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### Local Integrated Coastal Zone Management in Cuba (Proyecto COSTASURESTE)

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**DEPARTMENT OF FOREIGN AFFAIRS, TRADE AND  
DEVELOPMENT**

**LOCAL INTEGRATED COASTAL ZONE MANAGEMENT IN  
SOUTHEAST CUBA**

**(PROYECTO COSTASURESTE)**

**PROJECT NO: S06499**

**(2010-2015)**



**Final Project Report**

**Submitted by**

**Dr. Aldo Chircop, Project Director  
on behalf of**

**Marine & Environmental Law Institute, Schulich School of Law  
Dalhousie University, Halifax, NS**

**Centro de Estudios Multidisciplinarios de Zonas Costeras.  
Universidad de Oriente, Santiago**

**Universidad de Guantánamo**

**Centro de Investigaciones Marinas  
Universidad de la Habana**

**2015**

**EXECUTIVE SUMMARY**

- Local Integrated Coastal Zone Management in Southeast Cuba (COSTASURESTE, 2010-2015) was a project funded through the University Partnerships in Cooperation and Development Program (UPCD)'s Scaling Up Competition launched in 2008. The Project received funding for the 2010-2013 period and subsequently received extensions by the Canadian International Development Agency (CIDA) in 2013 and Department of Foreign Affairs, Trade and Development (DFATD) in 2014, with a revised termination date of 30 April 2015. COSTASURESTE extended the results of the base project (UPCD Tier II: Integrated Coastal Zone Management in Cuba, 1999-2004, Project No. 098/S47074-287).
- The purpose of COSTASURESTE was to support the implementation of local integrated coastal zone management (ICZM) and pursue the interrelated Millennium Development Goals (MDGs) of development and poverty eradication, environment protection, good governance and protection of vulnerable people in the coastal zone of Southeast Cuba from climate change impacts.
- The lead Canadian partner was Dalhousie University (DU) and the partners in Cuba were the Universidad de Oriente (UO, the lead partner in Cuba) and Universidad de Guantánamo (UG), including their Centros Universitarios Municipales (CUMs) in Guamá and San Antonio del Sur, and the Universidad de la Habana (UH). The DU, UO and UH were partners in the base project. The project was undertaken in collaboration with the Santiago de Cuba and Guantánamo provincial offices of the Ministerio de Ciencias, Tecnología y Medio Ambiente (CITMA) and the coastal municipalities of Guamá (Santiago de Cuba province) and San Antonio del Sur (SAS, Guantánamo province).
- The key beneficiaries of the Project were the UO and UG through their Centros Universitarios Municipales embedded in the two municipalities, and the Municipalities themselves as project pilot areas. Cuban universities are required by Ministry of Higher Education policy to establish university centres in all municipalities so that the benefits of tertiary education can be extended to all parts of the country.
- The choice of Guamá and SAS as pilot areas was motivated by the particular challenges they face. They are considered to be among the poorest municipalities in Southeast Cuba and their communities are vulnerable to climate change-related threats such as drought, coastal erosion, and salinization of soil and water resources.
- Guided by the original Results Based Management (RBM) framework, COSTASURESTE undertook a wide range of capacity-building activities focusing on disseminating knowledge and skills to enable the resolution of local problems within the framework of national education, environment and development policies. The core activities included outreach and continuing education, as well as research to support the development of strategies for gender-based ICZM and integrated

management strategies for soil management in Macambo (SAS) and the Sevilla Watershed (Guamá).

- COSTASURESTE met all of the RBM expectations and also produced unanticipated additional beneficial results. The Project produced a widespread understanding of the importance of ICZM to anticipate and respond to the impacts of climate change in the development of local coastal areas at the municipal government level. The Project disseminated knowledge and skills for local government officials to address local problems. The Project also built a training capacity at the local level by strengthening the abilities of the UO and UG to deliver continuing education and outreach at the local level, by training personnel and equipping two seminar rooms in Chivirco (Guamá) and SAS.
- At its peak the Project had 103 participants. The number of training beneficiaries were as follows: completion of Diploma in ICZM at two sites (36) and more took individual Diploma course (22); registrations in 16 thematic training courses on developmental, resource, environmental, cultural and public education issues (405); two marine biology workshops (30); risk assessment workshop (26). In addition, there was substantial participation in numerous other smaller workshops, including seven workshops on gender topics. A total of 22 theses and mini-theses were defended. Publications on ICZM included the first ever book on ICZM in Cuba and over 80 articles, conference papers and poster presentations. Also resulting from the Project were a database of ICZM materials, and strategies for gender-informed local ICZM, soil management in Macambo and environmental assessment for the Rio Sevilla watershed.
- COSTASURESTE successfully scaled-up the results of the base project as planned and in three major ways:
  - Extension of education and outreach: the knowledge and expertise in the university teaching of ICZM were extended by base project and new participants to local levels to benefit municipal government officials directly concerned with local coastal management problems. The extension of university educational capabilities to the municipal level also assisted the implementation of Cuba's national policies on the universalization of tertiary education, environment protection, environmental education and local development.
  - Extension of partnerships: the partnerships between DU, UO, UH and CITMA in the base project were extended to
    - a. outreach activities at the local level in the Municipalities of Guamá and SAS, and
    - b. a new partnership between the UG, the provincial CITMA office of Guantánamo, and base project partners was created.

- Practical application of ICZM knowledge and skills: the ICZM knowledge and skills generated in the base project found application in Guamá and SAS. Municipal government officials benefited from project research and training to
  - a. apply knowledge and skills to address local coastal environmental and developmental problems of their communities,
  - b. improve management of natural resources,
  - c. produce local environmental and economic impacts, and
  - d. enhance public environmental education.
- This report concludes with the recommendation that financial support for cooperation between Canadian and Cuban universities be continued to the extent possible, with particular attention to sustainable development issues and to enable tertiary education and research structures to be mobilized to address developmental problems at the local level.



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**LIST OF ABBREVIATIONS & ACRONYMS**

AUCC	Association of Universities and Colleges of Canada
BIOECO	Centro de Biodiversidad, CITMA
CARICOSTAS	International Conference on Integrated Management of Coastal Zones
CATEDES	Centro de Aplicaciones Tecnológicas para el Desarrollo Sostenible, CITMA
CEMZOC	Centro de Estudios Multidisciplinarios de Zonas Costeras/Centre for the Multidisciplinary Study of Coastal Zones, UO
CIES	Centro de Investigación de Energía Solar/Centre for Solar Energy, CITMA
CENDA	Centro Nacional de Derecho de Autor/National Centre for the Protection of Authors' Rights
CIDA	Canadian International Development Agency
CIM	Centro de Investigaciones Marinas/Centre for Marine Research, UH
CITMA	Ministerio de Ciencias, Tecnología y Medio Ambiente/Ministry of Science Technology and Environment
CUM	Centro Universitario Municipal/Municipal University Centre
DFATD	Department of Foreign Affairs, Trade and Development
DU	Dalhousie University
ICZM	Integrated coastal zone management
LACREG	Canada-Latin America and the Caribbean Research Exchange Grants program
MDGs	Millenium Development Goals
MES	Ministerio de Educación Superior/Ministry of Higher Education
MINAGRI	Ministerio de la Agricultura/Ministry of Agriculture



MICZM	Maestria en manejo integrado de zona costera/Masters in integrated coastal zone management
RBM	Results based management
SAS	San Antonio del Sur, Guantánamo Province
UG	Universidad de Guantánamo/University of Guantánamo
UH	Universidad de la Habana/University of Havana
UNDP	United Nations Development Programme
UO	Universidad de Oriente/University of Oriente
UPEC	Unión de periodistas de Cuba/Union of Journalists of Cuba
UPCD	University Partnerships in Cooperation and Development Program

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## 1. INTRODUCTION

The goal of COSTASURESTE was to support the implementation of local integrated coastal zone management (ICZM) and pursue the interrelated Millennium Development Goals (MDGs) of development and poverty eradication, environment protection, good governance and protection of vulnerable people in the coastal zone of Southeast Cuba. ICZM is a government-led and participatory process for the integrated planning and management of coastal uses and resources in order to address the needs of coastal communities, avoid or manage conflicts, protect the environment and thereby promote sustainable development. In the era of increased storm frequency and natural hazards as impacts of climate change, coastal communities are particularly vulnerable to changes in the land-sea interface.

The project was funded in 2010 under the University Partnerships in Cooperation and Development Program (UPCD) as part of the Scaling-Up Projects competition funded by the Canadian International Development Agency (CIDA) and originally launched in March 2008. The project continued to be funded by DFATD following CIDA's transition into the Department in 2013.

The partners were the Universidad de Oriente (UO, the lead partner in Cuba) and Universidad de Guantánamo (UG), including their Centros Universitarios Municipales (CUMs, Municipal University Centres) in Guamá and San Antonio del Sur, the Universidad de la Habana (UH) and Dalhousie University (DU). The project was undertaken in collaboration with the Santiago de Cuba and Guantánamo provincial offices of the Ministerio de Ciencias, Tecnología y Medio Ambiente (CITMA, Ministry of Science, Technology and Environment) and the coastal municipalities of Guamá (Santiago de Cuba province) and San Antonio del Sur (SAS, Guantánamo province). Guamá and SAS are considered to be among the poorest municipalities in Southeast Cuba and their communities are vulnerable to climate change-related threats such as drought, coastal erosion, and salinization of soil and water resources because of their geographical location and weak infrastructure. Together with the communities of the two municipalities, the collaborating institutions were key stakeholders in COSTASURESTE and the project's geographical focus.



COSTASURESTE’s specific purpose was to strengthen efforts of the UO and UG to build the capacities of Guamá and SAS to undertake local ICZM in order to achieve national development, environment and higher education policy objectives and thereby improve quality of life at the local level. The strategic approach of the project was two-fold:

- a) to build on the results of the base project (Tier II Integrated Coastal Zone Management in Cuba, 1999-2004, Project No. 098/S47074-287) by mobilizing the participant universities’ institutional and human capacities to further build local capacity and apply ICZM at the municipal level; and
- b) to strengthen the UO/UG CUMs as the springboards for local capacity-building because of their municipal presence and particular focus on local development needs of the rural communities in their regions. Local decision makers are at the frontline of ICZM and are called upon to solve the problems which their communities face.

## 2. PROJECT RESULTS

### 2.1 Project activities, outputs, outcomes and results

COSTASURESTE’s activities and results are described and commented upon in the order they are set out in the Project’s Results Based Management framework (RBM). For ease of reference, the RBM framework and cumulative results are set out in a tabulated format in Annex 2. It will be noted that the results aimed at are described in terms of outputs and outcomes, both of which are accompanied by indicators. The results are numbered in accordance with their original numbering in the RBM framework. The activities and results are described at the levels of the two major groups of stakeholders, namely (a) participating universities and (b) municipalities in Southeast Cuba. These are described below.

#### 2.1.1 Outputs

##### (a) Universities

Output 1.1	Enhanced capacities of personnel from the UG & personnel from UO & UG CUMs in Guamá and SAS
Indicator	2 personnel from UG complete the MICZM at UO (Wx1; Mx1); 15 personnel from UG & SAS/CUM complete the ICZM Diploma (Wx8; Mx7); 15 personnel from UO’s CUM in Guamá complete the ICZM Diploma (Wx8; Mx7).

Output 1.1 foresaw two types of results: (a) the first result concerns the training of two personnel from the UG through enrolment into the UO’s Masters Degree in Integrated Coastal Zone Management (MICZM) and (b) the second is the ICZM Diploma Program.

*(a) UG Faculty at UO's MICZM*

Anayli Muñoz Padilla and Gabriel Fajardo Conde from the UG were the beneficiaries of this activity (see Annex 3, 3.1). The activity consisted of financial support to enable them to undertake the Masters in Integrated Coastal Zone Management (MICZM) at the UO in Santiago. Both completed the degree requirements successfully. Further, both wrote research dissertations on the basis of field work and interviews and on themes of particular relevance to their municipalities. Anayli and Gabriel presented their research in project workshops.

ANAILY MUÑOZ PADILLA  
GABRIEL FAJARDO

*(b) Diploma Program in ICZM*

The Diploma is described in detail in Annex 3 (3.2.1). Originally, the ICZM Diploma Program was designed to build human resource capacity of the UO and UG personnel. The diversity of the intended beneficiaries was enhanced because of strong demand from local stakeholders and to also cater to the particular continuing education needs of local government officials and issues at the two Project sites. The Diploma was designed as a tertiary education program with a formal qualification of 15 credits for UO and 14 for UG. The Diploma's elevation to a university program considerably enhanced its appeal to participants. Thus in addition to enhancing capacity at the UG and UO, this output was extended to local government officials in addition to the benefits they received under Output 2.3 (i.e., in addition to the thematic training courses).

The required Diploma courses consisted of:

- Manejo integrado de zonas costeras y marco legal (3 credits)
- Componentes y procesos naturales en la zona costera (3 credits)
- Manejo de recursos a base de comunidades (2 credits)
- Manejo integrado de cuencas y suelos (3 credits)
- Agroecología y sustentabilidad alimentaria (2 credits)
- Metodología de la investigación (2 credits)

Metodología (Research Methods) was organized and delivered in response to requests from students to better prepare them for the fulfilment of a mini-thesis requirement in the diploma. Courses addressed both theory and practical applications. Students were provided with digitized information. The courses used as examples local environmental issues. For example Agroecología focused on best practices for and local experiences in soil management in the Rio Macambo watershed in SAS.



All courses were delivered by base Project and other university and CITMA resource persons.

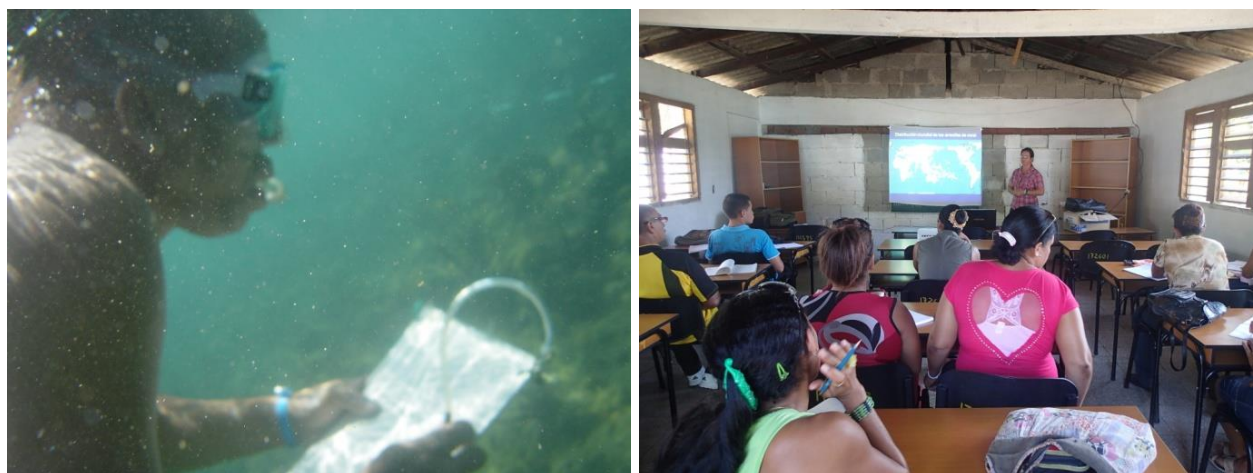
In addition to UG and UO, the Diploma participants represented municipal governments, and local offices of ministries of health, education, agriculture, culture, tourism, science technology and environment, regional development, forestry and interior. The original expected number of participants was 15 personnel from each of the UO and UG (see above indicator for Output 1.1). However, as can be seen from the numbers of participants and gender distributions (see Annex 3), the overall number of participants exceeded the projected numbers in the indicator.

The SAS Diploma had 22 persons formally registered, 21 of whom actually completing all diploma requirements (see Annex 3, 3.2.2). An additional 11 persons took one or more of the courses according to interest or need. The Guamá Diploma had 15 persons formally completing the Diploma and a further 11 persons attended one or more courses according to interest or need (see Annex 3, 3.2.3). The result is that 37 persons completed the Diploma (in comparison to the projected Output of 30) and an additional 22 persons benefitted from particular courses. The latter group of beneficiaries was not anticipated. Clearly, this line of activity exceeded the expected result.

The courses received strong evaluations from participants and their local government institutions. Various Avals (formal post-activity endorsements by stakeholders) from local government and university bodies attest to this (see Annex 11). Instructors were well-prepared and contributed to the knowledge and practice of ICZM at the CUM. Courses helped identify local problems which would be the subject of topics for the mini-thesis. There was active participation from very diverse institutions covering virtually all aspects of local government. The courses also helped build the capacity of the CUM instructors in the themes addressed.

Output 1.2	Strengthened program for the teaching of marine biology at the UO
Indicator	10 personnel from Santiago & Guantánamo are trained in the teaching of marine biology (Wx5; Mx5).

The purpose of Output 1.2 was to strengthen the capacity for the teaching of marine marine biology at the UO, identified as a gap in the base project. The original activity planned for this Output was completed in the second Project year (2011) (see Annex 3, 3.4). However, on request from UO, a second workshop was scheduled for Year 4 (2013) of the Project. The workshops contained elements of theory in the teaching of marine science, field work and diving time, and also instructed participants on preparing marine scientific papers for publication in refereed periodicals.



The participants represented the UG and UO, as well as various CITMA units (CATEDES, BIOECO and CIES) at the local level. The first iteration of the workshop had 12 participants, whereas the second had 18 participants. Output 1.2 anticipated 10 trainees. The total number of participants (30: Wx15; Mx15) effectively trebled the expected number of trainees.

Output 1.3	Model multimedia training “modules” for use by both universities including course materials are produced
Indicator	8 multimedia training modules completed

In the RBM framework this Output consisted of the preparation of eight model training courses which would be delivered at each of the two Project sites. Due to demand, this line of activity was expanded to include new lines of activity. The various results under Output 1.3 can thus be described in terms of: (a) the training courses originally anticipated in the RBM framework; (b) a new training workshop on risk management; (c) a new training workshop on project management; and (d) production of audiovisual materials to enhance training and public education.

*(a) Training courses*

The development of eight model training courses was one of the principal lines of activity of the Project (Annex 3, 3.3). The courses were developed to be delivered locally through the CUMs in Guamá and SAS. They were aimed at local decision makers to help build capacity to address local developmental and environmental issues in the respective coastal zones of the two project sites. Each course was developed through a process that included consultation with local stakeholders to ensure maximum relevance. The delivery of the courses is reported under the Municipalities section of the report below. The training courses concerned, normally lasting between 3-5 days, were the following (see Annex 5):



- Transferencia apropiada de conocimientos y tecnología para el desarrollo local
- Educación Ambiental y para la Salud.
- Gestión ambiental empresarial
- Ordenamiento territorial
- Agroecología y Sustentabilidad Alimentaria
- Técnicas y Habilidades de Manejo de Conflictos
- Gestion de proyectos
- Desarrollo local
- Patrimonio histórico-cultural y natural



There was a very broad range of participation from governmental institutions and other organizations at the local level). At the UG/SAS CUM there were 241 participants (Wx107; Mx134) registered for all the courses (see Annex 3, 3.3.1). This figure translates to an average participation of 29.75 per course. The UO/Guamá CUM had 164 participants (Wx98; Mx66), translating into an average of 20.5 per course (see Annex 3, 3.3.2).



*(b) Training workshop on risk management*

This activity was developed by Dr. Ronald Pelot in response to a strong demand from university and government personnel and with blended support from the Project and a LACREG grant he received. The workshop addressed the basic elements of risk management and analysis, applications, decision-analysis and psychological and social aspects of risk. The workshop was attended by 25 participants (Wx11; Mx5) from UO, UG, SAS municipality, Guamá Municipality, CITMA (see Annex 3, 3.5).

*(c) Training workshop on project management*

Also new was a workshop conceived and implemented by Drs Ofela Perez Montero and Pedro Beaton Soler on project management. There were 17 participants (Wx11; Mx15) from CUM/Guamá, Dirección Municipal de Salud (MINSAP), Dirección Municipal de Educación (MINED), Delegación Municipal de la Agricultura (MINAGRI) and Unidad Basica de Producción y Consumo (UBPC) (see Annex 3, 3.6).

*(d) Audio visuals project*

This activity was not anticipated in the original RBM framework. It was added as a result of an express request from Cuban partners to develop audio-visual materials on ICZM and local environmental management for use in teaching and to further disseminate knowledge on the themes of the Project to the Cuban public at large. The preparatory activities included a mini-workshop on audio visuals and involvement of the Union of Journalists of Cuba (Unión de periodistas de Cuba, UPEC) for technical support in the production of audio visual materials. The ultimate output was two professionally completed TV documentaries addressing the challenges of climate change impacts on the coastal zones of Guamá and SAS, and the fragility of their different types of coastal ecosystems in Cuba. The documentaries were also an opportunity to the work of the Project on a national scale. The documentaries, which weretitled as follows, were aired on national TV in Cuba in 2014:

- “Guamá entre el mar y la montaña”
- “San Antonio del Sur la tierra que renace”

Output 1.4	Enhanced CUM seminar rooms/teaching equipment in Guamá & San Antonio del Sur
Indicator	Seminar rooms in the CUMs in Guamá & San Antonio del Sur are equipped & functional

The Project devoted substantial resources for the preparation of two seminar rooms, one each at the CUMs in Guamá (in Chivirico) and SAS to enable the delivery of Diploma and training courses, as well as to host various small workshops and meeting in support of curriculum development and research activities in the Project. In addition to the two CUMs, the UO and UG also received support for the purchase of equipment to enhance the ability of their participating faculty to prepare for teaching and research activities. The bulk of the equipment consisted of computers, projectors, printers, cameras (to support preparation of teaching materials and research), GPS receivers (to support field research), soil test kits (for field research), and desk stations (tables and chairs). The equipment purchased and its ultimate location is described in Annex 10.



AULA DE POSTGRADO.  
CUM DE SAN ANTONIO DEL SUR  
CUM DE GUAMÁ

- MOBILIARIO ESCOLAR
- 1 IMPRESORA, FAX , SCANNER
- 1 IMPRESORA , FAX ,SCANNER a color
- 1 LAPTOP TOSHIBA
- 1 DATA SHOW
- MANTENIMIENTO.
- BIBLIOGRAFIA.



Output 1.5	Establishment of a data base of electronic resource materials for intranet access
Indicator	Database of electronic materials is established & accessible to Project participants

This Output consists of a database of ICZM electronic materials to support Project participants and students based at the UO/CEMZOC, designed and maintained by Jorge Pérez Bolaños (CEMZOC). The site continues to be populated with materials as they are retrieved or received by Cuban faculty and resource persons. The database is available on the intranet at the UO in Cuba and is accessible by students in Cuba.

Output 1.6	Enhanced scientific & professional exchanges among Cubans & Canadian academics
Indicator	High rate of participation in Project activities.

At an individual level, project participants were academics and professionals (see Annex 1):

- faculty members of the DU, UO, UG and UH main campuses, acting as instructors, resource persons and researchers;
- faculty members of UO and UG assigned to the municipal centres, acting as courses instructors and administrators of particular training activities;
- CITMA officials acting as instructors, resource persons and researchers;
- local stakeholder from provincial and municipal government offices and local organizations.

In addition to the number of formal participants in project workshops, the project also mobilized participation in the communities concerned, including farmers (campesinos), women in communities, and school children.

Exchanges between Cubans and Canadians occurred primarily through (a) Project workshops, (b) project management committee meetings, (c) the CARICOSTAS conference circuit, (d) other meetings triggered by the Project and (e) email exchanges.

The Project convened five major regional workshops which typically involved 30-60 participants from Cuba and 3-4 Canadians (Table 1). These workshops tended to be intensive scholarly and professional exchanges, frequently engaging participants in animated debates. As described in Table 2 there was a very high rate of participation in the project. Table 2 below demonstrates how the project attracted more Cuban participants from one year to another.

Table 1: Major Regional Workshops

Workshop	Dates	Venue	
1	Baseline& Planning Workshop	4-8 October 2010	Baracoa, GT
2	ICZM Local Capacity-Building & Integrated Management Strategies Workshop	21-26 February 2011	Guantánamo City, GT
3	Training Curriculum & Integrated Management Workshop	20-24 February 2012	Guamá, SC
4	Research Results Workshop	13-24 May 2013	Santiago, SC
5	Project Evaluation Workshop	9-13 December 2013	Guamá, SC

### III TALLER REGIONAL: 20 al 24 de febrero 2012, GUAMA



Table 2: Project Participation

Participants	Year 1		Year 2		Year 3		Year 4	
	W	M	W	M	W	M	W	M
Dalhousie	2	2	2	2	2	2	2	3
La Habana	1	1	1	1	1	1	1	1
Oriente (incl. MUC & stakeholders)	12	7	12	17	17	7	26	19
Guantánamo (incl. CUM & stakeholders)	6	9	8	9	8	10	19	33
Book project (new)	0	0	0	0	9	13	9	10
<b>Sub-totals</b>	21	19	23	29	37	33	45	44
<b>YEAR TOTALS</b>	40		52		70		103	

In 2011 and 2013 there were well-used opportunities for Canadians and Cubans to undertake scholarly exchanges through the International Conference on Integrated Management of Coastal Zones (CARICOSTAS), a major biennial international conference on ICZM in the Caribbean convened by the CEMZOC in Santiago.

As reported below (under Project Governance), a core group of Canadians and Cubans met regularly to steer and monitor the project. These were also occasions for exchange. Canadian and Cuban participants had occasions to meet and exchange further at other meetings, including externally funded ones. Canadian participants were also able to further engage Cuban counterparts as a result of external funding from two grants from

AUCC’s Canada-Latin America and the Caribbean Research Exchange Grants program (LACREG) submitted respectively by Canadian Project participants Drs. Ronald Pelot and Lucia Fanning.

Canadian participants played a key role in assisting Cuban faculty counterparts to publish their research outputs in international refereed periodicals, such as the *Ocean Yearbook* and participate in other activities at Dalhousie, such as the International Ocean Institute’s summer training programme.

Output 1.7	Increase in Cuban ICZM publications
Indicator	Publications on ICZM in Cuba in press/online

This Output consisted of four major types of publications produced as a result of or facilitated by project activities: (a) a major book on ICZM in Cuba; (b) articles, book chapters and CD ROM contributions; (c) dissertations; and (d) contributions to CARICOSTAS proceedings.

*(a) Major text on ICZM in Cuba*

A major contribution of the Project to publications on ICZM in Cuba is the conception and initiation of a three volume collection of materials to be used for training and further dissemination of ICZM. The overall title of the collection is entitled “Theory, Tools and Experiences of ICZM in Cuba.” This effort is unprecedented in Cuba. The three volumes will address the following themes:



- Vol 1: Integrated Management of the Coastal Zone of Cuba: Principles and Context.
- Vol 2: Tools for ICZM in Cuba.
- Vol 3: ICZM Experiences in Cuba.

Volume 1 was the final activity of the Project, and for which the Project kindly received an extension to enable this to happen. Subsequent volumes will follow post-Project. The book is described in Annex 5. This remarkable achievement is the first such work in Cuba. It was made possible by 28 contributors (see Annex 1) that included leading scholars and experts on ICZM, environmental management and related disciplines in Cuba. The 10 chapters are mostly team efforts. This activity was led by Dra. Patricia

Gonzalez Diaz, CIM/UH, who not only conceptualized the book, but was also the principal driving force at all stages.

*(b) Articles, book chapters and CD contributions*

Annex 4 lists over 38 scholarly contributions to ICZM literature in Cuba. Again, in addition to the Project participants, the numerous contributions frequently involved resource persons who were not formal participants in main Project activities.

*(c) Dissertations*

Annex 4 also describes theses (1 completed masters), mini-theses (22) directly supported by the Projector and others indirectly assisted (x 2 doctoral).

*(d) Contributions to CARICOSTAS proceedings*

The Project overlapped with two CARICOSTAS conferences in Santiago in 2011 and 2013. The Project Management Committee convened major workshops back-to-back with this major regional conference to multiply benefits for the Project and participants.



Details on the two conferences are as follows:

- V International Conference on Integrated Management of Coastal Zones (CARICOSTAS 2011), “Integration for the sustainability of coastal ecosystems”, Santiago de Cuba, 11-13 May 2011. Project participants presented 17 papers and posters at this conference.
- VI International Conference on Integrated Management of Coastal Zones (CARICOSTAS 2013), “Integration for the Sustainability of Coastal Ecosystems as a Consequence of Climate Change”, 15-17 May 2013. Project participants presented 25 papers and posters at this conference.

A total of 42 papers and posters were presented by Project Participants at the two conferences. The conference proceedings were made available on a CD ROM distributed to conference participants on registration.

**(d) Municipalities**

Output 2.1	Regional strategy for capacity-building in support of local ICZM utilising gender equity & sustainable development perspectives
Indicator	Regional strategy for ICZM capacity-building completed

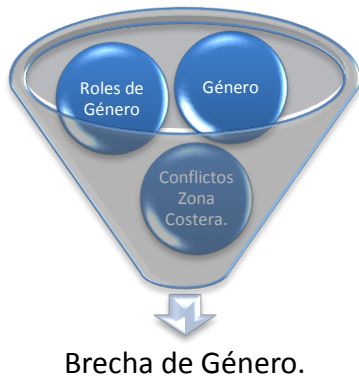
The Project developed an approach and a strategy for building ICZM capacity of local decision makers firmly rooted in local Development and with gender perspectives. The strategy emerged through the research and training activities in the form of cumulative lessons learned from the Project’s activities and how capacity building for local ICZM could be undertaken in the future. Drawing on the presentations and discussions at the Projects final evaluation workshop, key elements of the strategy include:

- using the CUMs as key staging posts for local capacity building, in accordance with Ministry of Higher Education policy;
- working within the framework of national environmental, developmental and education policies;
- ensuring that gender perspectives permeate all aspects of planning and management;
- ensuring local relevance via universities working in close partnership with CITMA and local governments;
- undertaking activities that produce practical and visible results for stakeholders (e.g., the practical benefits of better soil management and water use for food security and enhancing incomes); and
- working closely with educators and schools to maximize the impact of public education.

Output 2.2	A study on gender & equity issues in ICZM & environmental management in Southeastern Cuba
Indicator	Gender & equity study completed

Led by Dra. Ofelia Perez Montero working with a team, this Output resulted in a major study on gender perspectives as an important analytical tool for decision-making in ICZM and for enhancing social inclusion and participation in the use of natural resources for marginalized groups in rural areas (see presentation in Annex 5). The study identified major environmental hazards in coastal zones in Southeast Cuba (e.g., drought and desertification resulting in water





shortages, water contamination, food insecurity, and sea level rise). The Project employed triangulated qualitative research methods to understand macro and micro social realities in the focus areas. Gender profiles were created and related to ICZM issues, such as water and soil use conflicts. The traditional roles of men and women were then examined from the perspective of likely impacts on gender, as well as impacts on families and communities. A risk matrix to help explain likely impacts on gender relations was developed. For example, in the case of drought and desertification, the identified likely impacts included loss of work for men and women, lack of alternative employment options for women, loss of productivity resulting in lowering of quality of life, increase of stress for men and women and for men as providers, likely resulting in increased gambling, alcoholism, family violence, with the consequence

of further loss of scarce financial resources, thus undermining roles within the family. Among the many issues identified is the national coastal law's lack of consideration of issues that are critical from a gender perspective.

The study recommended actions for further integration of gender in ICZM, commencing with: (a) the identification of key environmental issues and their evaluation through the perspective of gender; (b) preparation of a program to develop consciousness of gender; (c) development of opportunities for equal access to funding by men and women within the ICZM program; (d) strengthening of the institutional and legal framework with an emphasis on the relationship between gender, environment and sustainable coastal development; and (e) adapting the program to the experience gained and as conditions change.

Several workshops formed the basis of the Project's work on gender, namely:

- Taller de Capacitación sobre la perspectiva de género en programas de MIZC en el Municipio de Guamá (29 November-3 December 2011; Wx10; Mx2).
- Workshop for public participation to develop the theme on roles in the most common activities in the municipality, namely fishing and agriculture in SAS (August 2012; Wx10; Mx38).
- Taller La perspectiva de género en programas de MIZC en el municipio de San Antonio del Sur (1-3 December 2012; Wx5; Mx10).
- Aplicación de técnicas de investigación, encuentro y entrevistas a personas de la comunidad, líderes comunitarios, tomadores de decisiones del Municipio de Guamá (18-23 March 2013).



- Taller Género, desarrollo y medioambiente, con representant de la Federacion de Mujeres de Cuba (FMC) del Municipio de Guamá. (2-4 October 2013; Wx7; Mx2).
- Aplicación de tecnicas de investigación, encuentro y entrevistas a personas de la comunidad, lideres comunitarios, tomadores de decisiones del Municipio de Guamá (18-23 March 2013).
- Taller Género, desarrollo y medioambiente, con representant de la Federacion de Mujeres de Cuba (FMC) del Municipio de Guamá (2-4 October 2013; Wx7; Mx2).

The workshop process was accompanied by a number of subsidiary activities, including:

- Field work, interviews and meetings in Guamá and SAS.
- Training of 25 women leaders in the SAS on women and employment, gender and communication, women and environment protection)(September 2012).
- Organization of a competition (poetry, story-telling, etc., with the theme “Women and families united in the protection of my soil and coast” (March-July 2012; Wx12; Mx7).
- Beach and mangrove cleaning (May 2012; Wx20; M11).
- Leaflets (with advice) for women and their families in ICZM and soil management (October-November 2012).

In general, and considering the low level of funding available for research activities, this line of activity exceeded what was originally planned. The list of subsidiary activities demonstrates that this Output produced several unexpected activities that served to enrich the process of study and the study itself as a whole.

## ESPACIOS PÚBLICOS: ¿DÓNDE ESTÁN LAS MUJERES ?



Output 2.3	Trained local government officials in ICZM from Guamá & SAS on specific ICZM & environmental management issues
Indicator	9 training modules delivered at each of Guamá & San Antonio del Sur, producing in total 240 trainees (Wx120; Mx120)

This Output was one of the major activities of the Project and addressed the key purpose of building local ICZM capacity to address problems faced by the rural communities of the coastal zones of SAS and Guamá. There was a large faculty team that travelled great distances on poor roads to deliver the courses in individual or team format (see Annex 3, 3.3). This Output is an extension of Output 1.3, the latter consisting of the development of the following courses already reported upon above:

- Transferencia apropiada de conocimientos y tecnología para el desarrollo local
- Educación Ambiental y para la Salud.
- Gestión ambiental empresarial
- Ordenamiento territorial
- Agroecología y Sustentabilidad Alimentaria
- Técnicas y Habilidades de Manejo de Conflictos
- Gestion de proyectos
- Desarrollo local
- Patrimonio histórico-cultural y natural



The courses were specifically developed and evaluated during the regional workshops to address the needs of decision makers at the local level, which tended to consist of municipal officials and officials of national and provincial agencies operating at the local level in SAS and Guamá. There was a very broad range of participation from governmental institutions and other organizations at the local level. Given the continuing education and adult learning context, the delivery of the courses was guided by principles and practices of andragogy, in particular relying on participative approaches and focusing on the actual local environmental, developmental and health problems that participants were addressing in their work. Materials were provided to participants in digital format. The Avals indicate that participants shared these materials at their work stations. The delivery of the courses through the CUMs in the rural communities

themselves greatly strengthened the profile and capacity of both centres to deliver relevant training where and on what matters at the local level.

The delivery of these courses is described with regard to each of the municipalities.

(a) SAS

At the UG/SAS CUM 238 participants registered for all the courses (see Annex 3, 3.3.1). This figure translates to an average participation of 29.75 persons per course. Course participants covered a broad range of themes including: concepts, settlements and land-use planning in coastal zones; vulnerabilities of coastal settlements to natural disasters; good and bad practices in planning and land use; best practices for the agroecosystem in the Rio Macambo watershed (e.g., soil management, polyculture, crop rotation, integrating farming with grazing); environmental management tools; and community-based approaches. The courses employed integrated perspectives, participative andragogy, multidisciplinary and problem-oriented approaches, with a focus on local development. Instructors included academics and local practitioners. Employing institutions and participants were very appreciative of the instruction they received, as is demonstrated by the Avals from Guantánamo (Annex 11).

(b) Guamá

The UO/Guamá CUM had 164 participants, translating into an average of 20.5 participants per course (see Annex 3, 3.3.2). The institutions represented were several, including national agencies with local offices (Health, Education, Agriculture, Culture, Tourism, Science Technology and Environment, INDER) and municipal government. As in the case of SAS, students evaluated the courses very favourably. Instructors were well prepared. The CUM capacity was strengthened. The themes discussed included identification of coastal zone problems and conflict management situations, several of which were topics for mini-theses by Diploma-registered students. Through its courses, the Project enjoyed a high degree of visibility and recognition at the municipal government and community level in Guamá.

At the request of the Vice-President of the Administrative Council of Guamá training on the management of coastal municipal projects was delivered. Faculty and students jointly developed a new project entitled: “Formación de capacidades para el manejo integrado de suelos, con énfasis en la producción de alimentos en el Municipio costero de Guamá.” Cuban Government policy encourages local governments to manage projects for local development.

Output 2.4	Establishment of a network of academics, graduates & practitioners who will act as resource persons for ICZM in Southeast Cuba
Indicator	ICZM network for Southeast Cuba established, based at UO

The Project established a large regional network of ICZM academics, graduates and practitioners. There were approximately ten participants from the base project that formed the initial core. The further development of capacity at the UO and inclusion of UG, as well as governmental expertise at the local level, very significantly increased the ICZM expertise available in Southeast Cuba. Cumulatively, the project workshops, diploma, training courses and research activities have significantly multiplied the available expertise, which is now likely the largest concentration of ICZM expertise in Cuba at this time. The Project activities substantially strengthened the coastal zone community, not only in Southeast Cuba but likely also on a national scale. This is evidence in particular by the ICZM book project which involved participants from across Cuba.

A significant further contribution to the development and servicing of the ICZM network is CARICOSTAS, an international conference on ICZM in the Caribbean, with particular emphasis on Cuba, organized by CEMZOC at the UO. This conference circuit regularly attracts participants from across Cuba and 10-15 countries. As reported above, this conference has enabled many Project participants to present papers on various aspects of the Project, both during the currency of the Project and prospectively into the future. This conference includes meetings of MICZM alumni.

Cumulatively, the Project’s activities and synergy with CARICOSTAS have established the largest epistemic community of ICZM expertise, and especially at the local level in Cuba.

Output 2.5	Strategy for the integrated management of Rio Sevilla in Guamá
Indicator	Strategy for the integrated management of Rio Sevilla in Guamá completed

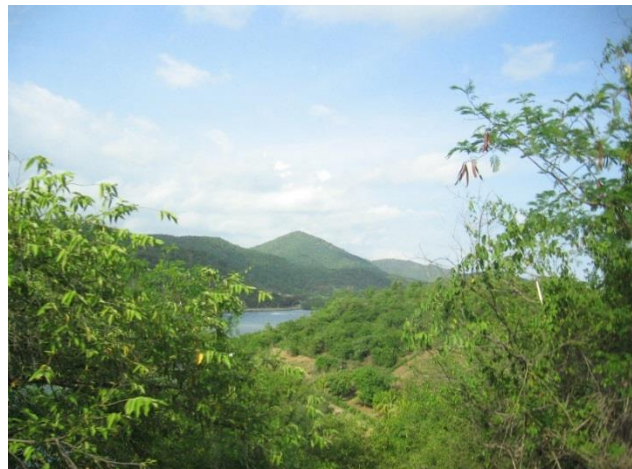
The expectation of this Output was a proposal for a large-scale strategy for the sustainable development of the River Sevilla watershed (Programa de Manejo Energético Ambiental Integrado de la Cuenca del Río Sevilla) (see Annex 6). The Rio Sevilla watershed is located in an interface area between the steep Sierra Maestra Mountains and a narrow coastal strip. The communities involved moved from mountainous to coastal areas relatively recently. The watershed is susceptible to a wide range of natural hazards, including hurricanes and tropical storms, seismic activity, erosion and flooding. Natural hazards are exacerbated by unsustainable human activities, including deforestation, grazing and particular water uses. The strategy is effectively an integrated management program built on land use planning and environmental management planning to promote sustainable socio-economic development and nature conservation.



Conducted by a research team led by Dr. Jose Planas Fajardo (CIES, CITMA), the goal was to enable the establishment of a land and water use plan and the implementation of integrated management to contribute socio economic development and conservation of the area to contribute to local economic development and increased food security while promoting environmental conservation. The specific objectives were:

- To develop a new strategy to fine-tune ICZM through the development of more effective environmental management procedures in coastal and watershed areas, with community participation and decentralized decision-making.
- To identify the main environmental problems and key actors that should participate in the formulation of the integrated river basin management program.
- To carry out integrated and participative diagnosis in the key areas utilizing gender perspectives.
- To elaborate the Integrated Management Plan to improve environmental conditions and socio-economic activities through the rational utilization of natural and human resources.

The activities behind Output 2.5 drew on existing knowledge and expertise in CITMA and undertook further desk and field research, as well as convening research meetings. The research team completed cartographic, socio-economic and hydrographic characterization of the study area and a strategic environmental assessment using participative techniques. Workshops were convened and field work undertaken. The activities involved local stakeholders. The key

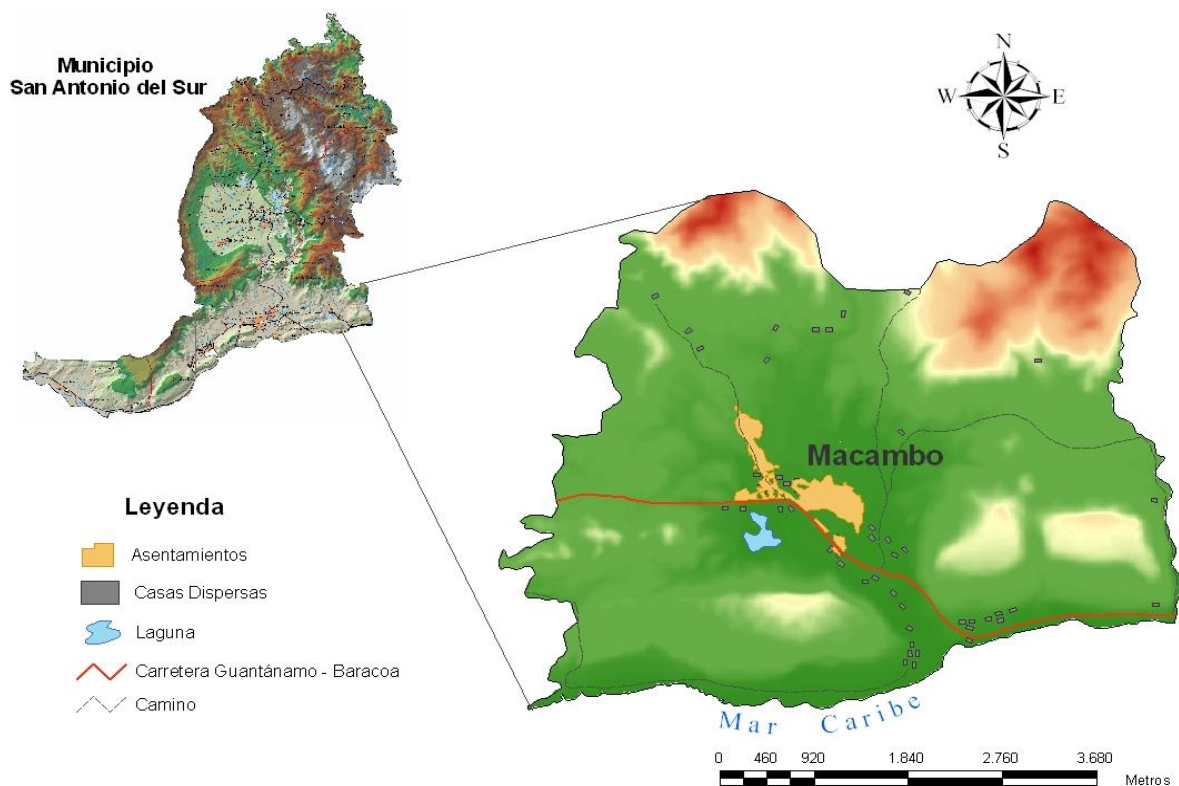


contribution of this Output was a large-scale vision for an entire watershed. The strategy addresses 24 key environmental problems, identifies planning and management actions, sets out the institutional framework, and elaborates an evaluation framework.



Output 2.6	Strategy for integrated soil management in Macambo (Guantánamo)
Indicator	Strategy for integrated soil management in Macambo (Guantánamo) completed

The goal of this activity was to address the capacity-building needs through agroecological, environment protection and soil management to enhance productivity and quality of life of the community of Macambo in SAS (see Annex 7). Macambo covers a large rural area of 406 km<sup>2</sup> with less than a thousand inhabitants. It is poor and subject to several interacting hazards, some natural others human-caused, including hurricanes and tropical storms, sea water penetration (salinization), precipitation leading to flooding, erosion, seasonal drought, strong winds and forest fires. Human pressure through deforestation in some areas, monoculture farming, unsustainable water use, farming in sensitive areas, among other, exacerbated the problems. While the area was already receiving CITMA (CATEDES) attention, the Project played an important part in demonstrating the viability of different development scenario for a vulnerable coastal area that has farming as a critical use.



The Project was coordinated with existing initiatives of CITMA, in particular CATEDES, and dovetailed with funding from MINAGRI and indirect support from the United Nations Development Programme (UNDP). A multidisciplinary team was led by Ricardo Estévez Gilbert (CATEDES). The specific objectives were to:

- identify principal environmental problems and key actors to participate in the development of a program for soil management;
- undertake an integrated and participatory diagnosis of key areas using a gender perspective;
- develop capacities for agroecological management and soil protection and conservation to improve the quality of life in the community;
- elaborate an integrated management plan to improve environmental conditions and socio-economic activities, rationally using the potential of local natural and human resources; and
- disseminate the principal experiences of the project in other communities through multimedia presentations.

A vision based on community priorities until 2020 was developed using the following factors: land use planning for the Macambo area; selection of cultures, varieties and

species; alternative modes of water use management; appropriate agrotechniques; appropriate methods for the utilization of forested/shrub areas; recycling of waste waters; economic and energy flow controls. The ensuing management plan is based on a multi-institutional partnership.

For the purposes of the Project focus was on three selected farming estates (fincas) where the respective farmers were eager to be part of the project and to experiment new farming approaches. Activities included field work to take soil samples from selected farm sites (58 samples). The samples were classified and cartographic work on the respective types of soils was undertaken. The Palintest kits purchased with Project funds, were important for soil analysis. Different types of soil were classified and issues identified. There were two workshops to prepare farmers (campesinos) on techniques of management and conservation of soils and conflict management (between uses) in the coastal zone (December 2012; W3;x Mx16). The soil study was the first ever conducted in Macambo and the results were incorporated into the land use planning for the municipality. In addition to the scientific and planning activities, this Output involved public education activities in Macambo’s school. The school children were involved in projects and exhibition focusing on environmental awareness. The thinking was that school children would further transmit environmental values to their respective families.

With blended support, the Project contributed to the qualitative improvement of 25% of the soils of the selected farm pilot sites through techniques to avoid erosion, compactions, salinity and to enhance productivity and increase in income. Further, organic matter which would otherwise cause environmental problems was used to enhance soil quality, resulting in reduction of use of chemical fertilizers by 50%. There were material benefits: as a result of polyculture based on particular short term cultures (e.g., tomatoes, onions, tomatoes, beans, maize, pumpkins, papaya, etc.), significantly enhancing income of the three estates by 35% on previous years (see figures for 2012-13 in Annex 7 (slide 40). Twenty-five hectares were reforested with fruit and other trees.





Ten hectares of salinized soil were rehabilitated. The Project’s particular contribution (as distinct from CITMA, MINAGRI and UNDP support) was with regard to strategy development, training and provision of the key Palintest soil and water testing equipment.



The Macambo community has embraced an “environmental culture.” The results triggered interest in other communities in Guantánamo, for example Baia de Cauteri (where CATEDES will expand Project activities) and the Rio Sevilla area. The Macambo research focused on specific actions, whereas the Sevilla research was at the strategic environmental assessment level. The specific results of Macambo are likely applicable in Sevilla. In turn, the Macambo team felt that the Macambo watershed would benefit from a strategic environmental assessment. The strategies for the two areas cross-fertilized each other, while also benefitting from the Project’s gender study.

## 2.1.2 Outcomes

### (a) Universities

Outcome 1.1	UO & UG are able to contribute to national policy/practices on ICZM & achievement of MDGs through their enhanced capacity to deliver gender-equitable ICZM education & training activities through their CUMs in Guamá & San Antonio del Sur
Indicator	National recognition of the UO & UG of their work in building local government capacity for ICZM & recognition by national & provincial authorities of the enhanced municipal governments’ human resource capacities for local coastal management.

The UO and UG were recognized by MES and CITMA for their capacity-building for ICZM and sustainable development by being allocated responsibilities in their regions. The SAS and Guamá CUMs were designated pilot projects for local development and the training strategy for management and decision-making in coastal municipalities, an MES policy concerning university management of knowledge and innovation for development.

The Project’s achievements were further recognized with the following awards:

- Premio Aurora Pons awarded to UO for the best project of 2014.
- Premio Colaborado Innovacion Tecnologica Provincial awarded to Lic. Ricardo Estévez/ CATEDES, UG and CUM/SAS for the Project for the Integrated Soil Management of the Macambo Community (Coordinadoras: Dra. Estrella Cazañas Díaz y Dra. Milagros Sagó Montoya) in 2013.

Outcome 1.2	DU enjoys greater exposure to development issues in Cuba
Indicator	Project receives recognition at DU.

The Project received substantial contributory support from DU. DU was exposed to development issues in Cuba through the direct participation of Dalhousie faculty in Project activities in Cuba, Dalhousie faculty participation in Project activities at Dalhousie and a visit by a delegation from Cuba that included an intensive program of activities and a workshop in Halifax. The Project was also covered by the DU's public relations media on campus (see Annex 8). Despite the small number of DU participants in Project activities in Cuba (three faculty; two persons from the Office for Research Services), the participants were very actively engaged in the Project. Further, as noted earlier, Drs. Fanning and Pelot also launched two LACREG projects, further deepening Dalhousie engagement with Cuban partners and multiplying Project results.

**(b) Municipalities**

Outcome 2.1	Municipal governments are able to undertake gender-equitable local ICZM and integrated strategy development to resolve local coastal & environmental problems in Guamá & San Antonio del Sur
Indicator	Satisfaction by municipal governments involved with the ICZM & environmental management capacity developed

The Avals (see Annex 11) are unambiguous in expressing a high degree of satisfaction with the results produced by the Project. A large number of officials benefitted from the full range of education, training, research and strategy development activities focusing on the specific needs of their respective municipalities. The large number of participants suggests that a critical mass of expertise on ICZM and local environmental planning and management with particular gender and sustainability perspectives and ethic has been built. The general impression that comes across from the Avals is that local government units appear to have acquired the knowledge and skills needed to address local coastal and environmental issues.

Outcome 2.2	Education & training in ICZM/environmental management at the local level has more women and youth participants
Indicator	Visible increase in the numbers of women & youth enrolled in ICZM & environmental education/training courses.

The Project's participation statistics demonstrate strong participation by women (see Annex 1). Globally, it appears that the Project achieved overall parity in gender participation. Different activities varied in terms of representation.

The Project had also participation from youth (in particular school children) in both SAS and Guamá. The CUM staff at both sites had excellent relations with the local schools and were able to organize activities environmental education at schools and also for seniors. In SAS interest groups were established at the municipal (Circlo de Interese de SAS) and local level (Circlo de Interese de Macambo). A



similar group was established in Guamá (Circlo de Interese de Chivirico). One activity in Guamá was an open day environmental awareness fair organized at the CUM premises in Chivirico that included both seniors and school children.

## 2.2 Progress achieved, results and unanticipated achievements

The expectation of the UPCD Scaling-Up Projects Competition was to “extend the reach of the base project’s results, demonstrate an alignment between project activities and national strategies and include strategies for institutional capacity building and poverty reduction” (UPCD, *Scaling-Up Projects Competition Guidelines*, March 2008, at 3). The goal in the original Project proposal document was “to support the implementation of local integrated coastal zone management (ICZM) and pursue the interrelated Millennium Development Goals (MDGs) of development and poverty eradication, environment protection, good governance and protection of vulnerable people in the coastal zone of Southeast Cuba.” The Project’s rationale was “to strengthen efforts of the UO and UG to build the capacities of the selected municipalities to undertake local ICZM in order to achieve national development, environment and higher education policy objectives. The project will focus on the two municipalities and the UO/UG MUCs, with emphasis on particular local development needs of the communities in their regions and with a view of improving their quality of life.” Further, the proposal document stated that the “focus is on building capacity at the local level because local decision makers are at the frontline of these coastal zone issues and are called upon to a solve the problems which their communities face.” Finally, the proposal document also stated that the project “will develop a model collaborative approach” that will serve as a model.

The Project partners believe that the Project lived up to all of the expectations in the Project proposal document and RBM framework. The base project’s ICZM tertiary education and research capacity was used and extended to the UO and UG university centres in Guamá and SAS, resulting in the development of local capacity for ICZM. In doing so, the Project aligned with the following key national strategies:

- The Project operated within the MES' policy of universalization of university education throughout Cuba to provide life-long access to tertiary education for all citizens. The CUMs were established throughout Cuba as a result of this policy. The Project pursued outreach activities through the UO and UG CUMs in Guamá and SAS to deliver knowledge and know-how to coastal municipalities, as well as build capacities in the CUMs to deliver local training, and in the municipal governments to plan and manage local environmental and development problems.
- The Project, with support from CITMA units, operated within and furthered the objectives of Cuba's National Environmental Strategy, 2011-2015 (in particular with regard to climate change impacts and related hazards in coastal zones) and National Environmental Education Strategy, 2010-2015 (in particular actions with regard to sustainable development, interdisciplinarity, participatory approaches, gender perspectives and local development).

The progress and results achieved include: (a) strengthening of capacities at UO and UG; (b) strengthening of CUMs in SAS and Guamá; (c) capacity-building for local ICZM; and (d) unanticipated results. For (a) to (c) the achievements are described in Tables 3, 4 and 5 below prepared by the Cuban partners at the Fifth and Final Regional Workshop on Project Evaluation.

#### **(a) Strengthening of capacities of the UO and UG**

Table 3 describes the impacts produced on the UO and UG. The left column indicates the impacts identified by the Cuban partners and the right column provides bases for assertions. The impacts include change in approach and methodology of work (1), strengthening of graduate education (2), expanding the participation of faculty in education in agronomy and socio-cultural studies (3), training received by junior faculty in conducting training activities (4), strengthening and expanding the networking of CEMZOC at the UO and elsewhere (5), increase of the participating units' international work and networking (6), synergy created with participants at CARICOSTAS (7), and transfer of knowledge and technology among the participating universities (9). These impacts received recognition and recognition by provincial and municipal authorities (8).

Table: 3 Impacts on the UO and UG

Cambios que trajo el proyecto en UO y UG	Evidencias
1. Cambios teóricos metodológicos y axiológicos.	Modificaciones a los programa de los cursos.
2. Fortalecimiento de la actividad de postgrado.	Equipamiento introducido que permite mejorar el postgrado Cantidad de infraestructura recibida.
3. Incorporación de profesores de la universidad en la figuras de postgrado y la calidad de la formación de los profesionales en agronomía y en estudios socioculturales.	Preparación de los profesionales y fortalecimiento del CUM Acompañamiento en la estrategia de desarrollo local.
4. Fortalecimiento de la formación de jóvenes profesores en la participación de diferentes cursos como profesores colaboradores.	Número de profesores participantes en los entrenamientos.
5. Fortalecimiento del CEMZOC con otras áreas de la y universidad y dentro de ello con el departamento económico.	Cambios positivos en los procesos de gestión económica del proyecto.
6. Crecimiento del trabajo internacional en redes	Participación en más de 7 redes internacionales
7. Incremento en la participación de especialistas nacionales y extranjeros en la V Conferencia internacional de MIZC CARICOSTAS'2013	Aumento de ponentes en el tema de MIZC
8. Reconocimiento del gobierno de los municipios y la provincia	Presentación en la Asamblea Nacional
9. Transferencia de tecnología y conocimientos en ambas universidades	Aplicación en los resultados de las tesinas y la capacitación técnica del empleo del os equipamientos .

**(b) Strengthening of CUMs in SAS and Guamá**

Table 4 describes the impacts on the CUMs in SAS and Guamá. While the CUMs are extensions of the UO and UG, they were specifically targeted by the Project because of their frontline work in delivering continuing education and outreach in the participating municipalities. Hence their impacts are identified separately as follows: capacity building to deliver training (1), increased knowledge for risk assessment (2), growth in scientific standard (3), faculty and personnel development (4, 5), enhanced standard for delivery of post-graduate training (6), better preparation of faculty complement at CUMs (7), increase of publications (8), enhancement of two seminar rooms in CUMs (9), enhancement of project management capabilities (10), completion of local development workshops (11), and public education and knowledge transfer to as many as 38 children in the project areas (12).

Table 4: Strengthening of CUMs in SAS and Guamá

<b>Cambios que trajo el proyecto en CUM de Guamá y SAS</b>	<b>Evidencias</b>
1. Formación de capacidades	Más de 50 profesionales capacitados
2. Incremento en los conocimientos para la gestión del riesgo	25 cursistas
3. Crece el nivel científico	3 artículos publicados y otros 4 en procesos 2 propuestas a premios CITMA
4. Capacitación del personal	2 MICZM 21 especialistas en manejo 42 graduados en los diferentes cursos 4 graduados en el curso de biología marina.
5. Capacitación de los profesores del CUM	10 profesores capacitados
6. Crece el nivel del proceso de formación postgraduada	Evaluación positiva de los egresados de los cursos sobre la calidad del claustro. Reconocimiento y creciente nivel de participación de las entidades participantes. Colaboración entre el CUM, CATEDES y el CITMA
7. Mejor preparación del claustro de profesores del CUM Guamá.	14 profesores mejor preparados.
8. Incremento de publicaciones.	4 artículos
9. Dos aulas de postgrado.	Equipamiento de dos aulas con datashow, mesas, sillas, portátil, placa de donativo, etc.
10. Incremento en la gestión de proyectos del CUM	Aprobación de dos nuevos proyectos en ambas CUM
11. Desarrollo de dos talleres de desarrollo local	Boletines y un folleto y 34 personas participantes
12. Transferencia de conocimiento para la educación ambiental de niños y jóvenes que trabajan para la zona costera.	38 niños capacitados y fomentados con una cultura ambiental elevada. Imágenes y fotos tomadas en las áreas de trabajo (Yanet Cruz).

At the Final Regional Project Evaluation Workshop participants commented on the Project's major impact on the CUMs in terms of how education and training activities were delivered (team work, interdisciplinarity, problem-oriented). Many local participants indicated that they were unaware of what the integrated approach meant before they participated in project activities. Participants from the CUMs commented that the Project helped establish them as major educational and scientific centres. School teachers and students visit the Centres to seek information.

**(c) Capacity-building for local ICZM**

As described by the Cuban partners in Table 5, this activity had a far-reaching impact at the local level. The Project disseminated new knowledge among local decision makers, some of whom included personnel who completed the Diploma (1). Significantly, the Project changed the way local decision makers think about management of coastal zones and watersheds (2). They benefited from transfer of technology and know how, for example how to increase food production in the coastal zone while respecting its integrity (3). Workers in the Project areas benefited from acquisition of a new cultural understanding and language to pursue development (4). Local decision makers benefited from the interaction with academics which helped problem analysis and participatory problem-solving (5). New methods and tools were used in the two pilot areas (e.g., integrated soil management, strategic environmental assessment) (6, 9). Strategies for local development were enriched by new perspectives that emphasized the integrated approach to local development and environment protection (8). The environmental culture of the areas was enhanced, as can be seen from the various events for the public and children (10). There was a significant increase in the understanding of gender issues in both municipalities (11). Participating farmers benefited through acquisition of new knowledge and skills in managing their farming environment and the quality of the agricultural environment was improved through activities for reforestation and desalinization (12, 15). New technologies for water use and conservation were introduced and watershed authority established (13, 14). The benefits are attested to by the two municipalities (7; see also the Avals in Annex 11). The partnership with CITMA and its various units (CATEDES, CITMA, CIES) helped build critical mass to produce results that the university partners on their own would not have been able to achieve.

At the Final Regional Project Evaluation Workshop there was extensive reflection on the significance of these changes. The President of the Municipality of Guama underscored the importance of the Project in the development of leaders. The experience of the aftermath of Hurricane Sandy was described as a major lesson, “a practical class” in the importance of being prepared to respond and recover. The Project’s training plays a key role in better preparing municipal personnel to better prepare and respond knowledgeably. The entire territory of Guama is vulnerable and information on the Rio Sevilla watershed from the mountains to the coast is vital. The Municipality President further stated that the education and training through the CUM sensitized the Municipality on where to start planning to locate new buildings (e.g., a new school and food centre).

The Diploma courses were described as helping to conceptualize data for mapping. For example, a representative from Physical Planning in Guama described how the course in land use planning (Ordenamiento Territorial) encouraged a closer look at certification to ensure whether construction complies with building regulations in the coastal zone. It was felt that the Project helped Municipalities better identify and allocate roles in the territory.

Table 5: Strengthening of Local Government

<b>Cambios que trajo el proyecto Municipios y Gobiernos locales</b>	<b>Evidencias</b>
1. Nuevo conocimiento adquirido por los tomadores de decisiones algunos del os cuales fueron formados en el diplomado.	Aprobación del os resultados del proyecto en el Consejo de Administración Municipal (CAM).
2. Cambio en el pensamiento para la gestión de la zona costera y el manejo de cuencas.	Cambios positivos en el modo de actuación para la toma de decisiones.
3. Transferencia de tecnología.	Incremento en la producción de alimentos.
4. Elevación del nivel cultural de los pobladores de la localidad y enriquecimiento de su vocabulario.	Desarrollo de las actividades efectuadas con los pobladores en los consejos populares en actividades recreativas.
5. Presencia de os profesores dentro de los consejos populares	Incremento de actividades desarrolladas para identificar problemas, conflictos y resolver sus propios problemas de manera participativa.
6. Nuevas herramientas metodológicas aplicadas en los municipios	Aplicación en las dos cuencas estudiadas (Sevilla y Macambo)
7. Resultados de investigación y formación fueron incluidos en el programa de OT de ambos municipios.	Avales de esa introducción de resultados por las Direcciones Municipales de Planificación Física (DMPF). Base de datos actualizada de la cuenca. Plan de manejo de las cuencas.
8. Enriquecimiento de la estrategia de desarrollo local y creación de la estrategia medioambiental	Actualización de la estrategia de desarrollo local y creación de la nueva estrategia medioambiental en San Antoni odel Sur
9. Apropiación de técnicas viables para el manejo sostenible de los suelos.	Incrementos en la producción agrícola.
10. Elevación de la cultura medioambiental en los municipios.	Boletines, eventos realizados en los municipios, grupos infantiles formados
11. Incremento de los conocimientos de género en ambos municipios.	Tesis de maestría, tesinas y resultados de investigación, que incluye talleres, etc.
12. Capacitación de los campesinos.	Incremento de la producción agrícola en el territorio.
13. Introducción de nuevas tecnologías en el territorio para resolver el problema de abastecimiento de agua	Un ariete hidráulico montado
14. Elaboración de una autoridad de manejo en cuencas no priorizadas	Aval y acuerdo de la aprobación por parte del CAM
15. Incremento de calidad de los suelos	25 Hectáreas reforestadas 10 hectáreas desalinizadas.



#### **(d) Unanticipated results**

At the cost of repetition, but given the importance and their role in enriching the Project's results, a number of unanticipated results should be underscored.

Naturally, the Project partners planned and hoped for impacts at the local level. The actual impacts on the quality of life of the participating farmers in the Project's work in Macambo during the life of the Project were remarkable. As reported, the pilot areas for the soil management activities resulted in significant increases of productivity. As a result, farmers of the three farmholds (fincas) enjoyed more diverse production, surplus and higher incomes. This was achieved as a result of promoting a better understanding of the particular environment and different soil types, promoting soil and water conservation, moderating the use of nitrogen, enhancing appreciation of the role of forested areas and need to strategically afforest particular transition zones. Also impressive were the insights produced in the Rio Sevilla strategy. There emerged a better understanding of what areas were better suitable for farming rather than the grazing of animals. Areas that had promise for the development of renewable energy sources were also identified. At the final Project Evaluation Workshop, the Guama President stated that the Rio Sevilla strategy would help reorganize local decision-making and that it was a useful tool that will help organize, among other, food production in the Municipality. The strong partnership between CITMA, municipal governments, universities and the farmers themselves was key.

COSTASURESTE reached out to the next generation in unanticipated ways. The original thinking in the project was to engage participation at the education and professional levels. However, when the opportunities arose, because of contacts at the local levels, the CUMs were very successful in multiplying the Project's impacts beyond what was originally expected. As it turned out, activities at the local level through the CUMs



provided opportunities to engage local schools and promote environmental education culture by addressing local issues. The involvement of 38 children in public education activities and raising their awareness so that they can in turn influence their own families was an unanticipated result. The activities included competitions, beach cleaning, educational talks, celebration of environmental dates, and planting of trees and mangroves.

## EDUCACIÓN AMBIENTAL CON NIÑOS Y JOVENES EN LOS MUNICIPIOS COSTEROS de Macambo, guama y santiago de cuba.



While the RBM framework clearly planned environmental education activities, it was not anticipated that the national stage would actually also be accessed. The production of audio-visual materials evolved into the production of two documentaries in 2014 (“Guamá, entre el mar y la montaña”; “San Antonio del Sur una tierra que renace. Both documentaries were broadcast on national TV and national and provincial radio in Cuba. The documentaries performed dual functions of education tools and public information, in particular in informing the Cuban public of the Project’s results and their impacts on the coastal municipalities.

As reported under Output 1.7, the production of the first ever book on ICZM in Cuba was the direct result of this Project. While the RBM framework anticipated an increase of publications on ICZM, there was no expectation to produce a major work in the form of a book that would be the first in the ICZM field in Cuba. Cuba has had remarkable success in sustainable ICZM since the initiation of the base project (1999), but that success story was as yet untold on this scale. This is significant because it opens the door by providing an example for other initiatives among Cuban academics. The activity also brought together a large number of academics and practitioners from beyond the Project areas and from across Cuba.

Finally, also unanticipated was the Project’s ability to foster an environment and generate synergy among partners to propel new initiatives within the life of the Project itself. Two successful LACREG projects were launched from the connections established in the Project. In June 2012 a collaborative LACREG application was submitted to AUCC by Dra. Ofelia Pérez Montero (UO), Dr. Pedro Beaton Soler (CITMA) and Dr. Ronald Pelot (DU) with a focus on strengthening Coastal Zone Risk

Management capability in Southeast Cuba. The grant was for a 1-year award of \$15,000 for 2013. The project enabled a PhD candidate at UO (Liliana Mesa Mesa) to attain significant exposure to risk analysis and risk management processes for her thesis proposal on marine spills. The candidate, Dra. Perez (supervisor) and Dr. Beaton (doctoral committee advisor) visited Dalhousie to undertake risk training with Dr. Pelot (doctoral committee advisor), meet with local risks analysts, access risk reports, and visit relevant coastal zone sites. The project also resulted in an introductory 3-day Risk Management Workshop with co-funding from COSTASURESTE for provincial and local government officials, university faculty and graduate students (see Annex 3, 3.5). The focus was on the coastal area of Guamá and the project introduced more formal risk management to some of their coastal zone problems and improved capacity for risk analysis through the provision of risk assessment tools and methods. In 2013 a second LACREG application was made by Dr. Lucia Fanning (DU), Dr. José Abelardo Planas Fajardo (CITMA/CIES), Dr. Camilo Mateo Botero Saltaarén (Universidad Sergio Arboleda, Colombia) and Dra. Celene Milanés Batista (UO). The project studied indicators for effective land use planning, governance and coastal zone management in Southeast Cuba and the Caribbean coast of Colombia. The project was conducted in 2014-2015 and focused on identifying indicators to facilitate the evaluation of local development strategies and for the purpose of proposing an evaluation model informed by gender and community participatory perspectives. The project promoted sustainable development planning to help minimize climate change impacts.

### **2.3 Variances between outputs/outcomes planned and achieved results**

By and large, there was relatively little variance from the core of the original RBM framework. There was a far larger number of participants than originally expected: this was a clear benefit and increased the number of beneficiaries. There were also new workshops (e.g., risk assessment) and additional deliveries of certain workshops (e.g., marine biology). The key anticipated results were all achieved. The variances tended to be in the form of unanticipated results reported above and which added value.

A variance from a management and reporting perspective was the two extensions requested and received for the project, and approved by DFATD. The first extension enabled the Project to add a fourth year to enable particular activities to take place as planned, in particular following the damage inflicted by Hurricane Sandy. The second extension added another ten months to enable completion of one last project activity (the book project) and completing all reporting requirements.

### **2.4. Contributions to the Government of Canada's developmental priorities**

The Canadian developmental priorities for good governance, environmental sustainability and modernization of the state and local development were addressed, especially as follows:

- Good governance: in particular through science-based integrated planning, management and participatory approaches, accompanied by public information and education.
- Environmental sustainability: in particular through the promotion of ICZM and strategic environmental assessment to address human pressure on sensitive systems and with regard to climate change impacts.
- Modernization of the state: in particular at the local level, through training of local government personnel in contemporary approaches to risk assessment, resource management and land use planning.
- Local development: particularly through integrated planning for environment and development, employing gender perspectives and on the basis of an understanding of how communities and resource systems may interact in a sustainable manner.

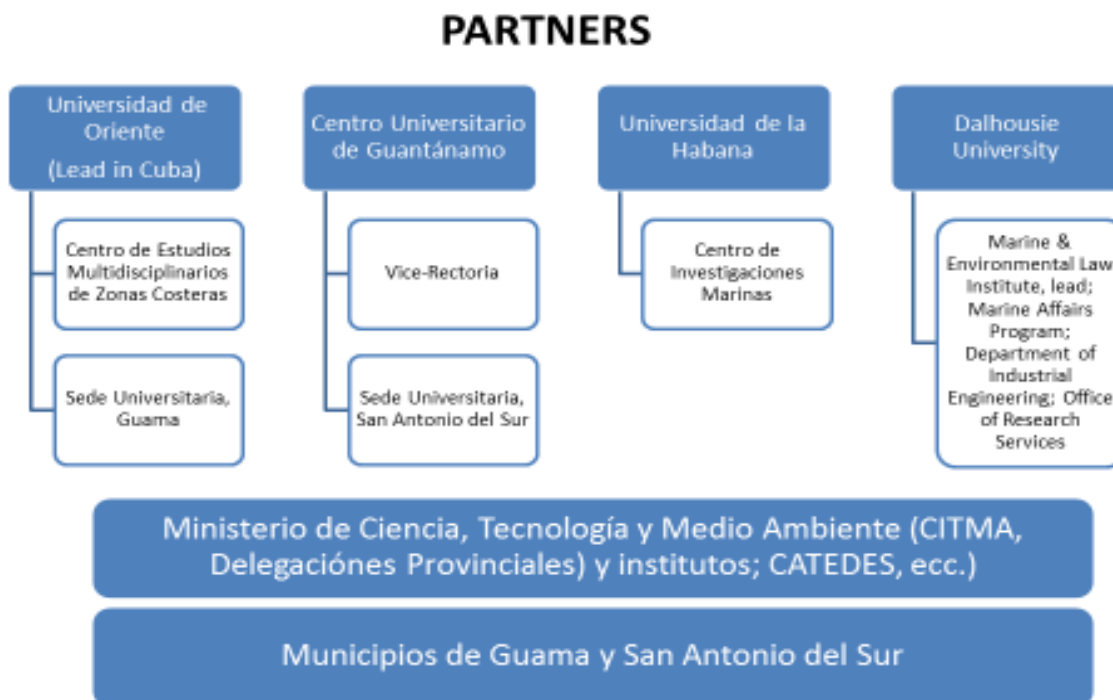


3. PROJECT GOVERNANCE

3.1 Project governance and accountability

3.1.1 Governance structure and process

Figure 1: Project Governance Structure



The governance structure and process of the project ensured that project partners shared responsibility and accountability for all aspects and results of the project. This is explained in Figures 1 and 2. Figure 1 describes the partners. The partners in Cuba were also the project stakeholders. The first level describes the four university partners, with the next levels describing the actual units that led each university’s respective efforts. The next two levels describe the participation of (a) CITMA as a key national and provincial government agency responsible for coastal zone and environmental management, and (b) the municipal governments of the two pilot areas, namely Guamá and SAS.

This structure was reflected in the principal governance unit of the project, the Project Management Committee (PMC), whose composition is described in Figure 2. Each university had one formal representative. CITMA had the Delegado Provincial (the highest officer representing the Ministry in the province) and up to two participants from government at the local level. The latter included the Mayor of Guamá and a representative from the local office of CATEDES in SAS. The university partners took turns in hosting, providing a venue and organizing the logistics of each PMC meeting. PMC meetings for the most part were convened in association with major regional workshops to optimise costs. The draft agenda was prepared by the Project director and communicated to partners in advance of each meeting. The agenda was finalized and adopted at the inception of each meeting. Typically, each meeting had regular agenda items, such as (1) adoption of the draft agenda, (2) correction and adoption of minutes of last meeting, (3) matters arising from the minutes, (4) status of organization of current regional workshop, (5) progress on activities since the last meeting, (6) particular matters or issues, (7) budget and reporting matters. Project decisions were undertaken on the basis of consensus. All major project funding allocations and changes were made on this basis. The PMC met seven times throughout the life of the Project (see Table 3).

Figure 2: PMC Composition

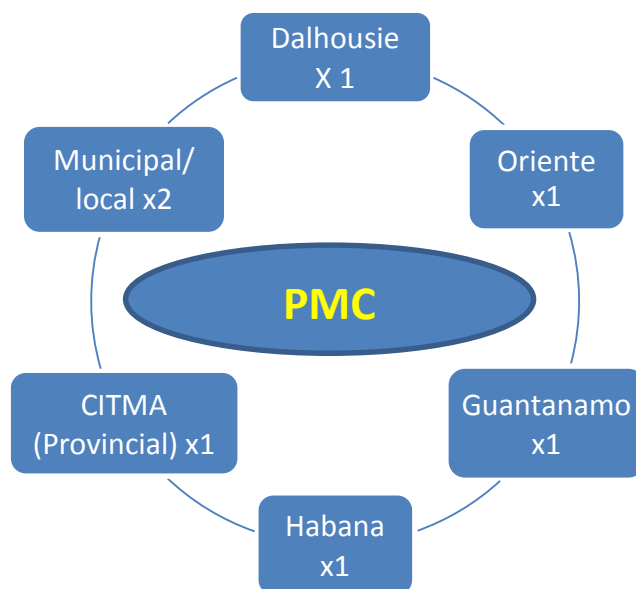


Table 6: PMC Meetings

Dates	Venues
11-14 May 2010	Santiago
12 May 2011	Santiago
4-8 July 2011	Halifax
20-24 February 2012	Guamá
20-21 May 2013	Santiago
6 August 2013	Halifax
December 2013	Guamá

### **3.1.2 Disbursing and accounting for expenditures**

Project expenditures were made both at DU, UG and UO. Towards the end of the first year of the Project steps were taken to open bank accounts in Cuba for the UG and UO in order to be able to expend funds to support training activities in the field. Following a prolonged process, the bank accounts were opened and functioned very well. In general, there were three main kinds of expenditures and related processes for expensing and transfers.

- The first consisted of funding for major regional workshops. Typically, these were large expenditures (\$12-18k). The Cuban partners contracted a major service provider on the ground (generally Cubanacan) to make the necessary hotel, meal and transportation arrangements and bill the Project as a package. As a result, the Cuban service provider could be paid directly from Halifax.
- The second consisted of diploma courses and training activities, which required a high degree of flexibility in timing and logistics. Funds for these activities were transferred on a quarterly basis, as appropriate, from DU to UG and UO on the basis of activity plans (generally training and administration) and budgets agreed at PMC meetings. Monthly bank statements were communicated by UG and UO to the DU financial officer. The financial officers of UG and UO maintained records of expenditures and transmitted PDF files of receipts and bank statements on a quarterly basis to the DU financial officer.
- The third consisted of equipment expenditures. Generally for much of the Project duration, equipment and supplies needed to be purchased in Halifax and transported to Cuba because they were not available or in very short supply in Cuba. Generally complex special “donor imports” and customs procedures had to be addressed.

### **3.1.3 Project participation record**

The UG and UO organizers of activities on the ground kept meticulous records of participation. All workshops and courses required registration (matriculación). Moreover, each activity had an internal report submitted to the respective University lead representative. The funding of each university and government instructor in all field activities was controlled through regular university requirements for disbursements and reporting on use of funds. Generally, instructors did not receive cash advances or payments. Their participation was an in-kind contribution. Their transportation, accommodation and meals tended to be prepaid through arrangements involving Cubanacan.

### 3.2 Risk management

The Project RBM identified four risks that were factored in planning and for which mitigation measures were identified (see Table 7). In reality, the only anticipated risk that materialized and for which anticipated and additional mitigation measures were necessary concerned ground transportation. Re-allocation of funding and scheduling addressed the issues.

Table 7: Risks identified in the Project RBM

Risk level	Risk nature	Planned mitigation	Actual responses
Low	Instability in Cuba as a result of change in the country and external factors	Maintain regular contact with the Canadian Embassy to stay informed and respond as advised.	No issues  Periodical contact with Embassy maintained
Low	Loss of continued support from the provincial government & provincial offices of CITMA	Ensure “buy-in” through ongoing communication and participation by government officials	No issues  CITMA provided consistently high levels of support throughout the project
Low	Continued commitment & participation by the municipal governments of Guamá & SAS	Ensure ongoing communication and participation by municipal government officials.	No issues  Guamá & SAS municipal governments remained committed throughout the project
High	Inflation/spikes in cost of transport	Possible reallocation of funds to boost the transportation budget	Transportation issues encountered as a result of damaged roads and availability of transport: actions taken included higher funding allocations for increased transport costs and rescheduling of activities

An issue that took longer than expected to resolve regarded the purchase and transportation of equipment in Canada or procured from a country other than Cuba (UK) and which required a demanding import procedure. In hindsight, the risk of delays because of bureaucratic procedures should have been foreseen, despite assurances from MINCEX. After several months of pursuing permits with MINCEX and EMED in Cuba, the bulk of the equipment was imported successfully. Separate transportation arrangements had to be made to take the equipment to Santiago and Guantánamo. The late arrival of import permits for soil and water testing equipment and GPS receivers caused some difficulty. Despite explanations to the contrary from MINCEX, the procedures of MINCEX and EMED simply served to delay purchases and significantly added to equipment transportation costs, in addition to delays, including temporary holding at Holguin airport and customs.



An unanticipated risk was natural hazards, which in hindsight should have been factored. On 26 October 2012 Hurricane Sandy made landfall in Santiago de Cuba causing widespread infrastructure damage and power outages. Communications were down (internet, telephone). The hurricane affected the UO's operations. Rural areas were very difficult to reach, if at all, for lengthy periods. The only road through Guamá to reach Chivirico, the location of the UO CUM was washed away. Thankfully, Project site premises and equipment did not suffer damage, but some rescheduling was necessary. Guamá and SAS both faced transportation challenges that necessitated postponement of some courses to subsequent quarters.



Also unanticipated was the risk of substantial increase in numbers of participants raising Project costs. The issues was addressed effectively. Additional expenses were handled through existing allocations. Individual training courses cost less than expected, freeing up funds for other activities and permitting re-allocations. The reallocations enabled delivery of additional courses, a replica marine biology training workshop and topping up funds for the compendium of ICZM materials into a book.

Another issue issue was currency fluctuations which made foreign exchange transactions and transfers from Canada to Cuba a constant moving target. The problem affected the regional workshops, but was effectively addressed by additional payments on the ground by the Project Director.

### 3.3 Gender analysis

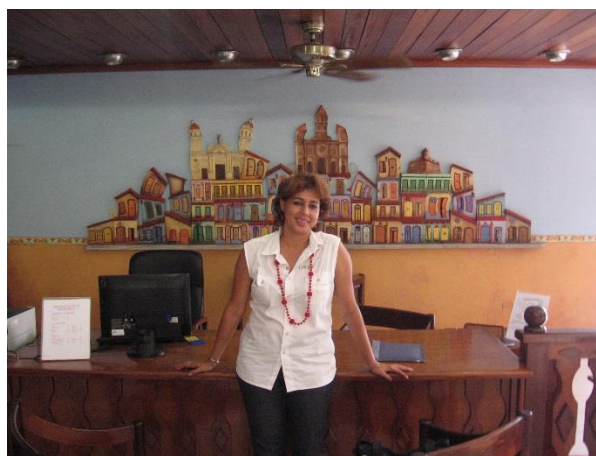
Gender perspectives and issues played a central role throughout the Project at two levels, namely in terms of infusing the role of gender as a central perspective in the Project's substantive work on development and environment and ensuring equitable gender participation in all Project activities.

As indicated in the discussion with regard to Output 2.2 and Annex 5, gender played a critical and novel role in the Project's areas of focus and creating totally new critical perspectives of the role of gender in ICZM. While it should be remembered that Cuba has one of the best records anywhere for the participation of women in decision-making

positions, the fact is that in rural areas there is a lack of understanding of the significance of gender for socio-economic development and community health and an inequitable division of responsibilities between genders at the household level. There is a lack of appreciation of the critical role of women in family health, proper nutrition, environmental education, hygiene and the stability engendered to enable men to perform their tasks. In coastal rural settings, where entire communities live in sensitive ecosystems, depend on natural resources and are exposed to natural hazards, women play particularly critical roles that need to be front and centre in local development, coastal planning and environmental protection activities.

The Project identified that with the current social realities, women cannot participate effectively in local decision-making unless the deep-seated inequities are better understood and addressed. Men tend to retain control of land and resources, whereas women are expected to take care of the children, address nutritional needs, and carry water over a distance when not locally available (and possibly exposing them to sexual violence). Where environmental conditions deteriorate so as to affect local livelihoods (e.g., because of damaged caused by a natural hazard), the levels of domestic stress increase and potentially lead to family violence, further threatening the safety of women and children. The patriarchal setting leaves women little opportunity to play new roles. These critical perspectives and ideas were warmly welcomed in the municipalities.

The balance of gender participation in the Project was impressive (see Annex 1). While the overall Project director was Dr. Aldo Chircop, most of the leadership in the Project was by women. Dra. Ofelia was a strong leader, bringing together the various Cuban partners. There was a change of leadership at the UG during the Project, and both persons provided strong leadership in Guantánamo (Dra. Estrella Casanas Diaz and Dra. Milagros Montoya). The lead at the UH was provided by Dra. Patricia Gonzalez Diaz. The CUM in Guamá was led by Danigsia Larrondo and Maricela Rivaflechas. The SAS CUM was led by Gerardo Gary Ruiz. The reporting on the activities of the Project demonstrates that gender statistics were maintained to monitor participation.



The above discussion with regard to Output 2.2 is important in highlighting the large participation of women in Project activities and who can be expected to be agents of change at the local level. Output 2.2 had the largest number of organization, participatory and dissemination workshops. The discussion noted the equitable participation rates from a global perspective. Relatively few activities, particularly in Guantánamo, appeared to have fewer women participants. The soil management Project clearly had primarily men as resource persons and they were working closely with the campesinos who were men and heads of households. This should not be a surprise, given the rural environment and

the activity's focus on the enhancement of agricultural production, traditionally a male domain. In general, low participation rates by women in some activities were compensated by higher participation rates in others.

In Outcome 2.1 the RBM highlighted that the capacity-building activities will enable municipal governments to undertake gender-equitable ICZM and integrated resource management. While it is not possible to demonstrate this impact in actual planning practice at this stage of the Project, the municipalities have been well placed to produce such results. Project activities were infused with gender equity perspectives and a critical mass at the local level has been created as a result of the large number of women among the beneficiaries of the education and training activities.

### 3.4 Intellectual property rights

The Project produced a range of outputs that would normally generate intellectual property rights.

- The first of these is the ICZM book, published in Cuba. As is usual with book publication, the copyright has been transferred to the publisher in Havana. There will be 300 copies in press and all contributors will receive a personal copy. The book will be distributed for free. A copy of the book will be forwarded to DFATD when available.
- The numerous articles and chapters in refereed and non-refereed literature are subject to copyright restrictions on a journal basis and as applicable. Typically, authors would hold the copyright unless they transfer it to the publisher. The latter will be the case of publication in international journals (e.g., Brill and Elsevier publications).
- The Project produced two TV documentaries ("Guamá entre el mar y la montaña"; "San Antonior del Sur la tierra que renace") in association with UPEC. The UO has applied to the Centro Nacional de Derecho de Autor/National Centre for the Protection of Authors' Rights (CENDA) to obtain certification and protection of authorship rights (<http://www.cenda.cult.cu>). CENDA is authorized by legislation to establish terms for the dissemination of literary, scientific, artistic and cultural products. This process is underway at the time of writing.

### 3.5 Public engagement activities

Annex 8 lists and describes public engagement activities throughout the life of the project. These occurred in Halifax and Cuba. They addressed various constituencies, including:

- University constituencies in Canada and Cuba.

- Academic conference circuits concerned with marine science, coastal zone management and environmental management, in Canada and Cuba.
- The Project's two documentaries were broadcast to a national TV audience in Cuba.
- Schools in SAS and Guamá, through various environmental education activities.

D I V U L G A C I Ó N



## 4. PROJECT BUDGET AND EXPENDITURES

### 4.1 Project budget and actual expenditures

The original Project budget in the proposal documents totalled CAD \$689,043, of which CAD \$299,603 was CIDA's (subsequently DFATD's) contribution (see Annex 9). By the end of the Project the actual expenditure of the Government of Canada contribution amounted to CAD \$299,077 (Annex 9). The Project underspent by CAD \$527.

### 4.2 Equipment and goods purchased

See Annex 10. The Project partners recommend that the equipment identified in Annex 10 remain allocated with the identified institutions.

### 4.3 Cost-sharing obligations

The Project participants significantly exceeded their in-kind contributions to the Project. In the original proposal documents, the DU committed an in-kind contribution of CAD \$199,240. By the end of the Project, the actual total contribution was estimated at CAD \$242,463 (see Annex 9). Similarly, the Cuban partner universities (UO, UG and UH) committed an in-kind contribution of CAD 190,200, compared to the actual contribution of CAD \$393,920 by the end of the Project (Annex 9). The variance can be explained in terms of the complexity of the Project as a whole, the progressive increase in the number of participants and the initiation of several unanticipated activities.

### 4.4 Declaration on all sources of funding for the Project

Annex 9 explains all source of financial and in-kind resources available to the Project.

### 4.5 Declaration on any overdue amounts owing to Her Majesty

See Annex 9.

## 5. LESSONS LEARNED

### 5.1 Main lessons learned in the process of Project implementation

There are a number of lessons in the implementation of this Project which are worth underscoring, some of which recall similar experiences in the base project:

*(a) Partnership between Canadian and Cuban universities*

As in the base project, the partnership between Canadian and Cuban universities was congenial at both institutional and personal levels. The participating universities evidenced a strong sense of commitment to ensure the success of the Project, despite challenges, such as the impact of Hurricane Sandy.

*(a) Strong governance structure*

The role of the Project Management Committee in monitoring, steering and deciding on all Project matters was central. As in the base project, the role of the Project Director was that of a “facilitator”. It was clear that the Cuban Project Partners knew exactly what was needed or was of value for Southeast Cuba. The project had a rigorous and participative reporting system for all activities. This was important because the PMC could rely on accurate and timely information to make decisions. Although the Project had a strong RBM framework, the PMC was open to new opportunities and allocated resource to encourage new viable activities.

*(a) Cuban leadership*

Strong leadership on the ground was essential, especially in the face of adversity (e.g., Hurricane Sandy, transportation challenges, government bureaucracy, etc.) or new opportunities (e.g., audiovisuals project, book project, etc.). The roles of Dra. Ofelia Perez Montero, Dra. Estrella Casanas Diaz, Dra. Milagros Sago Montoya and Dra. Patricia Gonzalez Diaz as leaders in their respective institutions should be underscored. In particular, Dra. Perez played the critical role of “orchestra conductor” for the Project in Cuba. The directors of the CUMs played indispensable roles in the “frontline” of project training activities. They responded to problems and seized opportunities. There was perseverance and a strong sense of teamwork.

*(a) Critical role of CITMA and municipalities*

The strong buy-in by CITMA and the Municipalities of Guamá and San Antonio del Sur were foundations for the Project’s success. Essential for CITMA’s strong participation was having an internal champion, Dr. Pedro Beaton Soler, Delegado Provincial. CITMA mobilized highly qualified key personnel that also acted as leaders on particular initiatives (e.g.: Jose Planas Abelardo Fajardo, CIES, on the Rio Sevilla strategy and various courses; Ricardo Estevez, CATEDES, who was critical for the Macambo project; Miguel Abad Salazar, BIOECO). The Project benefited from the strong support from the President of Guamá, Freya Elias Caraballo and counterparts in SAS.

*(a) Management of Project finances*

A sound framework for the transfer, expending and reporting on expenditures in Canada and Cuba was critical. Although the process of opening bank accounts in Cuba was slow, once opened they enabled orderly transfers from Canada to Cuba and to enable the UO and UG disburse funding to local activities as budgeted and approved by the PMC.

*(a) Professional qualities of project participants*

As in the base project, the knowledge and skills, teamwork, professionalism and strong commitment of the Cuban and Canadian faculty involved in the project, ensured the success of the project. A good project really needs good people. The Project was remarkable in its ability to attract such a high number of participants.

**5.2 Sustainability of results beyond the life of the Project**

As in the case of the base project, the results of COSTASURESTE promises sustainability. In 2008 the late Maria Elena Ibarra Martin, the inspiration behind the base project and Cuban project leader, convened a workshop to evaluate the results of the base project (1999-2004) four years after completion. The results were remarkable. Not

only were the results of the base project sustainable, they demonstrated continued growth. In fact, COSTASURESTE was a consequence of the base project.

COSTASURESTE's results similarly promise sustainability in the following ways:

- The environment for ICZM, ICZM education and local development can be expected to be the subject of strong national policies. The results of COSTASURESTE were produced in a policy environment that can be expected to continue in Cuba because of the importance of the coastal zone for the country's people, economy and environment.
- The UO and UG are committed to their municipal university centres and will continue to provide continuing education and outreach activities pursuant to Ministry of Higher Education policy.
- CEMZOC has established a reputation for ICZM capacity and can be expected to continue to provide leadership at the provincial and local levels in Southeast Cuba. It is a natural partner for any external partner that wishes to undertake work in ICZM in that part of the country.
- The Avals from the Municipalities of Guamá and SAS demonstrate relevance and appreciation of the benefits of the Project in their regions. Municipal leaders bought into the results of the Project. A large number of personnel have been trained and will be in positions to use the knowledge and skills gained.



## 6. CONCLUSION

As with the base project, COSTASURESTE demonstrated how fruitful international cooperation between Canadian and Cuban universities can be. The project developed a collaborative approach that can serve as a model for other Canadian-Cuban cooperative activities and for Cuban universities in partnering with government agencies in capacity-building at the local level in other parts of the country.

The Project also demonstrated how relatively small sums of money can be used to leverage substantial in-kind support in Canada and Cuba, trigger additional grant applications, and blend with other development funding from national and international sources, and thereby produce very far reaching results. The benefits produced by the project for the UO and UG, CUMs, Municipalities of Guamá and SAS, the schools in the two project areas, and also for farmers participating in the Macambo research project were remarkable. Government officials in CITMA (especially in CATEDES) and the municipal governments concerned also benefited from capacity-building and knowledge generation activities. It is unusual for a capacity-building project involving universities to generate benefits at so many different levels.

COSTASURESTE successfully scaled-up the results of the base project as planned and in three major ways:

- Extension of education and outreach: the knowledge and expertise in the university teaching of ICZM were extended by base project and new participants to local levels to benefit municipal government officials directly concerned with local coastal management problems. The extension of university educational capabilities to the municipal level also assisted the implementation of Cuba's national policies on the universalization of tertiary education, environment protection, environmental education and local development.
- Extension of partnerships: the partnerships between DU, UO, UH and CITMA in the base project were extended to
  - a. outreach activities at the local level in the Municipalities of Guamá and SAS, and
  - b. a new partnership between the UG, the provincial CITMA office of Guantánamo, and base project partners was created.
- Practical application of ICZM knowledge and skills: the ICZM knowledge and skills generated in the base project found application in Guamá and SAS. Municipal government officials benefited from project research and training to
  - a. apply knowledge and skills to address local coastal environmental and developmental problems of their communities,
  - b. improve management of natural resources,
  - c. produce local environmental and economic impacts, and
  - d. enhance public environmental education.



On the basis of the experience of this Project, the Project Partners recommend that financial support for cooperation between Canadian and Cuban universities be continued to the extent possible, with particular attention to sustainable development issues and to enable tertiary education and research structures to be mobilized to address developmental problems at the local level. Cuban universities play a vital public service role in providing knowledge and know how to solve rural development problems. Canadian universities will benefit from international cooperation with Cuban partners in multiple ways.

In conclusion, the Project Partners extend their appreciation for the financial support of the Government of Canada.

