



INTERNATIONAL COMMUNITY-UNIVERSITY RESEARCH ALLIANCES (ICURA)

MILESTONE REPORT 2011

Section A			
1. Identification			
SSHRC Number 885 – 2008 - 1001	Title of ICURA Managing Adaption to Coastal Environmental Change (C-Change): Canada and the Caribbean		
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Date Submitted (dd/mm/yyyy):		17/01/2011	

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Section B

1. Community and University Partnerships

1.1 *Utilizing the indicators and the methods developed in your Milestone Framework to assess Community and University Partnerships, report on the following topics:*

- ➔ *the effectiveness of your management/governance structure; and*
- ➔ *the participation of team members in ICURA activities, including the depth of involvement and the range of opportunities to help build their knowledge, expertise and research skills. Provide examples as appropriate.*

Project governance in Canada and the Caribbean is led by the Co-Directors through the establishment of secretariats located at the University of Ottawa and at the University of the West Indies in St. Augustine (see also Appendix 1 - C-Change ICURA Governance Structure Details). The C-Change project is a complex initiative which spans a wide geographic separation of its communities and researchers within and between Canada and the Caribbean regions. To counter this separation, the following indicators and methods were presented in the Milestone Framework and acted upon in 2010:

- **Team meetings** - the research teams have held a number of meetings within each region and have held four joint meetings (three in Canada, one in Caribbean since 2009) where researchers from both regions presented and discussed their progress and work plans (see also Appendix 2 – ICURA Research Team Members for the overall list of meetings participants, and Appendix 7– C-Change Agendas and Minutes of Meetings for a sample of ongoing meetings' records). The effectiveness of these meetings is demonstrated by the transfer of knowledge and work methods between the teams. For example, different approaches to developing a vulnerability index have been considered. Roundtable examination of the different attributes of these approaches has suggested improvements in the future development and application of such models to the project communities.
- **Preparation of the Project Work Plan** – Management of the project is facilitated through the development and implementation of the overall project work plan (presented in the Milestone Framework report), which designates regular (quarterly) reporting on progress with emphasis on the status of important milestones. The Operations Manager (Canada), developer of the work plan, enhances the project oversight and reporting functions. Additionally, each co-applicant in Canada and the Caribbean is required to provide a statement of their role, responsibilities and expected deliverables in the project before funds can be transferred to them to support the upcoming year's work (see also Appendix 4- Co-applicants' Roles and Responsibilities, Year 2). Quarterly reports on achievements and expenditures are developed to compare actual to the anticipated work plan activities and deliverables.
- **HQP Research** - All primary researchers, undergraduate and graduate students are now engaged in research and have been involved in team meetings. Members of both the Caribbean team and the Canadian team have met together four times during 2010 as per the work plan. Team meetings ensure that individual work plans are presented and discussed in a constructive fashion. Given the interdisciplinary nature of this program, each person attending a meeting participates in the discussion of disciplines and methods with which they may not be well acquainted but which interface with their own efforts. The result is that students as highly qualified personnel (HQP) acquire new knowledge and perspectives – their positive feedback is that they leave the meeting changed by the discussion and interaction. Both researchers and students are not only learning new technical skills and methodologies but also becoming more informed and capable in the communication and management skills needed to keep a large interdisciplinary team operating effectively. The students' knowledge and skills are enhanced as they present their research to the team and at conferences and workshops such as the summer at Coastal Zone Canada in Charlottetown, PE in July 2010, and at the Urban and Regional Information Systems Association conference held in Trinidad during the month of December 2010.
- **C-CATs formation** - C-Change Community Action Teams, the C-CATs, realize community-university alliances. C-CATs are being formed to facilitate the management of the impacts of the changing coastal climates in each project community. C-CAT members are instrumental in the identification and engagement of key community participants in both interactive workshops, including the training of local professionals and non-professionals, and in the development and finalization of the Community Adaptation Action Plans (CAAPs). A full description of the structure and responsibilities of the C-CATs, and their relationship to other project participants has been developed (see also Appendix 3- C-Change Community Action Teams, C-CATs). The C-Change team has been assisting communities in their

organization, and C-CATs are now been formed in Gibsons, Charlottetown, and Isle Madame. Initial discussions have been held with Iqaluit and further efforts in this community will be made in 2011. Discussions held by the research team with key members of all four Canadian communities has clearly demonstrated the need for a flexible model that communities can adapt in scope, structure and function to meet their specific needs. For example, the multiple local governance organizations that are at work on Isle Madame require participation and leadership not only from municipal government (the Regional Municipality of Richmond County) but also from other local organizations such as the Development Isle Madame Association (DIMA). Charlottetown has reached out beyond its municipal boundaries to invite participation from the other two communities that share its harbour. Iqaluit's role within Nunavut requires a broader understanding of management in the North. And, Gibson's must address both the strong pro-development and strong conservation ethics evidenced in its populace. In the Caribbean, a C-CAT has been set up in Grande Riviere and is now being consolidated. Similar efforts are underway in the other three sites (Georgetown, Bequia and the Belize Barrier Reef) and they should all become fully operational in the coming months.

Further details on interactions effectiveness among the C-Change team members and community partners are provided in Section 3.1 below. The following table provides the initial Milestone Framework subjective Likert scale indicator on monitoring the attainment of the project objectives. It is envisaged that this table will be expanded to include more stated objectives and wider feedback from community partners.

Attainment of Community Objectives	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Establish formal community-university alliances					X
Strengthen community institutional arrangements				X	
Establish long-term linkages between university and community				X	
Prepare community action plans			NA		

1.2 Using the table below, identify any ICURA team members (community and university researchers, community partners, students, knowledge users, etc.) that have joined or left the project **since the time of application**.

Name (last, first, title)	Affiliation (name of organization, province/state, country)	Role in ICURA (partner, student, collaborator, other – specify)	Other information about this person you would like to communicate to SSHRC
C-Change Status: Changed Affiliation			
Don Jardine	Formerly PEI Dept of Environment, Energy and Forestry; now President of D.E.Jardine Consulting, Inc.	Partner - now as independent consultant	Retired from provincial government position; now independent consultant for Atlantic Regional Adaptation Collaborative (RAC)
C-Change Status: Newly joined			
James Mtamakaya	UNB	PhD student	New student, working part time on project
Darryn Difrancesco	UBC	PhD student	New student, joined project
Scott Hatcher	MUN	MSc student	New student, working in Iqaluit
Heidi Braun	UOttawa	PhD student	New student preparing for comprehensive examination, proposed to work on project
Sherry Ann Ganase	UWI	MSc Student	New student, joined project

Chiedozie Osuala	UWI	PhD Student	New student, joined project
Kyana Bowen	UWI	MSc Student	Existing student now partially funded by C-Change
Alana Joseph	UWI	PhD Student	Existing student now funded by C-Change
Nadira Mathura	UWI	PhD Student	Existing student now funded by C-Change
Rudo Udika	UWI	MSc Student	Existing student now partially funded by C-Change
Tim Webster	COGS/AGRG	Collaborator	Supervising student and conducting LiDAR-based flood simulation in PEI
Candace MacDonald	GOGS/AGRG	AGRG student	Conducting LiDAR-based flood simulation in PEI
Marissa Sheppard	UWI	Administrative Assistant	Joined as part of project management team
Ilghehlich Nadimi	UOttawa	MSc Student	New student, project related thesis work to be determined
C-Change Status: Graduated			
Bobby Gossai	UWI	MSc Student	Completed thesis; graduated
Amit Seeram	UWI	Undergraduate	Completed project & degree
Safiya Alexander	UWI	Undergraduate	Completed project & degree
Sade Grant	UWI	Undergraduate	Completed project & degree
Rachel Rampersadsingh	UWI	Undergraduate	Completed project & degree
Demi Singh	UWI	Undergraduate	Completed project & degree

1.3 Has the ICURA established written agreements or protocols outlining partnership functioning?

- Yes (go to 1.4a) No (go to 1.4b)

1.4a What type(s) of written agreement(s) or protocol(s)? (Check all that apply):

- Terms of Reference: Appendix 4- Co-applicants' Roles and Responsibilities, Work Plan
 Letters of Agreement: Data Sharing Agreements (Canada universities)
 Guiding Principles
 Conflict Resolution Mechanisms
 Resource Allocation Principles: Office of Research Services, UOttawa; UWI Bursary Office
 Contracts (Please specify type/nature of contract): C-Change Administrators
 Other(s) (Please specify): UBC Ethics Board approval; UWI Ethics Guidelines

1.4 Reflecting on the management challenges and mitigation strategies identified in the Milestone Framework, what has been the teams experience dealing with such issues as ethics review, resources sharing, funds and personnel administration, publication policies, etc..? Provide examples as appropriate.

Over the past year, there has been a marked improvement in the researchers working as a team, despite the geographical separations between them and limited resources. This has been reflected in greater interaction between the Canadian and Caribbean teams (several joint team meetings) and in the re-allocation of funding based on changing needs and priorities. Some of the researchers have been able to leverage their C-Change activities and funds using funds and resources from other sources. In Canada, the Office of Research Services at the University of Ottawa has provided considerable assistance in managing the receipt of funds from SSHRC, and in developing letters of agreement and funding transfer allocation agreements for the Canadian team. The Telfer School of Management has managed the operating expenses of the project.

Formal ethics approval has been obtained from UBC for the work of sociologist and co-applicant Dr. Ralph Matthews, whose work on the project at Gibsons requires ethics approval. It is noted that the time frame to obtain such approval is long and may require repeated applications to ensure that all requirements are met.

Data agreements have posed some logistical challenges. Given the number of researchers and universities involved, it is deemed most effective that data agreements are being held at only one institution acting as the data holder for all the other institutions. This was further complicated by the number of community data sources involved. In the Caribbean, the UWI is in the process of adopting a code of ethics which all UWI researchers will be required to follow. The Caribbean team is already applying the code in the conduct of its work on the C-Change project. A routine part of the exercise in the Caribbean is an agreement to share data with the communities under study.

2. Research Training and Development

2.1 *Utilizing the indicators and the methods developed in your Milestone Framework to assess Research Training and Development, report on the following topics: a) the type of skills and knowledge developed; and b) the degree to which students, community partners and other researchers have acquired the identified skills and knowledge? Provide examples as appropriate.*

- a) **Types of skills and knowledge developed** – C-Change technical methodologies broadly include: (i) the development of geographic information systems (GIS) including data collection, transformation and analysis for mapping, analysis of alternative spatial systems, event mapping specific to storm surge and sea level rise; (ii) soft systems methods including effective survey methods and questionnaire design and data analysis for procuring information on community priorities; (iii) coastal storm modelling including historical analysis of storm events, and estimation of storm impacts; (iv) descriptive modelling of communities including identification of community threats and vulnerabilities; (v) systems dynamics modelling including direct and indirect temporal modelling of storm impacts on community systems; and (vi) multicriteria and multi-participant decision making for structuring the development and evaluation of alternative adaptation strategies for coastal communities.

Throughout the development of the technical skillset referred to above, C-Change team members (co-applicants, collaborators, partners, and administrators) are also required to develop communication skills in reading, writing, and presenting new knowledge both internally at C-Change team meetings, and as team representatives in conferences and other national and international fora. This new knowledge and community–university project exposure also involves the development of an interdisciplinary perspective, and an appreciation for applied research.

- b) **Skills and knowledge acquired by students, community partners and researchers** –The ICURA affords a unique opportunity to all participating C-Change team members to position our interests and work in a focused attempt to address the significant problems facing selected coastal communities from the changing environment. C-Change team members learn from their alliances within the team and among the communities. Knowledge acquired by C-Change students are provided below as examples.

Two students involved in research in the C-Change project through UWI have completed their M.Sc. degree programs, one in the Department of Economics and the other in the Department of Geomatics Engineering and Land Management. Another group of graduate students at UOttawa (3) and UNB (1) are in the final thesis stages of their M.Sc. degree programs. One student at UBC has passed the candidacy requirements of their Ph.D. degree program and is now starting to write the dissertation, while a second Ph.D. candidate at UOttawa is preparing her comprehensive exams for the Winter of 2011. Four undergraduate students from the Department of Geomatics Engineering and Land Management, UWI (St. Augustine) have completed their senior projects and their degree programs

The student in the UWI Department of Economics completed his MSc thesis on the work of the C-Change project, entitled “Vulnerability to Sea Level Rise in an Urban Centre of a Developing Country: A Case Study of Georgetown, Guyana”. He assembled a baseline report on existing secondary data, and then conducted primary data collection on the site. This involved: (1) the modification of the generic survey instrument developed by the Caribbean team members to suit the peculiarities of this study site; (2) the assembly of an enumerator team; (3) the training of the enumerators; (4) the conduct of a pilot survey; (5) the modification of the surveys as a result of the pilot study; (6) the supervision of the data collection process; and (7) the entry of the data into chosen software packages. For his analysis, he developed crude vulnerability indices for Georgetown based on the use of both the primary and secondary data collected. The student in the Department of Geomatics Engineering and Land Management completed the MSc thesis on the work of the C-Change project entitled “Adapting to Flooding in Georgetown: An Investigation of Climate Change, Sea

Level Rise, State Policy And Community Practices". Ground reconnaissance and field work were conducted. A questionnaire was administered to households in communities of the various wards that constitute Georgetown, Guyana.

The four UWI undergraduate students that have completed their degrees participated in geomatics field work involving the collection of primary data via hydrographic and topographic surveys. These data were used to develop a preliminary GIS predictive sea level rise model of Grande Riviere, Trinidad. This model is part of the methodology for assessing the socioeconomic impacts of that threat upon Grande Riviere. Apart from the technical work required to accomplish that task, the geomatics students learned the importance of interdisciplinary research, utility of their discipline to support socioeconomic research, and importance of acquiring community knowledge.

In the Canadian context, graduate students from UNB and UBC have met on several occasions with UOttawa graduate students to exchange data, software, and analyses related to GIS modelling and computer software techniques on the project. UOttawa students have also independently contacted and met with outside researchers on the issue of state-of-art spatial-temporal modelling methods combining GIS and Systems Dynamics (SD) techniques.

Finally, C-Change team members' participation at national and international conferences, workshops, meetings with colleagues, etc., over the last year have led to C-Change team discussions and a more informed appreciation for related methods and programs consistent with the objectives of C-Change. These meetings include discussions with colleagues from Fisheries and Oceans Canada (DFO), the OECD, Coastal Zone Canada Association (CZCA), the Oceans Management Research Network (OMRN), the Canada Healthy Oceans Network (CHONe), Genome Canada, and other organizations with whom C-Change team members are affiliated.

2.2 Utilize the indicators and the methods developed in your Milestone Framework to assess the degree to which team members participate in the alliance, and the impact of their participation within and across country locations?

The focal point and key impact of the C-Change project revolves around the researchers' links to the selected coastal communities in Canada and the Caribbean. As a first step in the C-Change research process, researchers and team members in Canada have participated in the development of a Community Profile template that adheres closely to the pillars of the Integrated Community Sustainability Plan (ICSP) (to which all Canadian communities have been required to participate over the last year in order to access funds under the federal Gas Tax Agreement). The four pillars of the ICSPs are cultural, economic, environmental and social sustainability. The C-Change Community Profile has prompted significant discussion in terms of the most effective means of describing community status (see also Appendix 6 - C-Change Bibliography of research Outputs for details on related work and deliverables demonstrating the participation and involvement of team members).

The Caribbean team has engaged in community outreach primarily with the two communities with which analysis is currently underway. Community members have attended C-Change meetings and provided input into the survey instruments which have been used to collect primary data in the Caribbean sites. Community members also facilitated the data collection process at the sites. In addition, all the Caribbean team members bring their skills to each of the four study sites, participating across all Caribbean site locations.

Each C-Change community has been assigned a champion to act as a key but not the only contact point with the team (see also Appendix 4- Co-applicants' Roles and Responsibilities, Year 2). Community champions and other members of the research team, including students, for both the Canadian and Caribbean study sites have met with the community partners or potential partners on several occasions over the last year. These meetings have helped to forge stronger links between the community and the researchers, to promote the development of the C-CATs, and to facilitate knowledge/data transfer between the team and the community to move the project forward.

Requests from the communities of Charlottetown and Isle Madame to provide C-Change presentations to community partners over the winter or spring of 2011 are evidence of participation by all alliance members. The Grande Riviere community in Trinidad and Tobago has requested presentations and workshops on-site on the topic of climate change, sustainable development, and biodiversity. The first two of these are being

organised for 2011. In addition, this community has also welcomed the assessment of their educational and management skills that was included as a part of the community survey. The summaries of this information will be made available at seminars that are planned for 2011. Finally, the integrating C-Change conference event on the theme “The Sustainable Development of Coastal Communities: Challenges and Solutions” will be held in Port-of-Spain, Trinidad in June 2011 where C-Change team members from Canada and the Caribbean with community partners will participate in the 3-day event.

The Public Participatory GIS (PPGIS) systems work led by Canadian co-applicant Dr. Sue Nichols (UNB) and her M.Sc. student, Titus Tienaah of UNB is designed to facilitate the engagement of community members with respect to the public provision and presentation of Volunteer Geographical Information (VGI). This unique project gives all community members access to build and use community spatial data. This work is being done in collaboration with Caribbean co-applicant Dr. Michael Sutherland to ensure the transfer of knowledge to researchers and targeted communities in both Canada and the Caribbean.

Preliminary work on vulnerability indices has been started at two communities in the Caribbean, with construction revolving around the cultural, economic, environmental and social pillars of the C-Change project. Primary data collection includes material on current status of knowledge on climate change within the communities, those responsible for dealing with climate change, and the media by which information on climate change can best be disseminated. Statistical analyses are currently underway on this material to determine how knowledge can best be diffused, and the extent to which adaptation and mitigation actions can be implemented across stakeholder levels and levels of spatial scale. Work on vulnerability indices has begun in a generic form in Canada in relation to describing the profile of the community and estimating storm damage impacts and decision priorities. Integrating activities of these alternative approaches to accounting for vulnerabilities are underway between researchers and students in Canada and the Caribbean.

As noted in 1.1, joint meetings between the Canadian and Caribbean research teams have already resulted in the transfer of methods and techniques between the two, which will benefit the research effort and the communities in both regions. Further details on these meetings are provided in Section 3.1 below.

2.3 *the number of students, community partners and other research staff that have participated in the ICURA.*

STUDENTS		
Paid	# at Canadian universities	# at Caribbean universities**
Undergraduate		4
Masters	6	5
Doctoral	4	4
Postdoctoral		
Unpaid		
Undergraduate	2	4
Masters		
Doctoral		1
Postdoctoral		

COMMUNITY PARTNERS AND OTHER RESEARCHERS			
Name the host organization of team member(s) (indicate the affiliated organization of the team member)	Paid or Unpaid?	Role of team member (research coordinator, project manager, technician, etc.)	#
Gibsons Town Council	Unpaid	Research coordinator in Gibsons	1
Gibsons Town Council	Unpaid	C-CAT, community contact	3
Charlottetown City Hall	Unpaid	C-CAT, community contact	3
Isle Madame	Unpaid	Community leaders	12
UOttawa	Paid	Operations Manager	1
UOttawa	Paid	Community Coordinator	1

UOttawa	Paid	Administrator	1
COGS	Unpaid	Researcher and student supervisor	1
Iqaluit	Unpaid	C-CAT, community contact	2
UWI	Paid	Administrative Assistant	1
UWI	Unpaid	Research Associates	2
UWI	Paid	Research Associate	1
Grande Riviere	Unpaid	C-CAT community contact	1
Georgetown	Unpaid	C-CAT community contact	1

Further information on some of these working relationships is presented in Section 3.1 below.

2.4 Use the table below to indicate (x) what specific applied skills research staff have acquired through their participation in the ICURA

Skills	Students				Community Partners	Research Staff
	Under-grad	MA/MSc	Doctoral	Post-doctor'l		
Research Design						
Participate in project design		x	x		x	x
Write grant proposals		x	x			x
Design methodology		x	x			x
Data Collection & Analyses						
Collect data or information	x	x	x		x	x
Analyse research results or content	x	x	x			x
Manage databases						x
Presenting Results						
Present research at conferences		x	x			x
Publish articles/books						x
Produce performance/exhibit		x				
Administrative Tasks						
Develop/monitor budgets						x
Provide admin support			x			x
Application of Specific Skills						
Design websites / programming	x	x				x
Specific skills (language, software)	x	x	x			x
Translate/edit/proofread		x				x
Interactions						
Organise conferences, workshops		x				x
Mentor/supervise other students	x	x	x		x	x
Liaise with community stakeholders	x	x	x		x	x
Participate in mtgs. co-researchers	x	x	x		x	x
Participate in mtgs. partners	x	x	x		x	x
Work in interdisciplinary environment	x	x	x		x	x
Other(s): Please specify:						
Statistical software	x	x	x		x	x
Strategy evaluation and decision making	x	x	x		x	x

2.5 Building on the table above, describe the new opportunities presented for research training and development, noting differences across the project sites since the grant was awarded.

To date the alliance, as a consequence of increased contact between university academics and community partners, has opened up new opportunities for research and development.

Data Acquisition. Project communities in Canada tend to have more data available to them than comparable sites in the Caribbean. Whereas Canadian data collection is focused on the acquisition of existing data from secondary sources, the Caribbean team has to both collect existing secondary data (summarized in the baseline reports that are being generated for each study site) as well as generate primary new data from the communities themselves. As a result, the Caribbean team members, and C-Change students involved in this process, are upgrading their skills in questionnaire development and execution, and statistical database management.

Coastal GIS Mapping. There has already been a transfer of technology skills from Canada to the Caribbean on the development and use of a coastal GIS platform for the capture and display of project data. This has been effected through the multidisciplinary nature of the project teams and their working relationships. Differences between communities has meant that the C-Change project takes place, in effect, in a multi-project environment where each site is at a different point in the project timeline and is advancing at a different pace. This necessitates the cross-transfer of ideas and skills among team members on how to work effectively in such an environment. Joint meetings of the research teams are a critical aspect of realizing these opportunities.

Volunteer Geographic Information. Through work to date, it is recognized that there is need for and utility of additional products to assist communities, especially smaller communities that may not have all the technical background present in a larger one, in understanding and working with GIS. The result is the development of a guideline, a series of Frequently Asked Questions (FAQ), on the use of geographical data and information as it pertains to coastal issues and climate change. The opportunity to use and develop Volunteer Geographic Information (VGI) together with local knowledge, information which is not contained in scientific papers or reports but which is nonetheless very useful and valuable, is included here.

Community Schools Curricula. Opportunities for training and development within communities are being considered bringing C-Change objectives and project information into the elementary to high school curricula. For example, discussions have taken place among community partners of Isle Madame to raise the awareness of school children about the threats to their local environment and to encourage activities in school projects and in the classroom. While this opportunity was not originally anticipated in the 2008 C-Change proposal, contact with community partners has instilled this as a stronghold for community communication and the means of a lasting legacy for raising the profile of storm preparedness.

Student Sharing and Exchange. Another result of the new insights gained by team members is a plan to share graduate students between researchers and institutions. Discussions are currently underway among researchers using leveraged exchange programs to assist in the funding requirements.

Growing Partnership Links. At UBC, a climatologist participates in local C-Change meetings of the researchers at that institution in order to ensure that their activities and planning take place in full understanding of the latest information on climate change as it pertains to that coastal area.

2.6 Briefly identify university courses, degree programs, professional training courses/workshops etc., that have been developed or under development. How has the ICURA contributed to these new offerings and describe the role of alliance partners?

To date, issues related to climate change has been mainly the prerogative of meteorologists, climatologists, economists, engineers, and political scientists. However, C-Change notes the increasing need to engage all disciplines in embracing the pending environmental changes affecting our coastal communities and to move the interdisciplinary issue toward better community preparedness and enhancement of community capabilities. This includes developing educational curricula including community workshops that extend existing methods with special emphasis on environmental management, social awareness, operational planning in the event of severe storm events, and decision making and planning among coastal communities. Early C-Change initiatives aimed at developing training programs are presented below.

Coastal Climate Studies. A new section in the Geodesy and Geomatics undergraduate engineering program (B.Eng.) at UNB (Fredericton) on marine policy, law and administration, as a direct result of the participation of a C-Change researcher in the project and the course. This module links geomatics tools to support adaptation planning and also discusses the governance issues addressed in the project. The ICURA project itself has been included in one undergraduate course to encourage students to choose related issues for their undergraduate research projects. Currently UNB is using this ICURA project and ArcticNet to highlight the need for more cross disciplinary courses on campus through membership on the UNB Environmental Taskforce.

Soft Systems Modelling. While this topic is covered in the graduate core of the M.Sc. programs at the Telfer School of Management, UOttawa, the issue of environmental change and the mobilization of local communities, including coastal communities has recently been injected as a application of Checkland's participatory modelling steps for complex problem solving.

Simulation Modelling. New material based on the C-Change project has been included in the 3rd-4th year undergraduate B.Comm. course on business simulation at UOttawa taught annually by Co-Director (Canada) Dan Lane. This material examines the simulated dynamics of coastal storms on the community systems, and the evaluation of complex strategies for decision making.

Community Sustainable Development. C-Change participants in discussions at the Telfer School of Management, UOttawa on developing a set of new MBA electives on the topic of environmental management and community sustainable development. Through Telfer colleagues and the C-FOAM Research Group, C-Change Co-director Lane has been awarded \$1,500 in SMURF (School of Management University Research Funding) funds. These funds, matched by the C-FOAM group and earmarked for curricula development, are currently being used to the hir a research associate who is compiling the state of existing efforts in professional accreditations and academic programming in sustainable development and planning and preparedness.

Spatial Information Management. At the UWI (St. Augustine) a GIS applied spatial information management course for students of the social sciences, whose content would include sections on climate change modelling and social and economic impact analysis is being developed. The course plans to cover the basics of GIS from a systems point of view as well as the acquisition, storage, processing, visualization and dissemination of spatial information. It will also involve the use of international case studies of GIS applied to social and economic issues, including the social and economic impacts of environmental threats such as climate change.

Decision Support Systems. C-Change decision support applies multicriteria methods designed for complex problem settings in multi-participant environments. Researchers at the UOttawa engaged in the project are preparing workshops for 2011 with community partners to provide assistance on specific community planning cases that will facilitate alternative strategy development, and evaluation and ranking of options based on community and participants' decision priorities. Similar such workshops on multicriteria decision support have been prepared for Fisheries and Oceans Canada, the province of New Brunswick Department of Fisheries and Aquaculture, and the Southwest New Brunswick Marine Resources Planning Steering Committee.

3. Research and Knowledge Production

3.1 Utilizing the indicators and the methods developed in your Milestone Framework to assess Research and Knowledge Production, report on the following topics:

- *the execution of your planned research program?*
- *individual projects and their expected results?*
- *the use and quality of the research conducted (from an academic and community perspective)*

The following assesses the production of Research and Knowledge for the noted topics.

- *the execution of your planned research program?*

Meetings. The initial year has been dominated, as planned, by C-Change organizational and research coordination meetings: (i) among local c-Change university administrators, co-applicants, collaborators, and students groups; (ii) among regional C-Change researchers and administrators; (iii) among integrated

Canada-Caribbean groups; and (iv) community meetings toward the formation of C-CATs. Examples of C-Change meetings are itemized below:

- St. Augustine, UWI – project presentations, March 22, 2010 (Watson, Lane, Mycoo, Sutherland, Teelucksingh, Franklin, Partners and UWI students)
- Grande Riviere - Community site visit, March 24, 2010 (Teelucksingh, Lane)
- Georgetown – Community site visit (Watson, Sutherland)
- St. Augustine, UWI - Grande Riviere Tour Guides Association Community representatives (Mohammed, Watson, Teelucksingh)
- City of Charlottetown - with key community contacts and project partners, April 23, 2010 (Nichols, Mercer Clarke, Tienaah)
- Gibsons - with Town Councillors and partners, May 12-14, 2010 (Mathews, Nichols, Vadeboncoeur)
- City of Charlottetown – with City planning partners, July 29, 2010 (Lane, Nichols, Mercer Clarke, Clarke, 5 students)
- Isle Madame, Port Hawkesbury – discussed plans and priorities with municipal government, commercial, and regional plans (12 contacts), August 3-5, 2010 (Lane, Mercer Clarke, Clarke)
- Iqaluit - ongoing contact with and working visit, August 2010 (Forbes)
- Ottawa – Canada co-applicants meeting, Oct 4-6 (Lane, Forbes, Matthews, Nichols, Crabbé, Clarke, Mercer Clarke, Fahey, students)
- Ottawa – Canada-Caribbean meeting (and IDRC presentation), November 30-December 1, 2010 (Watson, Lane, Teelucksingh, Sutherland, Nichols, Matthews, Crabbé, Clarke, Mercer Clarke, Fahey, students) (see also Appendix 7– C-Change Agendas and Minutes of Meetings for details of these Ottawa meetings)

Communication via the Internet. C-Change launched its Website and Social Network (Facebook) site in April 2010 as a public and visual communication tool for team members and for community participants. The launching and ongoing maintenance and activity of the electronic sites as a means of raising awareness and communicating the C-Change message are an integral component in the execution of the research program. The electronic sites have been a focal point for contributions of information, storm event photos, and regular relevant announcements by C-Change community partners and researchers and students.

Quarterly Reports. The C-Change Quarterly Reports are designed for internal team use as an ongoing indicator of project progress and outcomes. The Report uses the initial work plan (presented in the Milestone Framework) to assist with directing internal communications and operations management as well as for budget planning. These reports also developed to assist in the compilation of the Milestone and Mid-term Reports to the funding agencies. These reports will be made available on the C-Change website, thereby fostering improved knowledge and awareness among our partners about the execution and progress of the project.

Newsletters. To date, the first C-Change newsletter was published in April 2010 and disseminated widely. A second newsletter has been prepared with focus on one selected community in Canada (Gibsons) and one in the Caribbean (Grand Riviere). This newsletter will be produced in February 2011. The newsletters provide basic information and contacts about C-Change and updates regarding the C-CATS and the C-Change Advisory Board. They promote awareness across and between the study sites in the two regions and are another mechanism in the execution of the project.

Academic Participation. Execution of the C-Change project includes the active participation of team members in academic workshops, conferences, and invited meetings as evidence of knowledge production. Examples of C-Change activity in these events in 2009-2010 and planned for 2011 are provided below. Further details of this activity are provided in Appendix 6- C-Change Bibliography of Research Outputs.

- Presentation to the European Working Group Conference on Multicriteria Decision Analysis (MCDA), Moncton, New Brunswick September 23-26, 2009 (Lane and Nichols)
- Organization, participation and presentation of papers by C-Change co-applicants at the SALISES Conference, Port-of-Spain, Trinidad, March 24-26, 2010 (Watson, Lane, Sutherland, Henry, Mycoo, Teelucksingh, students)
- Presentation of C-Change M.Sc. thesis work at the Statistics Canada Socio-economic Conference 2010 in Gatineau, April 26 – 27, 2010 (Hartt, Mostofi, Pakdel)
- Public release in Oslo (9 June 2010) of a draft *State of the Arctic Coast 2010* report sponsored by IASC,

LOICZ, IPA (Don Forbes, editor)

- At Coastal Zone Canada conference on Healthy Oceans - Strong Coastal Communities in Charlottetown, July 25-29, 2010, 2 papers were presented, a researcher and a collaborator participated on separate panels, a full workshop on C-Change was planned and delivered with researchers and students presenting (Mercer Clarke, Clarke, Lane, Nichols, students)
- Participation at the Ecological Integrity Conference, Vancouver, June 27-July 3, 2010 (Matthews)
- An internal report on An Assessment of Various Systems Dynamics Softwares to determine ease of use and compatibility with GIS has been prepared by a student (Crabbé)
- Paper presented at BIOECON 12th annual conference From the Wealth of Nations to the Wealth of Nature: Rethinking Economic Growth, Venice, Italy, September 27-28, 2010 (Clarke, Mercer Clarke)
- Invited presentation to OECD Workshop on Fisheries and Climate Change, Busan, Korea, June 10-11, 2010 (Lane)
- Presentation as a keynote speaker at Prince Edward Island Climate Change Symposium, Charlottetown, 22 April 2010 (Forbes)
- Attendance at a workshop on Coastal Impacts of Climate Change in the Southern Cone, Montevideo, Uruguay, 31 May- 3 June 2010. (Forbes)
- Participation at the International Polar Year (IPY) Open Science Meeting, Oslo, Norway, 7-12 June 2010. (Forbes)
- Urban and Regional Information Systems Association conference in Trinidad, December 2010
- Participation in the Fourth World Congress of Environmental and Resource Economists, held in Montreal, June 28 to July 2, 2010 (Watson, Sutherland, Teelucksingh)
- Seminar to the Fondazione Eni Enrico Mattei in Milano, Italy, on October 14 (Teelucksingh)
- The Sustainable Development of Coastal Communities: Challenges and Solutions Conference, Port-of-Spain, June 1-3
- Organization and Presentations to the World Congress of the Natural Resource Modelling Association on the theme of Adaptation to the Changing Climate in Ottawa, June 13-17, 2011 in Ottawa
- Presentation of the project at National Congress of CSLA (Canadian Society of Landscape Architects) in Iqaluit in July 2011 together with a coordinated Iqaluit C-CAT meeting

→ *individual projects and their expected results?*

Individual projects are assessed for the relevance of their expected results to the project objectives, and progress is assessed to ensure that the project continues to meet the overall objectives. Presentations by students and researchers have been well received in C-Change meetings and at national and international conferences. With respect to student research work, the acceptance of theses as part of the requirements for successful completion of degree programmes provides quality control by both internal and external examiners within the academe not necessarily part of the C-Change team. Continued engagement with the communities is expected in 2011 as the initial work progresses to where there are good data and results for review and potential application particular communities. The following presents examples of individual project work of C-Change students. Detailed information on student work is provided in Appendix 6- C-Change Bibliography of Research Outputs.

- M.Sc. thesis: "Vulnerability to Sea Level Rise in an Urban Centre of a Developing Country: A Case Study of Georgetown, Guyana"; Economics (UWI) – Bobby Gossai (Summer 2010)
- M.Sc. thesis: "Adaptation Measures to Climate Change and Sea Level in Georgetown, Guyana"; Urban and Regional Planning (UWI) – (Summer 2010)
- M.Sc. thesis: "Geographic Information Systems and System Dynamics: Combined Modelling of the Impacts of Storm Damage on Coastal Communities"; Systems Science (UOttawa) – Maxx Hartt (draft completed December 2010)
- M.Sc. thesis: "System dynamics and GIS in the simulation of environmental change to coastal communities" (tentative); Systems Science (UOttawa) – Sahar Pakdel (in progress, expected completion 2011)
- M.Sc. thesis: "Multicriteria decision evaluation of adaptation strategies for vulnerable coastal communities" (tentative); Systems Science (UOttawa) – Hooman Mostofi (in progress, expected completion 2011)
- M.Eng. thesis: "Geographical Systems for VGI" (tentative); Geodesy and Geomatics Engineering (UNB) – Titus Tienah (in progress, expected completion 2011)

- 4 undergraduate student projects completed in Geomatics Engineering and Land Management (UWI):
 - Developing a Predictive GIS Model of Sea Level Rise for a Selected Coastal Community;
 - Assessing the socioeconomic impact of sea level rise on coastal communities;
 - Assessing the potential impact of sea level rise on coastal community land use;
 - Determining sea level trends and their impact upon coastal communities.

→ *the use and quality of the research conducted (from an academic and community perspective)*

Several decision support tools have been developed. In the Caribbean, a preliminary Vulnerability Index model has been tested for validation and future modification. In Canada, a coastal GIS platform has been developed and is being shared with Caribbean colleagues. Storm impact estimation models using GIS and Systems Dynamics models have been developed for testing and further refinement in selected communities. Storm impact models are currently being used to provide data for strategy evaluation and ranking in formulated multicriteria decision models.

Instruments have been designed for adaptation and application to all four Caribbean sites and one Canadian site (Gibsons), with primary data collection already taking place at two of these sites. Baseline reports on existing Caribbean community data have been conducted on two of the sites, with work in progress on the third. Monitoring and evaluation of local infrastructure and knowledge have been conducted at two Caribbean sites through the conduct of baseline socio-economic surveys. The data at one site have been incorporated into a GIS framework. Analysis of all of the collected data has been initiated and is ongoing. While external training has not occurred to date in the project, there has been internal training as noted above in expanding the knowledge base of students and researchers through joint meetings.

A number of C-Change scientific papers are currently in preparation for publication and are targeted for completion in 2011. Further information on publications and working papers is provided in Appendix 6- C-Change Bibliography. Examples include:

Completed papers (to appear):

- Lane, D.E., and Watson, P.K. 2011. Managing adaptation to environmental change in coastal communities: Canada and the Caribbean. Proceedings of the 11th Annual Conference of the Sir Arthur Lewis Institute of Social and Economic Studies (SALISES), St. Augustine Campus, University of the West Indies, March 24-26, 2010. 16p.
- Lane, D.E. 2010. Toward Adaptive Fisheries Management: Is the current fisheries management toolbox sufficient to address climate change? Presented to the International Workshop on “The Economics of Adapting Fisheries to Climate Change”, OECD Committee for Fisheries and the Fisheries Policies Division, 10-11 June, 2010 in Busan, Korea. 41p.
- Clarke, J., Mercer Clarke, C., and Lane, D.E. 2010. Proactive adaptation to climate change: Building bridges between science and local government. Proceedings of the BIOECON 12th annual conference From the Wealth of Nations to the Wealth of Nature: Rethinking Economic Growth, Venice, Italy, September 27-28, 2010. 16p.

Working Paper Titles (In Progress):

- The Importance of Nature to Rural Communities in Developing Countries: Community Perceptions of Biodiversity and Ecosystem Services in Grande Riviere, Trinidad
- A Rural Community Perspective of Climate Change in Developing Countries: State of Knowledge, Level of Concern and Perception of Risk
- Raising Awareness of Climate Change in Rural Communities of Developing Countries: The Role of Social Media
- GIS Applications and Coastal Setbacks as an Adaptation Measure to Climate Change and Sea Level Rise: Sea Turtle Nesting in Grande Riviere
- Building Resilience in Georgetown, Guyana: Adaptation Measures for Climate Change and Sea level Rise
- C-Change Community Profiling: Describing Community Systems
- Severe Coastal Storm Event Modelling
- Estimating the Impacts of Coastal Storm Events in Atlantic Canada
- Decision Prioritization and Risk Profiling in Coastal Communities

- Multidimensional Measurement of Vulnerability and Resilience in Coastal Communities
Overall, the research program is progressing well. There is progress on all fronts, with some projects well ahead and others slightly behind the schedule laid out in the initial work plan. It is reasonable to expect all communities and projects to advance at their own pace given the diverse nature and size of the communities and the geographic expanse of the project.

Research and Knowledge Production Objectives Have Been Achieved	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Creation and Communication of Knowledge					X
Co-Learning				X	
Decision Support Tools				X	
Monitoring and Evaluation Indicators				X	
Training			X		
Community Adaptation Action Plans (CAAPs)			NA		
Governance Institutional Advice			NA		

3.2 *PROGRAM OF RESEARCH: Append to your Report an updated table of the ICURA's main research components. Below the table, identify any changes to the previously submitted table and discuss progress to/departure from 'expected results'*

Appendix 5 - C-Change Project: Main Research Components provides details of the main research components, current status and changes that have occurred since the original proposal. As noted in the Milestone Framework report, the details of each major component were expected to evolve with the progress of the project, especially as related to the developing contacts with project communities in Canada and the Caribbean, and increasing linkage to the project community partners. This has been the case.

4. Knowledge Mobilization

4.1 *Utilizing the indicators and the methods developed in your Milestone Framework to assess Knowledge Mobilization, report on the following topics:*

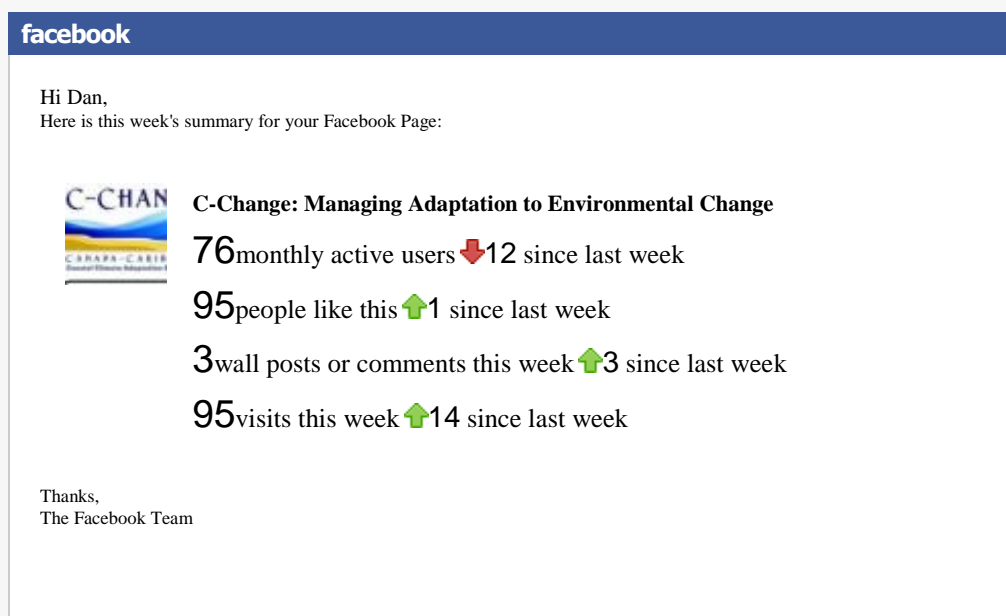
- *partner participation in creating knowledge mobilization strategies including the development of new tools (for example publications);*
- *the implementation of your knowledge dissemination / communication plan;*
- *the influence of audiences' input on knowledge dissemination activities and its impact; and,*
- *the impact of knowledge dissemination activities on users; i.e., intended audiences, internationally and in Canada?*

The following items highlight the methods presented in the Milestone Framework to assess Knowledge Mobilization with respect to partner participation and influence, and implementation of the C-Change communication plan.

Formation of the C-CATs. As the project is still in its early stages, and the formation of the C-CATs is evolving, there has been little opportunity for the community partners to participate in knowledge mobilization to date. The C-CAT members will be instrumental in the identification and engagement of key community participants in both interactive workshops, and in the training of local professionals and non-professionals, and in the development and finalization of the Community Adaptation Action Plans (CAAPs). The community partners are best situated with the best local knowledge of the existing context and governance arrangements in their community that will facilitate the dissemination of knowledge generated by the project to their community. This may occur through workshops or meetings, large or small, that the community will decide is the best approach to knowledge dissemination in their community. Feedback from initial knowledge dissemination activities will likely influence the nature of future dissemination activities. At this point, it is expected that some members will also wish to participate in the preparation and publication of scientific papers on the process and the results of the research.


Volunteer Geographical Information (VGI). Initially, it was realized that people in many communities, especially smaller ones, may lack some information on the nature and utility of GIS with respect to climate change. A new tool has been added to the project outputs in the form of a set of Frequently Asked Questions (FAQ) that will assist communities in using GIS and implementing the results of this research. This tool will also be available to other communities. In a similar vein, some communities may not have scientific studies about the impacts of sea level rise and storm surges but the evidence is clearly documented in photographs and other media. A new aspect of the research is to look at how to incorporate this valuable local knowledge and information into the GIS framework on a voluntary basis. With the rash of events that have caused impacts from sea level rise and storm surges in Eastern Canada over the past year, there is a wealth of such information that can be included in the analyses. This information can also be readily shared, using modern communication technologies.

C-Change Website and Social Networking Site. From a broader perspective, knowledge dissemination is occurring through the C-Change web site which was launched in April 2010. The site also acts as a communication tool for linking communities within each region (Canada and the Caribbean), and between the regions. The website is the depository of project information, as well as a forum for commentary by all interested members through the social networking links to Facebook. Information on project meetings, a calendar of related events, quarterly reports, and community profiles, among other things, are all available on the site. To date, there have been about 2250 visitors to the web site. Information continues to be added to the site and to our Facebook page. As an example, the table below is the latest "Facebook Update" for our site (as per the email received to dlane@uottawa.ca on Monday, January 10, 2011, 8:50pm).



The screenshot shows an email from Facebook with a blue header containing the word "facebook". The body of the email is white and contains the following text:

Hi Dan,
Here is this week's summary for your Facebook Page:

 **C-Change: Managing Adaptation to Environmental Change**

76 monthly active users ↓12 since last week

95 people like this ↑1 since last week

3 wall posts or comments this week ↑3 since last week

95 visits this week ↑14 since last week

Thanks,
The Facebook Team

The message was sent to dlane@uottawa.ca. If you don't want to receive these emails from Facebook in the future, you can [unsubscribe](#).
Facebook, Inc. P.O. Box 10005, Palo Alto, CA 94303

C-Change Newsletters. C-Change newsletter, volume 1 was published in April 2010 and edited by the C-Change Administrator, K. Fahey, as a means of providing information on the project to all partners and other interested individuals. The Winter 2011 (February) edition has been drafted and awaits printing and dissemination.

Conference Participation. As noted previously, C-Change researchers have generated considerable energy in disseminating project work in national, regional, and international meetings. Notably, C-Change community partners have likewise participated in meetings as a consequence of their C-Change

connections. This includes organizing C-Change sessions for researchers, partners, and students at the 2009 OMRN National Conference in Ottawa, October 24-27, 2009; the 11th SALISES Conference in Port-of-Spain, March 24-25, 2010; and the Coastal Zone Canada Association Conference, Charlottetown, PEI, July 25-29, 2010. Upcoming meetings involving direct C-Change participation in 2011 include: (1) Coastal CURA meeting in Halifax, June 22-24; (2) The Sustainable Development of Coastal Communities: Challenges and Solutions Conference, Port-of-Spain, June 1-3; and (3) the World Congress of the Natural Resource Modeling Association, June 13-17 in Ottawa.

4.2 If a formal knowledge mobilization plan was developed, discuss its implementation, and highlight emerging results not discussed in 4.1.

- Yes (please append document to your report) and indicate who was involved in formulating it.
- No

4.3 Use the table below to indicate the **number** of knowledge dissemination mechanisms/tools/vehicles the ICURA has already developed (D) or plans to develop (P). Discuss notable differences across research sites and reasons for such differences.

Dissemination mechanisms/tools/vehicles	#Developed (D)	#Planned (P)
Research tools (e.g. database, dataset, archive, directory, bibliography, concordance, physical collections, catalogue, etc)	2	6
Online (website, blogs, forums, etc.)	2	1
Presentations (non-academic)	11	30
Conference presentations (academic)	2	12
Journal Articles (academic)	2	10
Books (academic)	1	
Public lectures or address		
TV/Radio interviews	2	4
Media products		
TV Broadcast (e.g. documentary, series, etc.)	1	
Audio-visual material (e.g. video, film, sound recording, etc.)		
Newspaper/Magazine article(s)	2	8
Textbook/Educational Aid		1
New course(s)	2	6
New program(s) of study		
Performance (e.g. theatre, dance, etc.)	0	0
Advisory services (e.g. participation in task forces, advisory committees, etc.)		
Consultancy (e.g. research contracts)		

4.4 Use the table below to indicate the **number** of knowledge dissemination events the ICURA has already held (H) or plans to hold (P). Also indicate whether the events are aimed at primarily academic, primarily non-academic audiences, or both. Discuss notable events, differences across research sites and reasons for such differences.

Event Type	# Aimed at Academic Audiences		# Aimed at Non-academic Audiences		# Aimed at both Academic and Non-academic Audiences	
	H	P	H	P	H	P
Workshop	4	4	2	8	2	2
Conference/Congress/Symposium	4	10	0	0	4	4
Meeting	5	5	3	3	5	5
Other(s): Community Presentations			4	4		

4.5 Briefly describe whether intended audiences for dissemination of the research results have been reached. What mechanisms were used to involve these audiences in the development/implementation of dissemination plans.

The key mechanisms used to address C-Change communities and audiences for enhancing community preparedness capacities are as follows:

Community Communications. The Milestone Framework noted the C-Change alliance is interested in “thinking globally but acting locally”. As such, the primary focus of C-Change researchers is communicating with the communities as intended audiences. C-Change emphasizes the role of the C-CATs (noted above) as the communities’ own guide to the more familiar players and components of the broader community that need to be made aware of the results of the project research. Community meetings, courses and training workshops are anticipated to present the research information and to begin the development of the Community Adaption Action Plans (CAAPs) as a key C-Change deliverable to its communities.

Academic Liaisons. The C-Change Team has been active to extend its work by reaching out to its national, and international colleagues who have likewise identified the importance of communities to develop plans and strategies for adapting to environmental changes. The liaisons are acknowledged by C-Change partnerships and affiliations with like-minded research-based institutions including government agencies in Canada (e.g., DFO, Environment Canada, Statistics Canada), networks such as the OMRN, CHONe, Genome Canada, and the NSERC Canadian Capture Fisheries Research Network, and as supporters for the newly announced CanPAC IRIACC project, and Service Canada EnRich project. Acting in concert with these initiatives provides a current and fundamental academic and research foundation to the C-Change team.

Community Linkages. Activities in support of C-Change communities has expanded researchers’ range of Community-based programming. It is evident that C-Change communities have a range of options in which to develop adaptation strategies. For example, C-Change is addressing leveraging opportunities in Canada with the Federation of Canadian Municipalities (FCM) to present a unified front toward efforts of enhancing community preparedness capabilities. These support groups represent a potential audience for which C-Change can act as an intermediary in enhancing the interests of its communities.

Organizational Linkages. Severe storm surge and sea level rise invokes the potential of emergency preparedness. Therefore, an intended audience for enhancing preparedness are the emergency services available to communities including the health services, hospices and clinics, Red Cross, and representatives of the federal Emergency Measures Organization (EMO). C-Change is cognizant that the preparation of a Community Action Plan (CAAP) will require linkages to this audience. Contact has been initiated to link to this audience in the communities of Charlottetown, Isle Madame. Wider linkages to this group in all communities is a priority in 2011.

5. Additional Information and Funding

5.1 Indicate the source, the role of the organization or person in the ICURA, the nature and amount of support of any additional support (in kind or cash) received since the formal application, in the table below. Please also indicate whether the support is confirmed (C) or anticipated (A).

Source (Organization or Person Name)	Role in ICURA (partner, collaborator, other – specify)	Nature (Financial, intellectual, in-kind, other – specify)	Amount (financial contribut'n)	Is support Confirmed (C)/ Anticipated (A)?
SALISES	Partner	In-kind		C
UWI	Partner	In-kind		C
UNB	Partner	In-kind		C
MUN	Partner	In-kind		C
UOttawa	Partner	In-kind		C
UBC	Partner	In-kind		C
COGS/AGRG	Partner	In-kind, intellectual		C
FCM	Interested party	Intellectual, In-kind		A
DFO	Interested party	Intellectual		C
CHONe	Interested party	Intellectual		C
C-FOAM	Partner	Cash	\$1,500	C

OMRN	Partner	Intellectual, In-kind		C
Telfer (SMURF)	Partner	Cash	\$1,500	C
NRCan	Interested party	Intellectual, In-kind		A
NRMA	Interested party	Intellectual, In-kind		A
Town Council Gibsons	Partner	Intellectual, In-kind		C
City of Charlottetown	Partner	Intellectual, In-kind		C
RMRC, Arichat	Partner	Intellectual, In-kind		C
ArcticNet	Partner	In-kind		C

5.2 Discuss how financial management processes have functioned in relation to achieving the alliance's objectives?

In Canada, researchers are required to establish their role, responsibilities and deliverables before funding can be advanced at the beginning of each year. Funding is directed to project initiatives and researchers as accountable and monitored by the project for their expected versus actual accomplishments. The Office of Research Services and the Telfer School of Management at UOttawa are helpful in managing and supporting the financial aspects of the Canadian portion of the project and ensuring that the team has adequate financial information on which to base its operational decisions especially with respect to student engagement and travel. The UWI Bursary is responsible for financial management on the Caribbean side. Disbursement of funds takes place along lines similar to the process at the U of Ottawa and that has been relatively smooth. However, there have been some delays in the accounting and reporting processes, which are in the process of being remedied.

*Ottawa
January 2011*