becoming more unpredictable.

Dr. Palacio turned to the challenges facing agents of change in getting the message of Climate Change across to their communities. Agents will have to be cognizant of the following:

• The social and economic conditions of our sub-region because of fluidity in movement;
• The bread and butter issues;
• The mix between cultural values and the use of natural resources – very important especially for traditional peoples;
• Climate Change effects within given micro-environments

SEE ALSO
Table 1 Some threats and Impacts of Climate Change on vulnerable areas in Belize (appended)

| Drafts of risk identification and risk management plans for three priority areas | See Table 2 Summary of result of Small Group Discussion on creating specific tools for communicating Climate Change (appended) | 100% |

## III. PLANNED ACTIVITIES AND LEVEL OF ACHIEVEMENT

<table>
<thead>
<tr>
<th>Planned Activities</th>
<th>Achieved</th>
<th>Not Achieved</th>
<th>Partially Achieved (%)</th>
<th>Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day One, Morning</td>
<td>Thursday, 12 November 2009</td>
<td></td>
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</tr>
<tr>
<td>☑ Registration and check-in</td>
<td></td>
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</tbody>
</table>
Day One, Afternoon
☐ Introductions and Welcome (Celia Mahung, Executive Director TIDE)
☐ Presentation on Climate Change (Ramon Frutos)
☐ Facilitated workshop on identification of threats (Joseph Villafranco to facilitate, Ruth McLean Dawson as recorder)
☐ Break into three groups to begin work on risk identification and risk management plans. As a resource each group will have a facilitator and recorder
☐ Group One – Ramon Frutos, Facilitator with Angelica Williams, TIDE as recorder;
☐ Group Two – Ruth McLean Dawson, TIDE, Facilitator with intern as recorder;
☐ Group Three – Joseph Villafranco, Facilitator with intern as recorder.
☐ Dinner on their own

Day Two, Morning
☐ Continuation of group work
☐ General work session to present each of the work products from the groups
☐ Discussion
☐ Lunch

Day Two, Afternoon
☐ Presentation on the Threats and Opportunities of Tourism to Marine Protected Areas
☐ Discussion
☐ Plans for a next meeting
☐ Evaluations
☐ Conclusion

8:30 am - 9:00 am
Registration

9:00 am - 9:15 am
• National Anthem
• Invocation
• Welcome and introduction: Celia Mahung, Executive Director, TIDE

9:10 am - 10:00 am
Overview of Global Climate Change: Ramón Frutos

10:00 am - 10:20 am
Coffee Break

10:20 am - 12:00 pm
Focus on Belize – anticipated hazards and impacts of Climate Change
Ramón Frutos

12:00 pm – 1:00 pm
Lunch

1:00 pm – 3:00 pm
Group work – identification of threats from climate change
• Inland communities
• Coastal communities
• Cayes/coral reefs/marine protected areas

3:00 pm - 3:20 pm
Coffee Break

3:20 pm – 4:20 pm
Presentations based on Group Work; identification of three highest threat areas; prioritize areas of greatest threat

4:20 pm – 5:00 pm
Challenges in communicating climate change, overcoming the barriers
Dr. Joseph Palacio

Friday, 13 November 2009

9:00am – 10:00am
Tools for communicating climate change
Joseph Palacio and Ramón Frutos
10:00am – 10:20am  **Coffee Break**  
10:20am – 12:00pm  
Resources for communicating climate change:  
12:00 pm – 1:00 pm  **Lunch**  
1:00pm - 3:00 pm  
Group Work – creating specific tools to communicate climate change  
3:00 pm - 3:20 pm  **Coffee Break**  
3:00 pm - 4:00 pm  
Presentation of group work  
4:00 pm - 5:00 pm  
Discussion – ongoing networking, education, planning

**IV. OBJECTIVES, RESULTS, AND ACTIVITIES REALIZED, BUT NOT ANTICIPATED IN THE ORIGINAL PROJECT**

Unanticipated objectives:

Inclusion of inland and coastal communities. Focus on communicating climate change as a priority need.

Unanticipated results:

Development of training to fully embrace Communicating Climate Change: Training for Trainers and participation of the inland and coastal communities and an exchange of planning and communication between those focused on watersheds and those focused on marine protected areas.

Two resolutions were promulgated by the participants.  
Be it resolved that we, the participants of the Climate Change Communication Workshop organized by TIDE during the period November 12-13, 2009 in Forest Home, Toledo District, proposed the establishment of an Alliance on Climate Change among NGOs of Southern Belize.

Be it resolved that we, the participants of the Climate Change Communication Workshop also proposed the formation of a Climate Change Network among members of NGOs and other Stakeholders in southern Belize, for the exchange of data, information and experiences related to adaptation and mitigation of Climate Change.

Unanticipated activities:
The activities basically remained the same but with an increased focus on communication.

V. OBSERVATIONS ABOUT THE ACCESSIBILITY, RELIABILITY, AND SCOPE OF THE PROPOSED SOURCES TO VERIFY OBJECTIVES AND RESULTS

<table>
<thead>
<tr>
<th>Source for Verification</th>
<th>Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Objectives:</td>
<td></td>
</tr>
<tr>
<td>The source for verification includes the materials prepared for the workshop, feedback, formal report from Ramon Frutos and Dr. Joseph Palacio (incorporated here) and results.</td>
<td>See Tables 1 and 2, appended. The report prepared by Frutos and Palacio is incorporated within this document.</td>
</tr>
<tr>
<td>Results:</td>
<td></td>
</tr>
<tr>
<td>The source for verification includes the materials prepared for the workshop, feedback, formal report from Ramon Frutos and Dr. Joseph Palacio (incorporated here) and results.</td>
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</table>

VI. RECOMMENDATIONS

Recommendations about other similar projects presented to the UNEP-CAR/RCU Program:

_X_ CONTINUE with similar proposals, but review the following points:
___Justification for the problem
___Objectives
___Methodology
___Budget
___DO NOT CONTINUE with similar proposals

VII. LESSONS LEARNED
Participants should now have a much better understanding of the issues related to Climate Change, and are more capable of addressing this very important phenomenon in their areas of operation. Training does not end with this workshop. Training must be an on-going process and participants endeavor to learn more on the subject as new information, data and methodology for communication become available.

The most important part of this project was the ability to be flexible and incorporate a growing need for climate change communication training and foster the connection between watersheds and marine protected areas.

The key resources utilized were Ramon Frutos and Dr. Joseph Palacio who led an interesting and challenging workshop. The participants are also a key resource in bringing the needs of the communities served to the fore of the training and developing resolutions for next steps.
Table 1 Some threats and Impacts of Climate Change on vulnerable areas in Belize

<table>
<thead>
<tr>
<th>Threats</th>
<th>Inland Communities</th>
<th>Coastal Communities</th>
<th>Cayes/Coral Reef / Marine protected areas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sea level rise</td>
<td></td>
<td>Retreat freshwater lens; increased wave actions and coastal erosion</td>
<td>Increased wave actions; inundation of Cayes; reduced economic activity</td>
</tr>
<tr>
<td>Increase in average surface temperature</td>
<td>Heat waves and droughts affecting agricultural production; water scarcity</td>
<td>Heat waves and droughts; increased water stress</td>
<td>Reduction in capacity of perch aquifers; heat stress</td>
</tr>
<tr>
<td>Significant rainfall variability/ increased intense hurricanes</td>
<td>Increased frequency of catastrophic floods; damaged infrastructure</td>
<td>Damaging coastal floods; increased vulnerability all sectors to hurricanes</td>
<td>Water scarcity, impact on infrastructure and tourism, damage to reef</td>
</tr>
<tr>
<td>Increased forest fires and deforestation</td>
<td>Increased emissions and land degradation, increase sediments to rivers, loss of biodiversity</td>
<td>Fire damage to coastal savannahs; loss of biodiversity</td>
<td></td>
</tr>
<tr>
<td>Loss of riparian and mangrove forests</td>
<td>Increased erosion, sedimentation and pollution to water bodies</td>
<td>Expose coastal regions to increased wave action; exposure to the damaging effects of storms, loss in marine habitat</td>
<td>Loss in marine habitat; increased beach and coastal erosion</td>
</tr>
<tr>
<td>Decreasing sediments to the coast</td>
<td>Loss in soil fertility and increased land degradation</td>
<td>Increased beach and coastal erosion; degradation of marine and wet land biodiversity</td>
<td></td>
</tr>
<tr>
<td>Warmer Sea/ocean temperatures</td>
<td></td>
<td>Migration of native species of flora and fauna</td>
<td>Coral Bleaching, algal bloom, fish migration</td>
</tr>
<tr>
<td>Methods</td>
<td>Resources</td>
<td>Tools for communication.</td>
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<td>------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------</td>
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<tr>
<td>Implement CC projects</td>
<td>Resource persons</td>
<td>Transport, computers, audio visuals</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Donors, GOB, Private Sector, community</td>
<td>Stationary, Adequate office space and furniture, Internet facility, fax, telephone</td>
<td></td>
</tr>
<tr>
<td>Meetings with leaders and village councils</td>
<td>Good speaker</td>
<td>Adequate transportation</td>
<td></td>
</tr>
<tr>
<td>Organize visits among villages</td>
<td>Field personnel, advocacy groups</td>
<td>Audio visual aids, fliers, CDs, radio, computers</td>
<td></td>
</tr>
<tr>
<td>Organize environmental exhibits/ variety shows, writing and painting competitions</td>
<td>Funds, small working group including villagers, gifts for winners</td>
<td>Construction tools and material</td>
<td></td>
</tr>
<tr>
<td>Connecting Climate Change impacts with issues affecting communities</td>
<td>Resources persons, funds</td>
<td>Audio visual aids, transport, whit board or black board, computer, flip charts and stand</td>
<td></td>
</tr>
<tr>
<td>Radio/TV talk show</td>
<td>Involve village leaders, funds for travel</td>
<td>Transport, stationary, information on Climate Change</td>
<td></td>
</tr>
<tr>
<td>Organize field trips to impacted areas</td>
<td>Private sector cooperation, GOB, food</td>
<td>Adequate transport</td>
<td></td>
</tr>
</tbody>
</table>