

January 15, 2010

Amy Larin, Program Officer, ICURA program
Strategic Programs and Joint Initiatives
SSHRC
350 Albert Street
P.O. Box 1610
Ottawa ON K1P 6G4

Dear Ms Larin,

RE: C-Change ICURA Milestone Framework Report

Please find attached the Milestone Framework Report for the C-Change ICURA project formally entitled: "Managing Adaptation to Coastal Environmental Change: Canada and the Caribbean". This document is presented on behalf of the C-Change co-directors, Lane and Watson. The document was compiled following the June 29, 2009 formal announcement of the project by the project co-applicants, collaborators with the assistance of members of the project partner team.

As requested, please note that this submission is comprised of:

- (i) the 15-page Milestone Framework Report (as per the itemized report document provided); and
- (ii) a 46-page Milestone Framework Appendices. The appendices were compiled in response to the requested documentation referred to in the Report guidelines.

In the preparation of the Report, C-Change project team members noted some difficulties in interpreting and completing the requested fields. In some cases, there was considerable discussion and concern that some parts of the Milestone Framework document could be misinterpreted, and that there was potential overlap across some questions.

As presented in the report, the timing of the document represents 'early days' of this project. As such, it is noted that the report does not intend to bind the C-Change project or its contributing members to specific actions or outcomes. Rather, report provides a valuable exercise for organizing project work and for preparing on-going project self-assessment toward measuring progress on project work.

We look forward to developing and implementing the Milestone Framework in the coming months and years.

Sincerely,

Dan Lane and Patrick Watson on behalf of the C-Change Team

INTERNATIONAL COMMUNITY-UNIVERSITY RESEARCH ALLIANCES (ICURA)

MILESTONE FRAMEWORK

As a condition of their grants, ICURA teams are expected to report on their progress.

The reporting schedule is as follows:

Reporting Requirement	Tentative dates
Milestone Framework	January 15, 2010
Milestone Report	January 15, 2011
Mid-Term Report	December 15, 2012
Final Report	September 30, 2014

These reports will provide an opportunity for ICURA teams to develop a framework for self-assessment, and to utilize this framework for reporting on the progress and results of their activities. Note: the requirements for financial reports are outlined in the funding agreements by SSHRC and IDRC, respectively.

A completed Milestone Framework should assist ICURA teams to measure and assess progress toward their objectives.

Specifically, the purpose of the Milestone Framework is to:

- update key information provided in the formal application stage;
- confirm responsibilities of team members, clarify the goals of the research program, and describe governance and management structures;
- establish the milestones to track which activities are on, ahead or behind schedule, and establish indicators to report on results.

Given the importance of this Milestone Framework, both SSHRC and IDRC expect the principal investigators/co-directors to involve core members of the alliance in its development. Moreover, alliance members should endorse its content and commitments. The completed Milestone Framework should be no more than fifteen (15) pages in length (excluding appended documents).

Report submission deadline and format: One electronic copy and one paper copy of the milestone framework should be received by SSHRC and IDRC by Jan 15, 2010 and sent to the following contact addresses:

By email:

- Amy Larin (SSHRC) amy.larin@sshrc-crsh.gc.ca
- David O'Brien (IDRC) dobrien@idrc.ca

By mail:

ICURA program (Attn: Amy Larin, Program Officer)
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SSHRC
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ICURA Milestone Framework

Section A			
1. Identification			
SSHRC Number 833 - IDRC File Number(s)	Title of ICURA		
<i>Report completed by:</i>			
Family Name		Given Name	Initials
Primary telephone number Country Area Number Extension	Primary E-mail		
Family Name		Given Name	Initials
Primary telephone number Country Area Number Extension	Primary E-mail		
Family Name		Given Name	Initials
Primary telephone number Country Area Number Extension	Primary E-mail		
Date Submitted (dd/mm/yyyy):			
2. Formal Application Follow-up			
2.1 Discuss any issues raised by the adjudication committee at the time of the grant decision, and how these issues have been addressed.			

Section B

1. Community and University Partnerships

1.1 PERFORMANCE MEASUREMENT AND EVALUATION - Community-university partnerships: How will you measure and assess the effectiveness of your management/governance structure? How do you plan to monitor the participation of team members in ICURA activities, including an indication of the depth of involvement and the range of opportunities to help build their knowledge, expertise and research skills? Provide examples as appropriate.

1.2 Append to your report a description of the ICURA's planned or actual management/governance structure and Advisory Board(s) (include mandates). Include the names, affiliations and responsibilities of members. Be sure to describe such elements as: how integration of ICURA participants will be promoted (e.g., in framing the research agenda); how partnerships between community and university researchers, and across jurisdictions, will be promoted and strengthened; and mechanisms that will allow for partnerships to evolve and expand?

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

Yes (go to 1.3a) No (go to 1.3b)

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

- Terms of Reference
- Letters of Agreement
- Guiding Principles
- Conflict Resolution Mechanisms
- Resource Allocation Principles
- Contracts (Please specify type/nature of contract): _____
- Other(s) (Please specify): _____

1.3 b If no written agreement or protocols have been established, explain how partnerships will be managed.

1.4 What management challenges and mitigation strategies are envisioned for dealing with such issues as ethics review, resources sharing, funds and personnel administration, publication policies, etc..?

2. Research Training and Development

2.1 PERFORMANCE MEASUREMENT AND EVALUATION - Research Training and Development: Skills and Knowledge: What type of skills and knowledge will be developed? How will you measure and assess the degree to which students, community partners and other researchers have acquired the identified skills and knowledge?

2.2 How do you plan to measure and assess the degree to which team members participate in the alliance, and the impact of their participation within and across country locations?

2.3 Indicate the **anticipated** number of students, community partners and other research staff expected to participate in the ICURA. (Please note that actual figures will be required in your Mid-term and Final Research reports).

STUDENTS		
Paid	# at Canadian universities	# at (name country) universities**
Undergraduate		
Masters		
Doctoral		
Postdoctoral		
Unpaid		
Undergraduate		
Masters		
Doctoral		
Postdoctoral		

** add additional columns if more than one LMIC country is involved

COMMUNITY PARTNERS AND OTHER RESEARCHERS			
Host organization of team member (gov't, community organization, advocacy organizations, etc...)	Paid or Unpaid?	Role of team member (research coordinator, project manager, technician, etc.)	#

2.4 Briefly identify planned university courses, degree programs, professional training courses/workshops etc., to be developed. How will the ICURA contribute to these new offerings? Describe the role of each partner in these events.

3. Research and Knowledge Production

3.1 PERFORMANCE MEASUREMENT AND EVALUATION -Research and Knowledge Production:
How do you plan to measure and assess:

- 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)

3.2 PROGRAM OF RESEARCH: Append to your report an outline of the ICURA's main research components, using the table below.

Project component & location	Project title	Project Lead(s), Affiliation	Specific project-level research objectives	Expected results	Time Frame (start - finish)	Projected expenditure (\$)

			→	→		
			→	→		
			→	→		

4. Knowledge Mobilization

4.1 PERFORMANCE MEASUREMENT AND EVALUATION -Knowledge mobilization: How do you plan to engage partners in creating knowledge mobilization strategies including the development of new tools; i.e., publications?

4.2 How do you plan to measure and assess the:

- implementation of your knowledge dissemination / communication plan?
- influence of audiences' input on knowledge dissemination activities and its impact?
- impact of knowledge dissemination activities on users; i.e., intended audiences, internationally and in Canada?

4.3 Has the ICURA developed a formal knowledge mobilization plan?

- Yes (please append document to your report) and indicate who was involved in formulating it.
- No (go to 4.2a)

4.2 a) If not, describe plans for the development of a formal knowledge mobilization plan, including who will be involved and anticipated completion date.

4.4 Describe the mechanisms for external audiences to influence ICURA knowledge dissemination plans.

5. Additional Information and Funding

5.1 Provide any additional information on your ICURAs performance measurement and evaluation plan, **not yet discussed in this framework**. For example, you may use this space to discuss plans for a formal evaluation of your ICURA. Append any relevant documents that further describe your performance measurement and evaluation plans.

5.2. Do you have intentions to mobilize resources in addition to those listed in your application? Please describe.

Please note that SSHRC or IDRC may request copies of documents referenced for your file.

INTERNATIONAL COMMUNITY-UNIVERSITY RESEARCH ALLIANCES (ICURA) Appendices

MILESTONE FRAMEWORK: C-Change - Managing Adaptation to Coastal Change: Canada and the Caribbean

This document contains the appendices to accompany the C-Change ICURA project Milestone Framework report submitted to IDRC on January 15, 2010. The appendices included are:

1. Appendix 1- C-Change ICURA Proposal.....Pages 2-11
2. Appendix 2- C-Change ICURA Governance Structure Details.....Pages 12-14
3. Appendix 3- C-Change ICURA Team Members.....Pages 15-16
4. Appendix 4- Co-applicants' Roles and Responsibilities.....Pages 17-21
5. Appendix 5- C-Change Project Management: Main Research Components.....Pages 22-37
6. Appendix 6- C-Change Agendas and Minutes of December 13-15, 2009 Ottawa.....Pages 38-46

Appendix 1 C-Change ICURA Proposal

The following text is the C-Change ICURA proposal 'Detailed Description' as submitted for approval on November 22, 2008.

SSHRC IDRC-CURA Detailed Description.

1. INTRODUCTION

1.1 Evidence and research relevance

The global climate is changing. Impacts are increasingly visible, and the trends are undeniable. Rising temperatures are melting polar ice and together with thermal expansion of water are contributing to: sea level rise, changing precipitation patterns, more frequent intense weather events, storm surges and flooding, coastal erosion, increased sedimentation of coastal waters, and, especially worrisome, pollution from flooded or destroyed infrastructure and storm runoff (IPCC 2007a,b, IISD 2007, FAO 2007, UNEP 2008). Nowhere is the problem more imminent or intense than in the small island states of the Caribbean, which rank among the most vulnerable economies in the world (UNEP 2007, 2006, UNFCCC 2007, Bueno et al 2008). In Canada, despite our capacity to predict severe storm events and coastal vulnerabilities to sea level rise, there are concerns that not enough has been done to establish strategic linkages between scientific knowledge and institutions responsible for needed planning and adaptation for coastal communities on Canada's three oceans. The September 2008 Report of the Standing Senate Committee on National Security and Defence states that "Canadians have no assurance that essential government operations will function during emergencies." (Canada 2008, p.6) Severe weather events (Hurricanes Katrina-August 2005, Ike-September 2008, Juan-September 2003), have proven the vulnerability of coastal governance, industrial sectors, and social systems to severe storms and sea level rise. Hurricane Katrina flooded 80% of New Orleans and demonstrated the inadequate ability of governments to address impacts on humans and infrastructure damages. When Hurricane Juan hit Nova Scotia in September 2003 as only a Category One storm, it resulted in eight Canadian deaths and over \$200CAD million in damage, and has been described as a "one hundred year storm" - the worst storm event to hit Halifax since 1893. Halifax was poorly prepared for such a storm event, as was evident in the time required to restore essential services in the Juan's wake. Prior to Juan hitting Charlottetown, PEI, the city had expressed interest in planning for such an event. However, despite the fact that considerable analysis had been done to model the potential impacts of storm surges, the community had not developed effective means to mobilize people, businesses, and institutions to prepare for the storm and mitigate negative impacts. Aid from regional and national governments can be slow to reach impacted areas, and cannot be counted on to provide immediate help. Coastal communities can be better prepared by linking the national and regional institutional resources and services with local community knowledge, planning and community response networks that can both anticipate potential impacts and strategically apply limited resources to priority areas to reduce negative impacts.

This research project proposes to develop local community capacity to close the gaps between inevitable environmental change and the urgent need for local coastal communities to adapt their

own efforts to anticipate and plan for environmental impacts to their physical, economic, and social well-being. Community adaptation is acknowledged as the capacity of natural and human systems to adjust to global and local environmental change and to reduce adverse effects. We seek to improve planning for adaptation through the development and incorporation of new policy and management measures consistent with established planning theory and guidelines, and the local context, through the identification and implementation of practical local alternatives for coastal resource management. The focus is on immediate and downstream consequences to coastal communities of the insidious effects of sea level rise and the potential catastrophic impacts of extreme weather events. We agree with Sale et al (2008) that the keys to improving local capacity for planning adaptation and emergency preparedness lay in integrating local and traditional knowledge with available scientific, management, and institutional governance information. The project therefore addresses the vital need to inform and adapt municipal and private sector capacity to make needed changes to development practices, existing and evolving infrastructure, transportation and utilities, health services, water and sewage distribution and treatment systems, and to the management of resource sectors in agriculture, aquaculture, and fisheries. Anticipated and significant environmental impacts to coastal biodiversity will have a domino effect on coastal resources. Development of scenarios and measures to assist adaptation to environmental change can best be achieved through cooperation and sharing of knowledge, applied resources and expertise between academic institutions allied with organizations in the coastal community in an output-driven, collaborative and applied research effort. This collaborative community-university research program will create alliances among selected and susceptible coastal communities in Canada and the Caribbean, postsecondary institutions strategically invited to provide needed research and training resources, and community businesses, and institutional and technical services leaders. These alliances are aimed at developing strategies and making decisions to equip the coastal community in planning for sea level rise and for storm related emergencies. The program will establish formal collaboration and mutual co-learning opportunities among the selected Canadian and Caribbean coastal communities on comparative research on policy implementation for adaptation to coastal environmental shifts. The research program also recognizes the fundamental need for capacity building through its commitment to training of university graduates and community decision-makers and through the creation of new adaptive policy and management measures.

1.2 Definition of communities and adaptation

For this research, selected coastal communities in Canada and the Caribbean are defined broadly and are comprised of: (1) governance and local decision makers (e.g., municipal governments); (2) private and public infrastructure services (planners and design professionals, utilities and services, insurance); (3) business and economic activity organizations (corporations, small businesses, boards of trade and commerce); (4) citizens' groups (environmental advocates, indigenous communities); and (5) affected individuals (especially special interest or disadvantaged members of the local society who are socially differentiated by poverty and across gender, class, race and age).

1.3 Coastal Communities under Threat

Coastal communities under threat were drawn from a subset of areas in Canada and the Caribbean that met the following criteria: (i) serious, immediate threats to infrastructure and or

natural environments (e.g. tourism infrastructure, natural resources, habitats, species), and to area residents (e.g. livelihoods, family structure, cultural assets, and vulnerabilities derived from poverty/gender issues); (ii) ease of access to available data; (iii) opportunities for partnerships and alliances; and (iv) team member familiarity with area and/or community champions in place. Moreover, selected communities have expressed interest in participating and providing support for this research initiative (Table 1). Supporting documentation from selected communities is provided in the Partnerships section of this application and evidenced by the Letters of Support as part of this application.

2. Program Objectives

The objectives of this research focus on communities, universities, and the created networks and alliances among these groups in keeping with the ICURA program themes.

2.1 Community Objectives

1. Establish formal Community-University alliances for management of the impacts of environmental change in each study area, with membership from each community to assist in information gathering, priority-setting, decision making, reporting, and application of research deliverables.

2. Strengthen community institutional arrangements through the development of new management instruments, planning policy, guidelines, strategic plans, and decision support methods.

3. Establish long-term linkages among research institutions and the communities within each community, to facilitate the flow of information, access to outside resources, and capacity building.

4. Prepare community action plans based on existing governance and institutional authorities, and in cooperation with the Community-University alliance group, to advance preparedness for environmental shifts and emergencies.

Community	Distinctiveness	Threats	Partnerships and Alliances
Charlottetown Prince Edward Island	Provincial capital city and coastal port; Population 60,000, centre of industrial and commercial activity; historic downtown	Impacts to infrastructure and historic sites from flooding associated with predicted SLR and storm surges	City council; provincial government, local university, businesses and services, UPEI
Georgetown, Guyana	National capital city and coastal port; centre of industrial and commercial activity, Population 215,000; largest city in region, 14' below sea level;	Breaching of the protective sea walls and dykes by storm surges, salt water contamination of drinking water supplies	Central government planning agency; local community groups; local businesses and enterprises
Iqaluit, Nunavut	Territorial capital city in Canada's high North. Population highly sensitive terrestrial and marine Arctic environment Eco-tourism including whale-watching; whale hunting permitted by native peoples using traditional methods;	Melting/destabilization of permafrost areas of shoreline leading to erosion and sedimentation and coastal hydrological and biodiversity changes - leading to impacts on ecosystems &	Local contacts, team members with experience in working in these communities

	nearby shipping lanes	indigenous cultures	
Belize Barrier Reef	Island atolls on 300 km section of the 2 nd largest reef in world - the Mesoamerican Barrier Reef System, World Heritage Site ;destination for half of region's 260,000 tourists, nearby shipping lanes	Impacts from SLR and storm surge on coral reefs, and on local tourism and fish and shellfish fisheries	Local contacts, team members with experience in working in these communities
Gibsons, British Columbia	Sunshine Coast coastal town, unique location with proximity to Vancouver, popular resort town, significant eco-tourism and hiking and camping area	Impacts from SLR and severe storms leading to beach erosion and risk of groundwater exposure to salinisation	Town council and planning committee support, Local contacts with tourism and environmental groups
Grand Riviere, NE Coast, Trinidad and Tobago	Isolated village of fishermen and small crop farmers, popular local eco- tourism area, protected nesting area for giant leatherneck turtles; nearby shipping and important agricultural areas	Immediate potential for impacts from sea level rise and severe storms	Local contacts with tourism and environmental groups
Isle Madame, Cape Breton, Nova Scotia	Local fishing and aquaculture area, eco-tourism, archipelago of small isolated coastal communities; historic settlement area for Acadians	Impacts from SLR and severe storms on unique transportation links and potential isolation due to infrastructure damage	Municipality Council, local development association (DIMA), industrial, professional activities, businesses, trade & tourism, Université Sainte-Anne
Island of Bequia	Island archipelago and coral reefs. Popular boating area for cruising yachts; marine and eco-tourism based on whale-watching; significant natural habitats, native peoples' traditional marine hunting activities, nearby shipping lanes	Impacts from SLR and severe storms, unique transportation links, potential isolation due to infrastructure damage	Local governments, industrial, professional activities, businesses

Table 1. Project Study Areas – Twinned Canada- Caribbean

2.2 University objectives

1. Develop academic alliances among university researchers in Canada and the Caribbean. These project alliances will share comparative knowledge, resources and expertise on the adaptive capacity of coastal communities re coastal health and vulnerabilities, combine resources to improve the capacity of local areas to anticipate and respond to the challenges presented by environmental change and use insightful alternatives to promote the sustainable use of coastal marine resources.

2. Collaborate on global research to compare and share the results of socioeconomic research with international links and global institutions, e.g., the United Nations, the IPCC, related to environmental change impacts affecting coastal communities throughout the world through publication in known journals, participation in international conferences, and membership in Canada and in the Caribbean region environmental change institutions.

3. Develop new curricula for Managing Adaptation to Environmental Change in Canada (among the Canadian partner universities) and in the Caribbean (in the University of West Indies network) including joint graduate and undergraduate level courses in science, social science, and management prepared by researchers in Canada and Trinidad and Tobago to provide training and research for evaluating and addressing the integrated and interdisciplinary physical and socioeconomic impacts of coastal community-based systems and infrastructure from environmental change.

2.3 Joint Community-University Alliances objectives

1. Identify the short and long term vulnerabilities for each coastal community due to sea level rise, storm surge and severe storm events by developing and cataloguing risks.

2. Mobilize knowledge and innovation to mitigate coastal community risks through workshops, data and research collaboration, and linkages within the Canada-Caribbean communities and among the academic participants.

3. Build capacity through the training of graduate and undergraduate students in the universities, and local participants and decision-makers in the communities re coastal environmental impacts by regular exposure to workshops, seminars, and local field work and reports to the community.

4. Develop impact scenarios, and prepare adaptation action plans using university resources in partnership with the priorities and concerns of the local community government, services, and community members.

2.4 The Research Process – Activities, Strategies, and Milestones

The research process is an interdisciplinary collaboration that employs key research strategies, activities and methodologies (Figure 1). Information will flow electronically between the central administrative sites (University of Ottawa and University of West Indies, St. Augustine) through the program website (currently in place) and out to the selected coastal communities. The website is the core of communication, data-sharing and knowledge exchange among researchers and community participants. In the first year, Canadian and Caribbean research teams establish the local C-Change Community-University Support Groups. The Support Groups mobilize community engagement, gather information and local priorities, and inventory community resources, services, institutional and governance linkages. This information permits the locally-assisted development of environmental vulnerability indices for the community. Community spatial models will be presented to the community to examine environmental impact scenarios including integrated econometric and socioeconomic impacts models from data projections for community discussion and review. Baseline indices will be updated regularly over the course of the project with changes to the value of the community vulnerability and adaptive capacity indicators to reflect ongoing project activities and the recommended policy measures. Community groups will guide questionnaires, assist with meetings, be the first to view recommendations and facilitate ‘buy-in’ by the wider communities including taking ownership of local community meetings and workshops with the assistance of University researchers. Local community workshops will provide training in “Managing Adaptation to Environmental Change” and use of the vulnerability index and adaptive capacity measures and build knowledge towards planning for change. Working documents from local workshops will be prepared and disseminated through the project website to community leaders, practitioners and policy makers. Graduate students will work on specific project elements such as geomatics and information

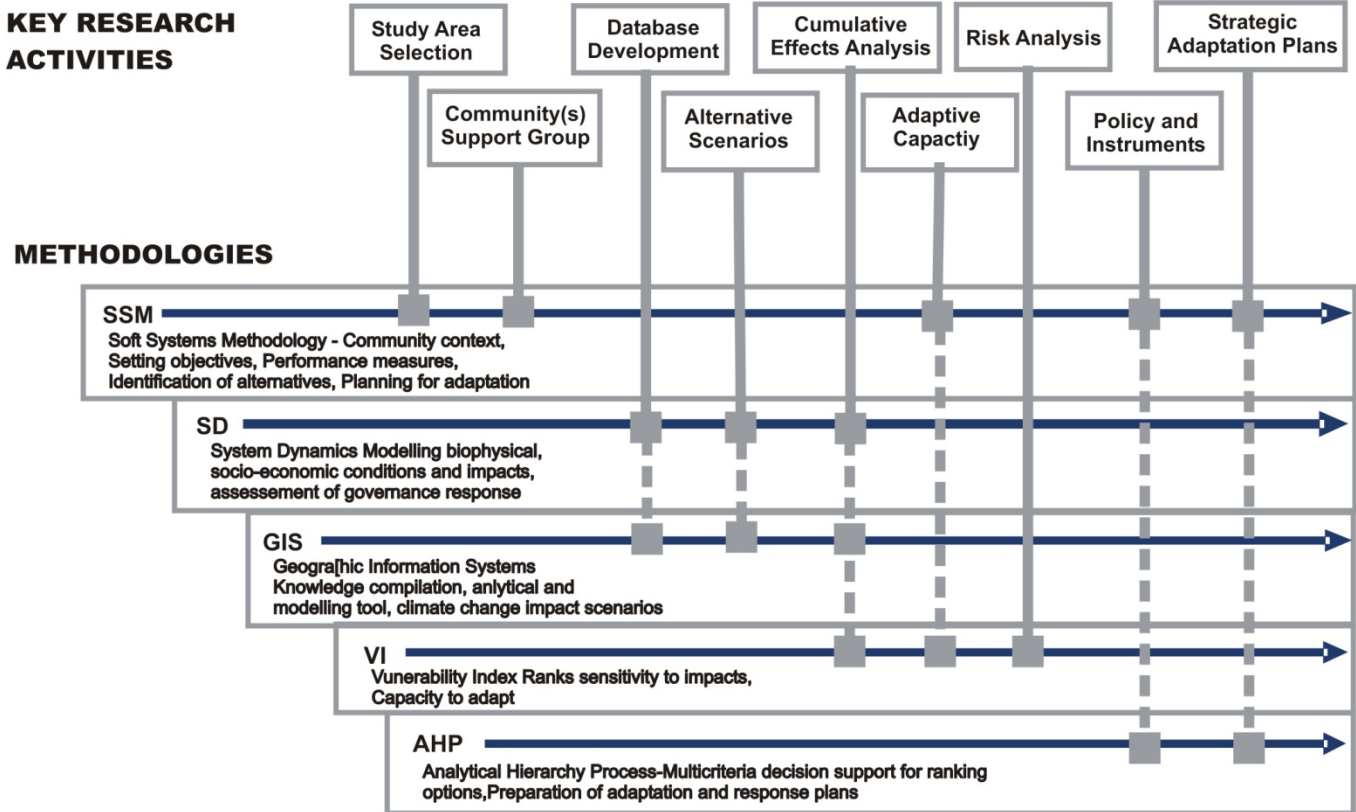
management, web database development, multicriteria decision making, policy evaluation, risk management, and will be overseen by academic as well as community team members, with opportunities to gain experience working in practical application of research findings.

Figure 1. Research Process

STRATEGIES



KEY RESEARCH ACTIVITIES



2.5 Resources and Personnel

The research team represents a unique collaboration among academics and professionals from government and the private sector. The Canadian Co-Director (Lane) is chair of the C-FOAM Research Cluster, whose members were responsible for the early development of the research project. C-FOAM members provide senior advice, considerable Canada and Caribbean experience, and assistance with specific aspects of the research and a special focus on training in adaptation skills, e.g., coastal and marine policy, economics and management (Parsons, Hinds, Mitchell, Powles), coastal planning and development, interdisciplinary and trans-disciplinary project management (Mercer Clarke), pollution prevention and environmental compliance (Clarke), organizational management, systems modelling and decision making (Crabbé, Lane). The Canadian and Caribbean academic team members were carefully assembled to provide both the specific expertise necessary to carry out this project, as well as proven skills in collaboration

and interdisciplinary research. Disciplinary expertise includes information systems and geomatic and ecosystem modeling (Forbes, Nichols, Sutherland) including poverty, cultural and gender analysis (Nichols, Watson, Sookram), economic impact analysis (Crabbé, Watson, Sookram), analysis of social institutional and governance arrangements (Matthews), community planning and tourism (Williams), and community socioeconomic and cultural analysis (Woodrow). Caribbean expertise is centred at SALISES and led by the SALISES Director and project Caribbean Co-Director (Watson). SALISES brings considerable experience in Caribbean environmental economics and fisheries (Teelucksingh), survey analysis and design, statistical analysis (Teelucksingh, Watson, Franklin, Sookram), ICT (Franklin), social policy (Henry-Lee), Coastal Land Use Planning (Mycoo). Commercial partners in coastal engineering (Zuzek) and community leaders in the Canadian and Caribbean communities complete the collaborative team. Working relationships have already been developed with key government agencies and departments in both Canada and the Caribbean to reduce overlapping efforts, and to ensure efficient transfer and application of existing knowledge. Further information on these partnerships is provided elsewhere.

3. Methodology and Research Approach

The methodological process follows the steps of problem solving and risk management (Australia 2007).

1. Problem definition - Soft Systems Methodology (SSM, Checkland 1992) is used to embed the community to establish local priorities, to define the scope of the local research, to pinpoint local institutional arrangements, decision makers and affected organizations, to establish measurable performance indicators, and to develop decision alternatives. SSM is the tool that addresses issues of adaptation and sustainable development at the local community level by acknowledging that human problems are complex and issue-based, requiring inter-disciplinary collaboration to develop solutions, and are accomplished through accommodation by all community members rather than through consensus or optimization. SSM seeks 'common ground' through respectful and structured debate on management where the need is for a system of inquiry and adaptive learning, reacting to events and responding to behaviour rather than changing patterns of behaviour and their underlying causes (Senge 1990).

2. Data collection and community database – the identification, analysis, and evaluation of risks from climate impact scenarios will be guided by structured database development of available community resource inventories including physical, economic, and social capital. Data also include base maps, storm histories, topography, coastal hydrography, and cadastral data for assessing outcomes and projecting the likelihood of real threats to local infrastructures, environments, economies and cultures.

3. Visual Modeling - spatial modeling of integrated dynamics of the ecological, socioeconomic, and cultural subsystems will be developed using GIS software including hardcopy maps, tables, graphs and images to support visual and manual analyses (e.g. using readily available modelling software such as Google Earth). Spatial mapping and visualization will be used to simulate and animate hypothetical situations for community discussion including exploring the impacts and response of adaptation and mitigation strategies to perceived and real threats. Systems Dynamics

(SD) techniques are used to describe and link the physical, economic and social baselines through visual spatial and temporal maps.

4. Vulnerability Modeling - community Vulnerability Indices (VIs) will be produced using static and dynamic maps that present both current vulnerability conditions as well as potential future scenarios subject to coastal environmental risks. VIs provide measures of the sensitivity of coastal communities and are a criterion for the allocation of financial and technical assistance. The index of community vulnerability is designed to be simple, affordable, comparative, and transparent. Coastal community vulnerability stems from detrimental impacts to natural systems that are exacerbated by factors such as a narrow economic base, dependence on trade, and susceptibility to external economic fluctuations (e.g. oil prices). This research program uses the UN/Commonwealth VI to identify risks as well as to assess community capacity of to adapt to changing conditions (Sale et al. 2008). Socioeconomic VIs are modified from Briguglio (1995) and Adger (2006).

5. Adaptive Capacity and Resilience Modeling – communities’ abilities to develop and implement a strategy for environmental changes are determined as a function of: (i) technological options; (ii) available resources; (iii) institutional structure and decision-making; (iv) existing social infrastructure; (v) access to risk-spreading mechanisms; (vi) decision-makers’ ability to manage information; and (vii) public’s perception of the source and significance of the impact to its local manifestations (Yohe and Tol 2002). Adaptation is constrained by the resilience of the natural systems in evolution with human systems, i.e., by their respective ability to cope with external shocks (Gunderson and Holling 2002, Adger et al. 2001). Resilience refers to the coping ability or adaptation capacity of the affected community and ability of an affected community to recover from a damaging external impact. This project seeks to build resilience in the selected coastal communities. Coastal communities need to plan to adapt to environmental change by adopting measures to advance economic, environmental and social resilience. Modeling will consist of constructing a Resilience Index (RI) (as a companion to the VI) adapted to coastal communities that is associated with community adaptive policy (Briguglio et al. 2006) and applied to alternative policy options.

6. Development and assessment of policy options - spatial analyses are used to produce hypothetical cases of ecosystem shifts in local community ecosystems as the basis to project spatial and socioeconomic impacts. These models are based on credible scientific research projections using the Systems Dynamics (SD) baselines as a starting point. The SD projection models complement the delivery of participant-based SSM that is in turn used as a negotiation tool to identify areas of agreement in which to investigate future community environmental scenarios. SD is used as a dynamic simulation tool for presentation of the environmental scenarios and cumulative community effects and impact evaluations for group analysis (Forrester 1973). SD software, (e.g., *Vensim*) has advanced iconic capability making model visualisation, development and sharing accessible to participants. Evidence from research team members’ recent work clearly indicates the usefulness of SD analysis in the delivery of SSM for community engagement in assessing complex issues such as environmental adaptation.

7. Evaluation of group decision making – evaluating and ranking alternative environmental mitigation strategies will be carried out using the Analytic Hierarchy Process (AHP, Saaty 1982). The Analytical Hierarchy Process (AHP) is adopted to evaluate community participants’ perspectives on the important problem components that arise through community discussion in the SSM prioritization exercise. AHP provides a structured decision framework that breaks down

complex decision problems by decomposition into explicit multiple criteria and sub-criteria in a hierarchical structure. The hierarchy identifies the community goal and key components of the physical ecosystem as well as its social and economic elements. Participants' feedback on the relative importance among the criteria and sub-criteria of the problem is used to determine trade-offs among problem objectives, e.g., reduce vulnerability and increase adaptive capacity, given evaluated policy alternatives (Michalowski and Szapiro 1992).

8. Implementation of local adaptation planning and action frameworks - consensus on action planning for mitigation of negative environmental impacts are developed and documented into a Community Adaptation Action Plan (CAAP). The CAAP is a coordinated set of documents for community sectors: (1) governance and local decision makers; (2) private and public infrastructure services; (3) business and economic activity groups; (4) citizens' groups; and (5) special interest and affected individuals for preparedness for a relevant range of environmental shifts and coastal community emergencies.

The research seeks to provide a lasting impact on coastal communities' preparedness for environmental threats that will influence existing policy at the regional and national levels in the small island states in the Caribbean and in coastal Canada. To this end, this project will make formal linkages between the communities and their respective financial offices and funding sources since it is recognized that measures and policy recommendations will require government authorization and budgeting including the application of new technology and the reinforcement of community infrastructure.

4. Outcomes

Significant results and impacts of this research on coastal communities, academic curricula and student training by the end of the five-year funding period will be made publicly available and include:

4.1 Creation and Communication of Knowledge – the collation and integration of existing and new knowledge on managing adaptation to environmental change in coastal communities. Communication tools include: periodic working papers and community workshop reports directed at community leaders, practitioners and policy makers and focused on practical adaptation of information to matters of direct interest to these groups. Papers and reports will also be widely distributed to the partners and community contacts and within the communities themselves via the project website. The website, already in place, will be the repository for draft and final documents, available for use by all project participants in Canada and the Caribbean. The website will include resources available to the general public. Further, a participatory comments (“blog”) section will encourage public feedback and running commentary on the content and progress of the work. Within the academic community, research papers derived from the work will be submitted for publication in both disciplinary specific academic journals and in journals that address broader interdisciplinary topics (e.g., *Journal of Ocean and Coastal Management*, *Journal of Sociology*, *Canadian Journal of Fisheries and Aquatic Sciences*, *Climatic Change*).

4.2 Co-Learning – an electronic database that forms the core resource for the identification, collation, analysis and dissemination of information in the communities and the impacts of pending climate change. Collected and generated information will address comprehensively the change in both spatial and temporal contexts, especially as it is expected to affect environmental, social, economic, and cultural characteristics of the study areas and their supported communities.

The local area databases will build on existing and available sources and will afford opportunities for sharing of learned experience and knowledge, including collaboration with other climate change initiatives that are taking place in both Canada and the Caribbean. Emphasis will be placed on transferring knowledge gained from existing academic and government research initiatives to practical application within the coastal communities.

4.3 Decision Support Tools - integrated models and state-of-the-art methods for environmental scenario analysis and multicriteria decision support tools for communities to improve their capacity to model, evaluate, and assess strategies for adaptation to change.

4.4 Monitoring and Evaluation Indicators – the suite of performance indicators to assess the ongoing spatial and temporal status of coastal communities at risk from environmental change (including VIs and RIs). These indices allow coordinated and ongoing community-based monitoring and review for current and projected future conditions.

4.5 Training - training outcomes are twofold: (1) academic training, and (2) community-based training of both professional and non-professional participants. Formal courses will be introduced at the partner universities in the Caribbean and in Canada. Graduate students participating in academic research will receive experience in the communities and in practical application of theory and policy. Students will also be trained in the identification and measurement of relevant phenomena, policy prescription, and modeling and analysis of the effects of rising sea-level and storm surges.

4.6 Community Adaptation Action Plans (CAAPs) – community templates as outcomes for the development of CAAPs specific to each community that will respond to a range of climate change scenarios. CAAPs will reflect locally-specific conditions and threats including operational planning documents for practices and mechanisms for emergency response. The CAAP template includes the local database framework and decision-support and scenario analysis tools, and is developed so as to be applicable to other coastal communities within the Caribbean, and across coastal Canada.

4.7 Governance Institutional Advice – case studies as outcomes of the activities in and comparison among the participating communities in Canada and the Caribbean with respect to the successes and failures of local government institutional arrangements and the characterization of effective institutions for responding to the issues of pending environmental change.

Appendix 2 C-Change ICURA Governance Structure Details

As reported in the November 2008 application, project governance in Canada and the Caribbean sites is led by the Co-Directors (Watson and Lane) through the establishment of secretariats located at the University of Ottawa and at the University of West Indies in St. Augustine. The management secretariat teams are responsible for the scientific coordination and the management operation plans of the project including the following:

- The legal and contractual aspects of the project
- The organisation of internal project meetings
- The preparation of reports (in collaboration with academic and community project members)
- The establishment and facilitation of the community/academic collaboration of the project, with a view to promoting and strengthening these partnerships
- The establishment within the local community structures of formal committees, with the objective of the engagement of the local decision makers within their own work environment
- The establishment and monitoring of the research agenda of the project (in collaboration with both the academic and community counterparts)
- Ongoing monitoring of the research progress, including progress monitoring of scheduled milestones and deliverables, and timetable revisions
- The facilitation and monitoring of communication activities between the Canadian and Caribbean ICURA counterparts, both in terms of academic and community interface
- The vehicle of communication with the IDRC (Caribbean) and SSHRC (Canada).

Project governance is defined by the functions of the management elements: (a) Project Secretariat; (b) Project Administration, (c) Project Coordination, (d) Information Flow, (e) Community Advisory Boards, and (f) Financial Management. These elements are described in more detail below.

- (a) The Project Secretariat** at each site (University of Ottawa, and University of the West Indies, St. Augustine) will be comprised of the Co-Director, the Project Coordinator, the Project Operations Manager, and the Project Administrator.
- (b) Project Administration** will be managed through the hiring of a key individual in each site whose responsibilities will be administrative and include assisting the research teams in organizing meetings, research workshops, travel coordination, and liaison activities among co-applicants, collaborators, partners, research associates and students. This task includes accounting for expenses and reporting to the University finance offices, and team members' reimbursements.
- (c) Project Operations Manager** is responsible for the initial drafting (completed) and development of the Project Work Plan (see also Appendix 5- C-Change Project Management: Main Research Components). This includes incorporating content and milestones (e.g., the Milestones Framework report - this document) for monitoring project operations and ensuring that project communications and information are flowing effectively and efficiently among all team members and communities. The Project Operations Manager compiles quarterly the project status reports in the **C-Change Quarterly Reports** for dissemination to team members and on the project website, reviews the main research components of the Work Plan (Appendix 5) and monitors that activities are taking place as scheduled, and assist in the identification and implementation of needed changes in Project structure, budget or timing. The Project Operations Manager will also assist Co-applicants in the co-ordination of their research components, and will collaborate with the parallel research being conducted across sites in Canada and the Caribbean. The Project Operations Manager reports directly to the Canadian Co-Director.
- (d) Project Coordination** is a key project task that will link the activities of the researchers (co-applicants, collaborators, research associates and students) with the team partners with particular

emphasis on connecting to the project’s community sites and the key individuals and partners in the communities. The Project Coordinators (to be hired by the project - process in progress) will report directly to their respective Project Co-Director and will work closely with the Co-Director, the Project Team Community Champions, and the Community Advisory Boards in establishing linkages with the communities. As the key community-project interfacers, Project Coordinators will be responsible for delivering the project activities to the local communities.

- (e) **Information flow** between the Secretariats to date has been via electronic communication (telephone and email). This will be augmented by the use of an exclusive program website to facilitate the exchange of information and free flow of data, shared knowledge, and regular feedback. The existing project website is being enhanced (full launch date expected March 2010), and is being developed to make extensive use of monitored social networking mechanisms (Facebook) for ease of intra- and cross-community communication.
- (f) **Community Advisory Boards** will be established in Year 1 (by April 2010) for each of the project communities in Canada and the Caribbean. These Boards will be made up initially of existing community partners in place for the project (see also Appendix 2- C-Change ICURA Team Members for details by community) and are mandated to deliver community-based outcomes.
- (g) **Other Advisory Boards**; we envisage the inclusion of highly qualified experts, practitioners and prominent researchers in the respective fields to monitor and evaluate ongoing activities.
- (h) **Financial Management** is being carried out independently for each site (Ottawa and St. Augustine) through the auspices of SSHRC and IDRC respectively, and via the University of Ottawa and University of the West Indies, St. Augustine financial administrations. Expedient disbursement of funding allocations to eligible project co-applicants have been made for the first year of the project and will be renewed annually on the basis of established “Transfer of Funds” agreements between the respective universities that include identification of the co-applicants roles and responsibilities under the project. (See also for example Appendix 3- Co-applicants’ Roles and Responsibilities.)

Governance Structure - Canada and the Caribbean

Canada	Governance	Advisory Boards	Communication
Ottawa	Secretariat: Co-Director (Lane), Administrator (TBD), Coordinator (TBD), Operations Manager (TBD)	Co-applicants, Collaborators, Research Associates, Students	Co-Director-Coordinator-Administrator-Advisory Board-Website
Canadian Communities			
	Co-applicant Champion**	Community Partners*	Linkages
Arichat	Lane (Sookram)	RMRC, US-A, DIMA, Baird&Associates	Coordinator-Champion-Community Partners-Website
Gibsons	Matthews (Teelucksingh)	Town Council, Planning Committee	Coordinator-Champion-Community Partners-Website
Charlottetown	Nichols (Sutherland)	City of Charlottetown, Province of PEI	Coordinator-Champion-Community Partners-Website
Iqaluit	Forbes (Mycoo)	TBD	Coordinator-Champion-Community Partners-Website

Governance Structure - Canada and the Caribbean

Caribbean	<i>Governance</i>	<i>Advisory Boards</i>	<i>Communication</i>
St. Augustine	Secretariat: Co-Director (Watson), Administrator (TBD), Coordinator (TBD), Operations Manager (TBD)	Co-applicants, Collaborators, Research Associates, Students	Co-Director-Coordinator-Administrator-Advisory Board-Website
Caribbean Communities			
	<i>Co-applicant Champion**</i>	<i>Community Partners*</i>	<i>Linkages</i>
Grand'Riviere	Teelucksingh (Matthews)	Turtle Village Trust, EMA	Coordinator-Champion-Community Partners-Website
Bequia	Sookram (Lane)	Paget Farm SCEO	Coordinator-Champion-Community Partners-Website
Guyana	Sutherland (Nichols)	Central Planning Authority	Coordinator-Champion-Community Partners-Website
Belize	Mycoo (Forbes)	Green Reef, ECLAC	Coordinator-Champion-Community Partners-Website

*Community Partners and Community Champions constitute the Community Advisory Boards along with team members (collaborators, research associates and students) working on behalf of community interests. See also Appendix 3- C-Change ICURA Team Members for details.

**Co-applicants in brackets represent Canadian and Caribbean paired community champions by community.

Appendix 3 C-Change ICURA Team Members

This appendix provides the list of C-Change ICURA team members. This includes the two (2) co-directors, collaborators, and partners. The list of C-Change researchers and members' roles and responsibilities are provided below.

Description of the Research Team

<i>Member</i>	<i>Expertise, Roles, Responsibilities & Contributions</i>
Co-directors	Canada + Caribbean
Daniel Lane, (UOttawa) Canada	Coordination of Project – Canadian team; decision support systems, Analytic Hierarchy Process (AHP), MCDM; Community liaison – Isle Madame, N.S.
Patrick Watson, (UWI, St. Augustine)Trinidad	Coordination of Project – Caribbean team; socioeconomic survey analysis and design, vulnerability indices (VIs) and resiliency indices (RIs)
Co-applicants	Canada
Philippe Crabbe (UOttawa)	Systems modeling, community linkages, Soft Systems Methodology (SSM), Systems Dynamics (SD) modeling; governance structures, economic analysis
Don Forbes, (Memorial), NRCanada	Geographical modeling, sea-level rise, coastal hazards, impacts of climate change, adaptation strategies for building resilience in coastal communities, Canada's North; Community liaison – Iqaluit, Nunavut
Ralph Matthews (UBC, Vancouver)	Sociology and Climate Change, Institutional governance arrangements, adaptive capacity measurement; Community liaison – Gibsons, B.C.
Susan Nichols, (UNB, Fredericton)	Social liaison for climate change issues, supervision of Canadian geomatics, anthropological geography, disadvantaged groups (gender and poverty issues); Community liaison – Charlottetown, PEI
Co-applicants	Caribbean
Aldrie Henry-Lee (UWI, Mona Campus)	Social policy impact analyses, vulnerability indices
Martin Franklin (UWI)	Economic analysis and vulnerability indices; Community liaison – Grand'Riviere, Trinidad
Michelle Mycoo (UWI)	Land use planner, CZM, interdisciplinary analysis, risk reduction; Community liaison - Bequia and Belize
Sandra Sookram (UWI)	Economic analysis and vulnerability indices; gender and poverty analysis
Michael Sutherland, (UWI)	Geomatics (GIS, spatial modeling and analysis); Climate change adaptation and mitigation strategies; Community liaison - Georgetown, Guyana
Sonja Teelucksingh (UWI)	Biodiversity analysis, environmental economics and management
Collaborators	Canada + Caribbean
Alan Bachan	Ecotourism
John Clarke	Pollution prevention and environmental compliance, coastal infrastructure
Rawle Edinboro	Urban planning, housing and local infrastructure, Georgetown, Guyana
Colleen Mercer Clarke	Coastal planning and development, interdisciplinary and trans-disciplinary project management, and land planning
Lennox Hinds	Coastal and oceans policy, economics and management
Carlyle Mitchell	Coastal and marine policy, economics and fisheries management
Scott Parsons	Fisheries management and coastal policy analysis;
Howard Powles	Biodiversity and ecosystem analysis; species at risk
Maureen Woodrow	Social linkages, climate change impacts on communities

The following table defines and fully describes the project partnerships as part of the proposed international research alliance. The list below has been augmented from the original proposal submission. The table now identifies project partners and Canada/Caribbean linkages.

Description of Research Partners

No.	Communities and Partners	Letters of Support	Contact	Affiliation
1	Charlottetown, Prince Edward Island	Province of PEI	Don Jardine, <i>Director- Pollution Prevention</i> Dan Poole, <i>City Land Planner</i>	Canada
2		City of Charlottetown		Canada
3	Georgetown, Guyana	Central Housing and Planning Authority	Rawle Edinboro, <i>Chief Development Planner</i>	Caribbean
4	Belize Barrier Reef	CCCCC	Dr. Kenrick Leslie, <i>Executive Director</i> Thom Grimshaw, <i>President</i>	Caribbean
5		Green Reef environmental Institute		Caribbean
6	Gibsons, British Columbia	Town Council and Planning Committee	Barry Janyk, <i>Mayor, Town of Gibsons</i>	Canada
7	Grand'Riviere, Trinidad & Tobago	Turtle Village Trust	Alan Bachan, <i>Executive Director</i>	Caribbean
8		Environmental Management Authority	John Agard, <i>Chairman</i>	Caribbean
9		United Nations	Neil Pierre, <i>Director</i>	Caribbean
10	Isle Madame, Cape Breton, Nova Scotia	Municipality of Richmond County	John Boudreau, <i>Warden</i> Karen Doyle, <i>Council Recorder</i> Allister Surrette, <i>Vice-President, Development and Partnerships</i> Joan Clannon, <i>Administrative Assistant</i> Joel Bowen, <i>Chair of the Board</i>	Canada
11		Université Sainte-Anne		Canada
12		Development Isle Madame Association (DIMA)		Canada
13	Island of Bequia	Paget Farm S.C.E.O.	Raison Compton, <i>President</i>	Caribbean
14	Baird & Associates Consulting, Ltd.	Baird & Associates Consulting, Ltd.	Peter Zuzek, <i>Associate</i> Robert Nairn, <i>Director</i>	Canada
15	University of Ottawa	Telfer School of Management	Micheál Kelly, <i>Dean</i> Mona Nemer, <i>Vice-President, Research</i> Scott Findlay, <i>Director</i>	Canada
16		U of O, Research		Canada
17		Institute of the Environment		Canada
18	Slobodan P. Simonovic Consulting, Ltd.	Engineering Construction Consulting	Slobodan P. Simonovic, <i>Director</i>	Canada

Appendix 4 Co-applicants' Roles and Responsibilities

The following information was provided to the Research Ethics and Grants group of the University of Ottawa's Research Services Office on behalf of the Canadian C-Change Co-applicant team members and their funding allocation via formal "Transfer of Funds" arrangements.

Submission to Research Grants and Ethics, University of Ottawa

To: Daniel Lefebvre, Research Grants and Ethics
From: Dan Lane, C-Change ICURA Co-Director, Telfer School of Management
Date: Monday, November 2, 2009
Re: Allocation of funds to C-Change Canadian Co-applicants: Sue Nichols (UNB), Ralph Matthews (UBC), Philippe Crabbé (Ottawa), Don Forbes (MUN)

Please find attached my request for the allocation of funding to my Canadian co-applicant team members on our recently funded ICURA project known as *C-Change, Managing Adaptation to Coastal Environmental Change: Canada and the Caribbean*.

The information attached, as requested, lays out the allocations (summarized below) for Year 1 of our research program including the general responsibilities, and expected deliverables of the team members.

Thank you for your expedient delivery of this allocation request and for ensuring that my team members are funded for their work. I understand that you will be dealing directly with your Research Office colleagues at the relevant institutions for provision of the funds.

If you require any further information from me, please do not hesitate to contact me.

Summary allocations request:

Canadian Co-Applicant	Affiliation	Year 1 ICURA Funding	Student Support Description	Other Cash	Total
Philippe Crabbé	Ottawa (Economics)	\$15,000	Graduate student research support		\$15,000
Don Forbes	MUN (Geography)	\$15,000	Partial year postdoctoral support and/or doctoral student support		\$15,000
Sue Nichols	UNB (Geomatics & Geodesy)	\$31,500	Graduate student research support		\$31,500
Ralph Matthews	UBC (Sociology)	\$31,500	Graduate student research support	\$5,000 (UBC)	\$36,500
Year 1 Total ICURA Funds Allocation		\$93,000		\$5,000	\$98,000

Summary allocations request for the Caribbean team are:

<i>Caribbean Co-Applicant</i>	<i>Affiliation</i>	<i>Year 1 ICURA Funding</i>	<i>Student/researchSupport Description</i>	<i>Other Cash</i>	<i>Total</i>
Michael Sutherland	UWI (Land Information)	\$20,000	Graduate student research support and site visits		\$20,000
Michelle Mycoo	UWI (Land Information)	\$11,000	Graduate student research support and site visits		\$11,000
Aldrie-Henry-Lee	UWI (SALISES)	\$20,000	Graduate student research support and site visits		\$20,000
Sonja Teelucksingh	UWI (Economics)	\$10,000	Research Associate and graduate student support and site visits		\$10,000
Sandra Sookram	UWI (SALISES)	\$10,000	Graduate student research support		\$10,000
Year 1 Total ICURA Funds Allocation		\$71,000			\$71,000

Co-Applicants' Roles and Responsibilities

Co-Applicant: Sue Nichols, University of New Brunswick - Fredericton
Coordinates: Department of Geomatics & Geodesy, Faculty of Engineering
 Director of Graduate Studies
 Head Hall (New), E-31
 UNB Fredericton Campus, P.O. Box 4400
 Fredericton, New Brunswick E3B 5A3
Tel: (506) 453-5141 **FAX:** (506) 453-4943
Email: nichols@unb.ca

Roles:

- Community Champion – Charlottetown, P.E.I.
- Team Leader on the development of community geographic models for the Canadian sites as well as liaison with the development of geographic models of the Caribbean sites
- Team Contributor to the C-Change team in the development, application, and implementation of community engagement via Checkland's Soft Systems Methodology (SSM) along with other team co-applicants, partners, and collaborators
- Graduate Students Supervisor at the University of New Brunswick on project related work

Responsibilities:

- Community Champion – Charlottetown to meet with the principals (including the City Planner, and the PEI provincial partner) wherever possible, and arrange and manage site data acquisition, especially the available geographic data (with Don Forbes) for team use
- Team links – meet with Canadian co-applicants, where possible; meet with Caribbean colleagues as convenient
- Primary Publications – prepare primary publications in applications of Geographic Information Systems (GIS) for environmental, physical and social descriptions for coastal communities; comparison and contrast of Canadian and Caribbean communities, and their geographic data availabilities and uses
- On-line publications - contribute materials and progress reports to the C-Change website
- Student supervision – hire and counsel graduate research students in C-Change related activities

Expected Deliverables (Year 1):

- Hire graduate student(s)
- Meet with Canadian and Caribbean co-applicant team and interface with C-Change collaborators and partners
- Outline collection of working papers on related areas
- Prepare text for contributions to the C-Change website

ICURA Funding Allocation: \$31,500 for Year 1, 2009-2010 for graduate student research support plus coverage of possible travel for meetings with co-applicants, collaborators, and partners; on-going funding through subsequent years of the project are anticipated contingent on deliverables and need

Co-Applicants' Roles and Responsibilities

Co-Applicant: Don Forbes, Adjunct Professor, Memorial University of Newfoundland,
Coordinates: Geological Survey of Canada, Natural Resources Canada
Bedford Institute of Oceanography
PO Box 1006 (1 Challenger Drive)
Dartmouth, Nova Scotia B2Y 4A2
Tel: (902) 426-7737 **FAX:** (902) 426-6152
Email: dforbes@nrcan-rncan.gc.ca

Roles:

- Community Champion – Iqaluit, Nunavut
- Team Contributor on the development of community geographic models for Charlottetown (with Sue Nichols) as well as liaison with the development of geographic models of the Canadian and Caribbean sites
- Team Contributor to the C-Change team in the development, application, and implementation of community engagement via Checkland's Soft Systems Methodology (SSM) along with other team co-applicants, partners, and collaborators
- Graduate Students Supervisor at Memorial University of Newfoundland on project related work

Responsibilities:

- Community Champion – Iqaluit to meet with principles wherever possible, and arrange and manage site data acquisition especially for geographic data for team use
- Team links – meet with Canadian co-applicants, where possible; meet with Caribbean colleagues as convenient
- Primary Publications – prepare primary publications in applications of Geographic Information Systems (GIS) for environmental, physical and social descriptions for coastal communities
- On-line publications - contribute materials and progress reports to the C-Change website
- Student supervision – hire and counsel graduate research students in C-Change related activities

Expected Deliverables (Year 1):

- Hire graduate student(s)
- Meet with Canadian and Caribbean co-applicant team and interface with C-Change collaborators and partners
- Outline collection of working papers on related areas
- Prepare text for contributions to the C-Change website

ICURA Funding Allocation: \$15,000 for Year 1, 2009-2010
Plus coverage of possible travel for meetings with co-applicants, collaborators, and partners; on-going funding through subsequent years of the project are anticipated contingent on deliverables and need

Co-Applicants' Roles and Responsibilities

Co-Applicant: Ralph Matthews, The University of British Columbia,
Coordinates: Department of Sociology, Social Sciences and Humanities Research
Coordinator, Office of the Vice President (Research and International)
6303 NW Marine Drive
University of British Columbia
Vancouver BC V6T 1Z1
Tel: (604) 822-4386 **FAX:** (604) 822-6161
Email: ralphm@interchange.ubc.ca

Roles:

- Community Champion – Gibsons, British Columbia
- Team Leader on the development of “social maps” for the social description of communities in the Canadian sites as well as liaison with the development of social map models for the Caribbean sites
- Team Contributor to the C-Change team in the development, application, and implementation of community engagement via Checkland’s Soft Systems Methodology (SSM) along with other team co-applicants, partners, and collaborators
- Graduate Students Supervisor at The University of British Columbia on project related work

Responsibilities:

- Community Champion – Gibsons to meet with principals (including the Mayor of Gibsons and Council) wherever possible, and arrange and manage site geographic and social data acquisition for team use
- Team links – meet with Canadian co-applicants, where possible; meet with Caribbean colleagues as convenient
- Primary Publications – prepare primary publications in applications of social maps and community institutional arrangements with respect to the environment for coastal communities; comparison and contrast of Canadian and Caribbean communities, and their social data availabilities and uses
- On-line publications - contribute materials and progress reports to the C-Change website
- Student supervision – hire and counsel graduate research students in C-Change related activities

Expected Deliverables (Year 1):

- Hire graduate student(s)
- Meet with Canadian and Caribbean co-applicant team and interface with C-Change collaborators and partners
- Outline collection of working papers on related areas
- Prepare text for contributions to the C-Change website

ICURA Funding Allocation: \$31,500 for Year 1, 2009-2010
Plus coverage of possible travel for meetings with co-applicants, collaborators, and partners; on-going funding through subsequent years of the project are anticipated contingent on deliverables and need

Co-Applicants' Roles and Responsibilities

Co-Applicant: Philippe Crabbé, Professor Emeritus, University of Ottawa,
Coordinates: Department of Economics
555 King Edward Avenue
Ottawa, Ontario K1N 6N5
Tel: (613) 562-5800 x1430 **FAX:** (613) 562-5873
Email: philippe.crabbe@uottawa.ca

Roles:

- Team Leader on Climate Change discussions (Copenhagen meeting, December 2009) including on-going involvement with the IPCC (as past committee member)
- Team Leader to the C-Change team in the area of Systems Dynamics and simulation modelling, and the Systems Approach to complex coastal environmental analysis
- Team Contributor in the development, application, and implementation of Checkland's Soft Systems Methodology (SSM) along with other team co-applicants, partners, and collaborators
- Team Critic in the consideration and development of community Vulnerability Indicators in the face of environmental change
- Graduate Students Supervisor at the University of Ottawa on project related work

Responsibilities:

- Team links – meet with Canadian co-applicants, where possible; meet with Caribbean colleagues as convenient
- Primary Publications – prepare primary publications in applications of Systems Dynamics, the Systems Approach, Soft Systems Methodologies related to coastal communities and environmental change;
- On-line publications - contribute materials and progress reports to the C-Change website
- Student supervision – hire and counsel Economics graduate research students in C-Change related activities

Expected Deliverables (Year 1):

- Hire graduate student(s)
- Meet with Canadian and Caribbean co-applicant team and interface with C-Change collaborators and partners
- Outline collection of working papers on related areas
- Prepare text for contributions to the C-Change website

ICURA Funding Allocation: \$15,000 for Year 1, 2009-2010
Plus coverage of possible travel for meetings with co-applicants, collaborators, and partners; on-going funding through subsequent years of the project are anticipated contingent on deliverables and need

Co-Applicants' Roles and Responsibilities

Co-Applicant: Michael Sutherland, Lecturer, University of the West Indies
Coordinates: Department of Surveying and Land information, Faculty of Engineering
University of the West Indies
St Augustine
Trinidad & Tobago
Tel: (868) 662-2002, Ext. 2564 **FAX:** (868) 662-4414
Email: msuther.land@yahoo.ca.

Roles:

- Community Champion – Georgetown, Guyana.
- Team Leader on the development of community geographic models for the Caribbean sites as well as liaison with the development of geographic models of the Canadian sites
- Team Contributor to the C-Change team in the development, application, and implementation of community engagement via Checkland's Soft Systems Methodology (SSM) along with other team co-applicants, partners, and collaborators
- Graduate and undergraduate Students' Supervisor at the University of the West Indies on project related work

Responsibilities:

- Community Champion – Georgetown to meet with the principals (including the City Planner, and the CHPAI partner) wherever possible, and arrange and manage site data acquisition, especially the available geographic data for team use
- Team links – liaise with Caribbean co-applicants/champions at all times and arrange and manage site data acquisition, especially the available geographic data for team use; meet with Canadian colleagues doing similar activity.
- Primary Publications – prepare primary publications in applications of Geographic Information Systems (GIS) for environmental, physical and social descriptions for coastal communities; comparison and contrast of Canadian and Caribbean communities, and their geographic data availabilities and uses
- On-line publications - contribute materials and progress reports to the C-Change website
- Student supervision – hire and counsel graduate research students in C-Change related activities

Expected Deliverables (Year 1):

- Hire undergraduate and graduate student(s)
- Meet with Canadian and Caribbean co-applicant team and interface with C-Change collaborators and partners
- Outline collection of working papers on related areas
- Prepare text for contributions to the C-Change website

ICURA Funding Allocation: \$20,000 for Year 1, 2009-2010 for graduate student research support plus coverage of possible travel for meetings with collaborators, and partners; on-going funding through subsequent years of the project are anticipated contingent on deliverables and need

Co-Applicants' Roles and Responsibilities

Co-Applicant: Michelle Mycoo, Senior Lecturer, University of the West Indies
Coordinates: Department of Surveying and Land information, Faculty of Engineering
University of the West Indies
St Augustine
Trinidad & Tobago
Tel: (868) 662-2002, Ext. 2519 **FAX:** (868) 662-4414
Email: mmycoo@hotmail.com .

Roles:

- Community Champion – Barrier Reef, Belize
- Team Contributor on the development of community geographic models for the Belize Barrier Reef (with Michael Sutherland) as well as liaison with the development of geographic models of the Canadian and Caribbean sites
- Graduate Students Supervisor at the University of the West Indies on project related work.

Responsibilities:

- Community Champion –Belize Barrier Reef to meet with principles wherever possible, and arrange and manage site data acquisition especially for geographic data for team use
- Team links – meet with Caribbean co-applicants as often as possible; meet with Canadian colleagues as convenient
- Primary Publications – prepare primary publications in applications of Geographic Information Systems (GIS) for environmental, physical and social descriptions for coastal communities
- On-line publications - contribute materials and progress reports to the C-Change website
- Student supervision – hire and counsel graduate research students in C-Change related activities

Expected Deliverables (Year 1):

- Hire graduate student(s)
- Meet with Canadian and Caribbean co-applicant team and interface with C-Change collaborators and partners
- Outline collection of working papers on related areas
- Prepare text for contributions to the C-Change website

ICURA Funding Allocation: \$11,000 for Year 1, 2009-2010

Plus coverage of possible travel for meetings with co-applicants, collaborators, and partners; on-going funding through subsequent years of the project are anticipated contingent on deliverables and need

Co-Applicants' Roles and Responsibilities

Co-Applicant: Aldrie Henry Lee, Senior Lecturer, University of the West Indies
Coordinates: SALISES, Faculty of Social Sciences
University of the West Indies
Mona
Jamaica
Tel: (876) 927-1234 **FAX:** (876) 927-2409
Email: aldriehl@gmail.com .

Roles:

- Team Leader on the development of “social maps” for the social description of communities in the Caribbean sites as well as liaison with the development of social map models for the Canadian sites
- Team Contributor to the C-Change team in the development, application, and implementation of community engagement via Checkland’s Soft Systems Methodology (SSM) along with other team co-applicants, partners, and collaborators
- Graduate Students Supervisor at at the University of the West Indies on project related work.

Responsibilities:

- To meet with principals throughout the Caribbean wherever possible, and arrange and manage social data acquisition for team use
- Team links – meet with Caribbean co-applicants frequently; meet with Canadian colleagues as convenient
- Primary Publications – prepare primary publications in applications of social maps and community institutional arrangements with respect to the environment for coastal communities; comparison and contrast of Canadian and Caribbean communities, and their social data availabilities and uses
- On-line publications - contribute materials and progress reports to the C-Change website
- Student supervision – hire and counsel graduate research students in C-Change related activities

Expected Deliverables (Year 1):

- Hire graduate student(s)
- Meet with Canadian and Caribbean co-applicant team and interface with C-Change collaborators and partners
- Outline collection of working papers on related areas
- Prepare text for contributions to the C-Change website

ICURA Funding Allocation: \$20,000 for Year 1, 2009-2010
Plus coverage of travel for meetings with co-applicants, collaborators, and partners; on-going funding through subsequent years of the project are anticipated contingent on deliverables and need

Co-Applicants' Roles and Responsibilities

Co-Applicant: Sonja Teelucksingh, Lecturer, University of the West Indies
Coordinates: Department of Economics, Faculty of Social Sciences
 University of the West Indies
 St Augustine
 Trinidad & Tobago
Tel: (868) 662-2002, Ext. 2534 **FAX:** (868) 645-6329
Email: sonja.sabita@gmail.com

Roles:

- Community Champion – Grand'Riviere, Trinidad
- Team Leader on Climate Change issues and coastal environmental analysis
- Team Contributor in the development, application, and implementation of Checkland's Soft Systems Methodology (SSM) along with other team co-applicants, partners, and collaborators
- Graduate Students Supervisor at the University of the West Indies on project related work

Responsibilities:

- Community Champion – Grand'Riviere, Trinidad to meet with principles wherever possible (with Allan Bachan and Martin Franklin), and arrange and manage site data acquisition especially for environmental data for team use
- Team links – meet with Caribbean co-applicants, where possible; meet with Canadian colleagues as convenient
- Primary Publications – prepare primary publications in applications related to coastal communities and environmental change;
- On-line publications - contribute materials and progress reports to the C-Change website
- Student supervision – hire and counsel Economics graduate research students in C-Change related activities

Expected Deliverables (Year 1):

- Hire graduate student(s)
- Meet with Canadian and Caribbean co-applicant team and interface with C-Change collaborators and partners
- Outline collection of working papers on related areas
- Prepare text for contributions to the C-Change website

ICURA Funding Allocation: \$10,000 for Year 1, 2009-2010
 Plus coverage of possible travel for meetings with co-applicants, collaborators, and partners; on-going funding through subsequent years of the project are anticipated contingent on deliverables and need

Co-Applicant: Sandra Sookram, Lecturer, University of the West Indies
Coordinates: SALISES, Faculty of Social Sciences
 University of the West Indies
 St Augustine
 Trinidad & Tobago
Tel: (868) 662-2002, Ext. 2534 **FAX:** (868) 645-6329
Email: sandra.sookram@gmail.com

Roles:

- Community Champion – Bequia, St Vincent & the Grenadines
- Team Leader (with Patrick Watson) on collection and analysis of social and economic data
- Team Contributor in the development, application, and implementation of Checkland's Soft Systems Methodology (SSM) along with other team co-applicants, partners, and collaborators
- Graduate Students Supervisor at the University of the West Indies on project related work

Responsibilities:

- Community Champion – Bequia, St Vincent & the Grenadines to meet with principles wherever possible (with Patrick Watson), and arrange and manage site data acquisition especially for social and economic data for team use
- Team links – meet with Caribbean co-applicants, where possible; meet with Canadian colleagues as convenient
- Primary Publications – prepare primary publications in applications related to coastal communities and social and economic impact;
- On-line publications - contribute materials and progress reports to the C-Change website
- Student supervision – hire and counsel Economics graduate research students in C-Change related activities

Expected Deliverables (Year 1):

- Hire graduate student(s)
- Meet with Canadian and Caribbean co-applicant team and interface with C-Change collaborators and partners
- Outline collection of working papers on related areas
- Prepare text for contributions to the C-Change website

ICURA Funding Allocation: \$10,000 for Year 1, 2009-2010
 Plus coverage of possible travel for meetings with co-applicants, collaborators, and partners; on-going funding through subsequent years of the project are anticipated contingent on deliverables and need

Appendix 5 C-Change Project Management: Main Research Components

As per the IDRC Milestone Framework, Section 3.2 PROGRAM OF RESEARCH, this appendix outlines the C-Change ICURA's main research components, using the table provided. This appendix also includes the project's itemized Project Work Plan previously derived and discussed. The main research components table below is developed from the activities specified in the expanded work plan.

<i>Project component & location</i>	<i>Project title</i>	<i>Project Lead(s), Affiliation</i>	<i>Specific project-level research objectives</i>	<i>Expected results</i>	<i>Time Frame (start - end)</i>	<i>Annualized Projected expenditure (\$)*</i>
Governance	Funding Allocations	Lane, Watson	Student support for programs (Undergraduate, Graduate)	Reports, Theses, Working Papers, Primary publications	September - December 2009	\$200,000 (Co-applicants)- see Appendix 4
	Hire Coordinator, Operations Manager, Administrator	Lane, Watson			January-February 2009	\$50,000
	Management & organization	Secretariats: Lane, Watson, Coordinator, Operations Manager, Administrator				
Community-University Support and Advisory Groups	Establish community profiles	Coordinators	Community-University alliance; Communication	Creation of ICURA research framework	June-December 2009	\$10,000
	Establish C-Change Community-University Support Groups, Advisory Boards	Community Champions, Aldrie Henry-Lee, Team Member	Formalize Community University relationships		\$4,000	
	Meet with each community				\$11,000	
GIS Framework for Spatial Communication	Negotiate data sharing and use agreements	Nichols, Forbes, Sutherland	Gather GIS data, Phase 1	ID data gaps	Sept 2009-Feb 2010	\$10,000
	Develop GIS architecture		Sea level rise (SLR) model development	Data available for analysis	Jan-March 2010	\$5,000
	Map data and infrastructure with GIS		Gather GIS data, Phase 2		Sept 2009-Feb 2010	\$10,000

Community Analyses	Vulnerability and Risk Indices	Crabbe, Watson, Team Members	Gathering of socio-economic data, phase 1	Determination of data gaps	Sept 2009-Feb 2010	\$5,000
	Socioeconomic Indices		Instrument for collection of socio-economic data	Questionnaire(s) to be used	Dec 2009-Aug 2010	\$5,000
Model Scenarios	Develop various impact scenarios	Coordinators Community Champions	Provide data for decision analysis and evaluation of strategies	AHP DM-model hierarchy	Sept 2010-April 2011	\$10,000
	Assess community adaptive capacity and resilience to impacts	Lane, Watson Team members	Discussion with Communities on capabilities	Feedback on feasible strategies, objectives and tradeoffs	Jan 2011-July 2011	\$10,000
	Develop adaptation alternatives		Preparation of analysis for AHP model	AHP model results	Sept 2011-Dec 2011	\$10,000
	Evaluate alternatives with help of community		AHP problem formulation and analysis	Ranked alternatives	Dec 2011-February 2012	\$10,000
Capacity Building	Develop community adaptation action plans	All members Coordinators Lane, Watson	Preparation for Community meetings and feedback	Community Workshops		\$20,000
	Develop new university curricula		Presentation of University academic committees	University program offerings		\$10,000
	Community planning guidelines, response plans		Preparation of guidelines and response plans	Report generation		\$10,000
	Prepare and present community training workshops		Preparation of community workshops	Meeting preparation and presentation		\$10,000

*Annualized Project Expenditures provided are estimates for combined Canada and Caribbean project operations. Annualized values include estimated travel costs for meetings, workshops, etc. Note: The sum total of Annualized Project Expenditures amount to \$400,000 for both Canada and Caribbean sites as per the total annual awarded amounts. Leveraged spending from various related sources attributed to project team members, and related activities are not included in these estimates.

The following information presents the itemized main research components of the project management work plan. These were developed by team members at several preliminary group discussions (e.g., face-to-face C-FOAM meetings with some co-applicants and collaborators), email correspondence, and phone discussions following the informal March 2009 announcement of the project funding from April 2009 through to December 2009. The components were initially compiled using the *Microsoft Project* software system for formal project management. This information provides itemized details for the Milestones Framework, Section 3.2 table completed above.

Activity One: Project Governance

- Task 1.1 Hire Project coordinator, operations manager, and administrator to manage on-going administration of the project, plan, manage meetings, manage the budget, prepare reports
- Draft template of Community Profiles and information content
 - Draft spatial representation of communities
- Task 1.2 Management and organization of the work to meet the goals
- Draft periodic meetings dates with community partners re establishing Project Community-University Support Groups
 - Draft dates for annual meetings of Project Secretariats and team members (e.g., Winter – St. Augustine; Summer – Ottawa)
- Task 1.3 Consolidation of the findings into on-going project reports
- Develop template for C-Change Quarterly project reports
 - Prepare agenda and organization of annual meetings, minutes and reports
 - Prepare and monitor list of activities and papers produced, and events attended

Activity Two: Community-University Support and Advisory Groups

- Task 2.1 Establish C-Change Community-University Support Groups (C-USG) and Advisory Groups:
- Formalize community-university alliances, goals, roles and responsibilities
 - Strengthen community institutional arrangements – policy, guidelines, plans
 - Prepare community adaptation strategies for evaluation and draft community action plans
- Task 2.2 Meet with each community, on objectives, methodology, participants, and deliverables
- Engage non-municipal/local government agencies or community members
 - Formalize Community Advisory Boards and participants – community and university
 - Set timing for meetings, milestones, and work agendas
 - Prepare presentation to communities based on proposal and plans and request feedback

Activity Three: GIS Framework for Spatial Communication

- Task 3.1 Develop GIS architecture
- Establish data sharing and IP guidelines
 - Determine software standards and tools for analysis
 - Include mapping in community presentations
 - Set timing for community meetings and work agendas on this item
- Task 3.2 Gather information on resources, services and priorities, in conjunction with C-USG and Advisory Groups
- Provide available data to students and team researchers for analysis
 - Determine software standards and tools for analysis

Task 3.3 Inventory physical (infrastructure, topography, hydrography), economic, social data, institutional

- Prepare Community Profiles of inventory datasets for comparative analysis
- Examine cross community data gaps and revise accordingly

Task 3.4 Map data and infrastructure with GIS

- Link the Community Profiles and inventory data to spatial representation
- Examine cross community data gaps and revise accordingly
- Present information to Community Advisory Groups for review and feedback

Activity Four: Model Scenarios

Task 4.1 Develop environmental impact scenarios

- Define common scenarios applicable to communities on the basis of global (IPCC) and regional (historical) environmental events, e.g., 50-, 100-year storms, winds, tides
- Present and discuss scenarios options with the Community Advisory Groups for feedback

Task 4.2 Identify vulnerability/risk indices in each community, long and short term, re SLR, storm surge and severe storms (need some consistency in development of indices)

- Prepare template for analysis of sensitivity and vulnerability to severe environmental events
- Determine indicators for assessing vulnerability and risk along all dimensions
- Present and discuss vulnerability and risk with the Community Advisory Groups for feedback

Task 4.3 Assess community adaptive capacity and resilience to impacts (resilience index)

- Describe process for emergency response and identify gaps in preparedness
- Prepare template for adaptation and response capabilities to severe environmental events
- Determine measures for adaptive capacity and resilience in communities along all dimensions
- Present and discuss adaptive capacity with the Community Advisory Groups for feedback

Task 4.4 Develop community adaptation action plans

- Prepare template for community action planning
- Present guidelines for community response
- Present and discuss guidelines with the Community Advisory Groups for review and feedback
- Meet with communities to discuss action plans
- Prepare action planning documents

Activity Five: Capacity Building

Task 5.1 Build capacity - Universities

- Prepare course work for seminar and workshop presentations to graduate programs
- Develop new university curricula into existing programs
- Propose new university research and teaching programs
- Link to community personal for case study work and for engaging community members in presenting courses

Task 5.2 Build capacity - Communities

- Joint development, updating and review of the Community Adaptation Action Plans (CAAPs)
- Develop ongoing training and updating workshops for community guidelines
- Encourage new governance infrastructure components around community planning and environmental response

The following information presents the details of the project management work plan developed using the *Microsoft Project* software. This information also includes commentary (recorded observations) by team members (*in italics*) in discussion with the development of the details that took place following the informal March 2009 announcement of the project funding from April 2009 through to December 2009. Note: some tasks referred to below have been adjusted as necessary.

ACTIVITY BREAKDOWN AND DETAILS

Activity One: Project Governance

Task 1.1A: Hire research coordinator, operations manager, and administrator to manage on-going operations of the project, assist in organizing meetings and workshops, manage the budget, prepare reports for Co-Directors, post web materials

Team Lead: Dan Lane (Canada), Patrick Watson (Caribbean)

Team Participants: Colleen Mercer Clarke, John Clarke, Kaitlin Fahey

Schedule: Originally: Summer 2009; Actual: Winter 2010 (initiate as soon as possible after confirmation of project award and funding (originally estimated for Spring 2009; actual: late summer 2009))

Goals: Put in place key project governance elements

Observations:

- *Co-Directors need assistance with administration, operations (and monitoring), and coordination*
- *Coordinator not necessarily a full-time position, more time needed at beginning and end of project, needs flexibility, able to take direction from project Co-Directors, able to work with people, one coordinator each for Canada (UO) and Caribbean (UWI)*

Task 1.1B: Hire a student coordinator who will also act as link to Co-Directors and team members

Team Lead: Dan Lane, Patrick Watson

Schedule: Originally: Summer 2009; Actual: Winter 2010 (initiate as soon as possible after confirmation of project award and funding (originally estimated for Spring 2009; actual: late summer 2009))

Observations:

- *Based at U Ottawa, for Canadian part of project*
- *Need to develop 6 month renewable contract immediately*

Task 1.2A: Community-University Support Group Meetings

Team Lead: Coordinators (Canada and the Caribbean)

Schedule: Periodic (initiate after confirmation of project award)

Goals: to disseminate information from project to community members and to enlist support and contribution/commitment from community members to project

Observations:

- *arrange periodic meetings of Community-University Support Groups*
- *need to track implementation of results from project work in each site*
- *could take form of training workshops at certain points*

Task 1.2B: Research Team Meetings

Team Lead: Dan Lane and Patrick Watson

Schedule: periodic (initiate after confirmation of project award)

Goals: to gain broad understanding of progress on project, identify obstacles and their resolution, plan future activities in more detail by all team members that can attend to encourage cross-pollination of information and ideas between team members and C-USG members

Observations:

- *arrange annual meetings of research team in Canada and with Caribbean partners*
- *include students and C-USG where possible and appropriate*
- *should alternate between Canada and Caribbean – need to involve both parts of project for greatest cross-pollination*
- *will be basis for regular progress reports to funding agencies*
- *will include list of papers published and presentations made that are based on the project*
- *reports will be required from team members that are not present*
- *final meeting will focus on project report, advice to governmental institutions on responding to climate change, and further actions – focus on outcomes as well as process*

Task 1.3: Consolidation of the findings into reports
Team Lead: Operations Manager
Schedule: ongoing (initiate after confirmation of project award)

Observations:

- *annual progress reports from participants to be rolled up into annual project progress report to funding agencies*
- *final project report (and outcomes re application of findings and future work?)*
- *list of papers produced*

Activity Two: Community-University Support Groups

Task 2.1: Community-University Support Groups
Team Lead: Dan Lane, Patrick Watson and Community Coordinators
Schedule: Initiate within 6 months of confirmation of project award, first meetings with Community partners in September, October 2009, plan for Spring 2010 meeting in Communities
Goals: establish C-Change Community-University Support Groups (C-USG) - formal community-university committee to: strengthen community institutional arrangements – policy, guidelines, plans exchange information, learn from each other prepare community action plans; meet with each community, provide information on project objectives, methodology, participants, timing, outcomes; formalize group and participants – community and university - involve non-municipal/local government agencies? – ensure linkages with local universities/research institutions; establish timing for future meetings/workshops and work (see next section)

Observations:

- *suggest changing the name of the groups to Planning for Adaption Teams (PATs). Support Group carries connotation of disability and needing help*
- *4 meetings with 4 communities, same/similar university/project group for consistency*
- *standard presentation based on proposal and plans – developed by Co-Leads and coordinators*
- *based on SSM (Soft System Methodology)*

Activity Three: GIS Framework and Model Development

Task 3.1: Develop GIS and database architecture
Team Lead: Sue Nichol, Don Forbes, Micheal Sutherland

Graduate Students: TBD
Team Participants: Community Champions
Schedule: Spring 2010
Goals: Develop common listing of data needs for SD (System Dynamics Modelling), to direct data gathering and analysis

Observations:

- *this is a key step on which other work depends*
- *must be consistent between Canadian and Caribbean teams to ensure comparability of data and approaches*
- *also need to include common database architecture which must be consistent between sites and also between Canada and Caribbean to ensure access to and comparability of data and analysis*
- *requires professional input but could use student assistance*

Task 3.2: Gather information on resources, services and priorities, in conjunction with C-USG/PATs
Team Lead: Operations Manager and Project Secretariats (Administrator and Coordinator)
Graduate Students: U Ottawa, UWI
Team Participants: Community Champions
Schedule: Start fall 2009, aim for completion by mid 2010
Goals: To gather information on resources, services and priorities, in conjunction with C-USG/PATs

Observations:

- *data to be entered into database useful to community and to modelers*
- *some data may already be inventoried by community*
- *need to write up detailed work proposal early in summer with preliminary data needs which may be refined based on model needs, make it available to all participating universities for interest, student availability and assignment to project*
- *if students are unavailable, we will need to consider alternative approach to gather data*

Task 3.3: Inventory physical, economic, social data
Team Lead: Dan Lane and Patrick Watson with Coordinators
Graduate Students: U Ottawa (Canada), UWI (Caribbean) (Community profiles development)
Team Participants: Community Champions
Schedule: Start January 2010 (in place), aim for completion March 2010
Goals: To inventory physical (infrastructure, topography, hydrography), economic, social data

Observations:

- *include storm histories and impacts, using both official and local knowledge*
- *data to be entered into database useful to community and to modelers*
- *some data may already be inventoried by community*
- *need to write up detailed work proposal early in summer with preliminary data needs which may be refined based on model needs, make it available to all participating universities for interest, student availability and assignment to project*
- *if students are unavailable, we will need to consider alternative approach to gather data*

Task 3.4: Map data and infrastructure with GIS
Team Lead: Sue Nichols, Don Forbes, Micheal Sutherland
Graduate Students: UNB, MUN, UWI
Team Participants: Community Champions
Schedule: Start fall 2009, aim for completion by end 2010

Goals: Standardize mapping methods and tools, develop base maps for incorporating community profile data

Observations:

- *transform data from database into maps and GIS models that are directed towards development and analysis of impact scenarios*
- *where data or models are already available, try to ensure comparability between ours and others*
- *need to write up detailed work proposal early in summer with preliminary data needs which may be refined based on model needs, make it available to all participating universities for interest, student availability and assignment to project*
- *if students are unavailable, we will need to consider alternative approach to gather data*

Activity Four: Impact Scenarios and Options

Task 4.1A: Develop impact scenarios
Team Lead: Crabbe, Sookram, Coordinators
Graduate Students: U Ottawa, UWI
Team Participants: All members
Schedule: Start Spring 2010, complete by Fall 2010
Goals: Develop common set of scenarios for sea level rise, storm events (waves and surge, intensity and frequency) over specified time horizon

Observations:

- *need to account for latest science from IPCC using AR4*
- *consider various time horizons such as 2025, 2040, 2055 in scenarios – this will indicate process and intermediate situations as well as arbitrary future end(?) point*
- *could be separate set of scenarios for Canadian east, west and north coasts but certain elements like time series must be consistent – any variances will depend on science and its more local effects*
- *include normal sea level rise + storm surge + tides*
- *C-USG/PATs should be involved in this at start and throughout*
- *need to write up detailed work proposal in summer 2009, make it available to all participating universities for interest, student availability and assignment to project*
- *if students are unavailable, we will need to consider alternative approach to achieve the required results*

Task 4.1B: Model and run impact scenarios
Team Lead: Crabbe, Coordinators
Graduate Students: U Ottawa
Team Participants: Community Champions, Partners
Schedule: Start fall 2010, complete by end 2011
Goals: Develop data on impacts of various scenarios at each site develop analysis of cumulative effects of climate change and sea level rise for each site, using previous database and GIS information

Observations:

- *could be combined with Task 4.1A or Task 4.2*
- *should occur in conjunction with C-USG/PATs*
- *need to write up detailed work proposal in summer 2010, make it available to all participating universities for interest, student availability and assignment to project*
- *if students are unavailable, we will need to consider alternative approach to achieve the required results*

Task 4.2: Identify vulnerability/risk indices
Team Lead: Watson, Crabbe, Coordinators

Graduate Students: U Ottawa, UWI
Team Participants: All members
Schedule: 2012
Goals: Conduct risk analysis and develop vulnerability index for each site

Observations:

- *need common approach to analysis and index so data and analyses are comparable*
- *should consider various scenarios selected above to show changes in risk and vulnerabilities over time*
- *C-USG/PAT input and involvement will be very important. This will be part of education/training component for communities*
- *need to write up detailed work proposal in summer 2011, make it available to all participating universities for interest, student availability and assignment to project*
- *if students are unavailable, we will need to consider alternative approach to achieve the required results*

Task 4.3A: Community adaptive capacity and resilience
Team Lead: Coordinators, Matthews
Graduate Students: UBC
Team Participants: Community Champions, Partners
Schedule: Late 2012 to mid 2013
Goals: Assess adaptive capacity of and develop resilience index for each community

Observations:

- *need to assess community capacity to adapt to risks and resilience to impacts*
- *leads to development of resilience index for community*
- *C-USG/PAT needs to be involved from perspective of education and as prelude to development of adaption plans*
- *academic and professional collaborators will also need to become more involved at this point*
- *need to write up detailed work proposal in spring 2012, make it available to all participating universities for interest, student availability and assignment to project*
- *if students are unavailable, we will need to consider alternative approach to achieve the required results*

Task 4.3B: Policy options to address impacts
Team Lead: Coordinators, Lane
Graduate Students: U Ottawa, UWI
Team Participants: Community Champions, Partners
Schedule: Late 2012 to mid 2013
Goals: Develop listing of policies and instruments that could be used to address projected impacts and vulnerabilities

Observations:

- *will need to consider local community and regulatory requirements and tools available at each site*
- *also need to consider community capacity to adapt to risks and resilience to impacts*
- *C-USG/PAT needs to be involved from perspective of education and as prelude to development of adaption plans – they need a toolbox and how the tools could work*
- *academic and professional collaborators will also need to become more involved at this point*
- *based on AHP (Analytical Hierarchy Process) for group decision making support*
- *need to write up detailed work proposal in spring 2012, make it available to all participating universities for interest, student availability and assignment to project*
- *if students are unavailable, we will need to consider alternative approach to achieve the required results*

Task 4.4: Community adaption action plans
Team Lead: Dan Lane and Patrick Watson and Coordinators

Graduate Students: All institutions
Team Participants: All members
Schedule: Mid 2013 to mid 2014
Goals: Develop strategic adaptation action plans for each community

Observations:

- *based on synthesis of previous work*
- *actual leadership of this activity at each site may vary depending on the people involved at each site*
- *will include broad community meetings to present information, help make group decisions*
- *need to include implementation plans and timing – not a paper exercise*

Activity Five: Capacity Building

Task 5.1: Build capacity in universities
Team Lead: Dan Lane and Patrick Watson and Operations Manager
Graduate Students: U Ottawa, UNB, UBC, MUN, UWI
Team Participants: Team Co-applicants and Collaborators
Schedule: Start 2012, end 2014
Goals: Develop or revise university curricula to incorporate climate change and sea level rise

Observations:

- *methodologies likely to include knowledge and approaches derived from successful and unsuccessful aspects of this project*
- *use successful sites, plans or approaches as examples*

Task 5.2: Build capacity in communities
Team Lead: Coordinators
Graduate Students: TBD
Team Participants: Community Partners
Schedule: Start 2012, end 2014
Goals: Develop knowledge base and capacity to plan for climate change and sea level rise in each community

Observations:

- *methodologies likely to include knowledge and approaches derived from successful and unsuccessful aspects of this project*
- *use successful sites, plans or approaches as examples*
- *will be ongoing process starting early in project and culminating in not only development of strategic adaptation plan but its implementation over a number of years*
- *will include development of community planning guidelines, response/adaptation plans*
- *will include training workshops through project at appropriate points and towards end in particular*

**Appendix 6
C-Change Workshops Agendas and Minutes
December 13-15, 2009 (Ottawa meetings)**

**AGENDA
December 13-15, 2009, Ottawa, Ontario
DMS7136, 7th Floor Desmarais Building,
Telfer School of Management, 55 Laurier Ave East, Ottawa**

The purpose of this meeting is to engage the Canadian co-applicants and collaborators in a further discussion on operationalizing the ICURA project “C-Change - Managing Adaptation to Coastal Change: Canada and the Caribbean” and mobilizing the research behind the project. Of immediate interest is the preparation of the draft “Milestone framework” that is a first deliverable of the ICURA to our funders SSHRC and IDRC (due January 15, 2010).

Sunday, December 13 **Travel day. Meet for Dinner, Ottawa Market**

1900 - 2100 Co-applicants' Dinner, Restaurant: Ottawa Market (TBD)

Monday, December 14 **DMS7136, 7th Floor Desmarais Building, Telfer School of Management, 55 Laurier Ave East, Ottawa**

0830 - 0900 Welcome, Review of the agenda, meeting objectives Dan Lane

0900 - 1015 Review of ICURA Project Proposal¹All

- Participants: Co-applicants, Collaborators, and Partners
- Budgets
- Communities
- Project Management
- Roles and Responsibilities

1015 - 1030 HEALTH BREAK

1030 - 1130 University of Ottawa Research Grants and Ethics Services.....Invited Guest: Daniel Lefebvre

- Research Activities and Funding
- Transfer Agreements
- Use of Funds
- Ethics Services

1130 – 1200 SSHRC-IDRC ICURA Milestone Framework Request (January 15, 2010 deliverable)²Dan Lane

- Update on Work-to-date
- Roles, Goals, and Governance
- Establish Project Milestones

1200 - 1300 LUNCH: Royal Oak Restaurant, Laurier Street. Ottawa

Monday, December 14

DMS7136, 7th Floor Desmarais Building, Telfer School of Management, 55 Laurier Ave East, Ottawa

1300 – 1430 SSHRC-IDRC ICURA Milestone Framework Request (continued).....All

- Update on Work-to-date
- Roles, Goals, and Governance
- Establish Project Milestones

1430 - 1445 HEALTH BREAK

1445 - 1530 Project Management³.....Colleen Mercer Clarke and John Clarke

- Composition of the Team and Thoughts on Planning
- Project Governance Structure
- Elements of Project Management

1530 - 1630 Milestone Framework DraftingAll

- Students and Activities
- Community Partners' Activities
- Collaborators' Activities
- Research and Knowledge Production
- Performance Measurement and Evaluation

1700+ DINNER Restaurant: Ottawa Market (TBD)

Tuesday, December 15

DMS7170, 7th Floor Desmarais Building, Telfer School of Management, 55 Laurier Ave East, Ottawa

0800 - 0830 CONTINENTAL BREAKFAST

0830 - 0945 Review of Milestone Framework Draft (Section B).....Dan Lane

1. Community and University Partnerships
2. Research Training and Development
3. Research and Knowledge Production
4. Knowledge Mobilization
5. Additional Information and Funding

0945 - 1000 HEALTH BREAK

Handouts:

- 1) ICURA Proposal including Participants, Budgets, Communities, Roles and Responsibilities
- 2) ICURA Milestone Framework document (6p, Nov 18/09)
- 3) C-Change Project Management Framework

ICURA Meetings
C-Change - Managing Adaptation to Coastal Change: Canada and the Caribbean
December 14-15, 2009, Ottawa, Ontario
DMS7136, 7th Floor Desmarais Building,
Telfer School of Management, 55 Laurier Ave East, Ottawa

Minutes

Date: Monday, December 14, 2009
8:30am to 4:30pm

Location: Salle/Room **DMS7136**

Present: 7 participants: Sue Nichols (SN), Don Forbes (DF), Ralph Matthews (RM), Philippe Crabbé (PC), Dan Lane(DL, Chair)

Invited (AM): Daniel Lefebvre (DL2)

Invited (PM): Colleen Mercer Clarke (CMC), John Clarke (JC)

1. Welcome, Review of the agenda, meeting objectives (DL)

The agenda was accepted as drafted. DL welcomed the Canadian C-Change co-applicant team to Ottawa and reviewed the day's agenda and meeting objectives. DL reiterated, as was noted in the Agenda that the purpose of this meeting is to engage the Canadian co-applicants and collaborators in a discussion on operationalizing the ICURA project "C-Change - Managing Adaptation to Coastal Change: Canada and the Caribbean" and mobilizing the research behind the project. Of immediate interest is the preparation of the draft "Milestone Framework" that is a first deliverable of the ICURA to funders SSHRC and IDRC (due January 15, 2010).

2. Review of ICURA Project Proposal (DL, RM, SN)

DL presented an overview of the current status of the C-Change ICURA project (PowerPoint file available). This included a review of the project communities in Canada and the Caribbean and the project objectives. The broad definition of communities was discussed with emphasis on the need to describe local decision makers, infrastructure services, the local economy, citizens' groups, and affected individuals. It was noted that all of the selected communities were under threat. DL briefly presented the case of one community, namely Isle Madame, Cape Breton. He also described the research process including the methodology to be applied, the project management plans, and project outputs as proposed.

DL summarized the work to date from the preliminary project meetings including the local Ottawa C-FOAM collaborators, co-applicants (Ottawa, June 4, 2009); the SSHRC Notice of Decision (NOD) with the co-directors and invited partners (Ottawa, June 29-30, 2009); and the invited meeting with IDRC (Ottawa, July 2, 2009) and team members. He also noted the Summer 2009 meetings with community partners, and the joint meeting with Canadian co-applicants and Canadian partners that took place at the Ocean Management Research Network (OMRN) 2009 National Conference, October 21-24, 2009 in Ottawa.

DL invited the Canadian co-applicants to present a perspective on their own work and their links to the project. RM, and SN provided their thoughts summarized as follows:

RM reported on his current involvement with related projects (e.g., C5, CAVIAR) and his particular research interest in the institutional process around community decision making on environmental issues. He noted his position as community champion for Gibsons, B.C., and recounted to the meeting the initial encounter with the Mayor, Barry Janyk and the Town Council. RM also noted the submission of Mayor Janyk's questions to the project team and recommended that the project pay particular attention to responding to these. The questions, noted below were provided to meeting participants and were briefly discussed. These questions were originally provided for discussion at the OMRN Conference project meeting with community partners, October 23, 2009.

- *What effects will the future have on the subterranean and surface water systems in the Gibsons environs?*
- *What can we expect the implications to be of severe weather on our waterfront properties and municipal assets?*
- *What mitigation measures can be instituted based on best, likely and worst case scenarios?*
- *What resources will be required from the community and the municipality?*
- *What is the actual time frame?*
- *May we produce a GANTT chart and establish goals and benchmarks so we can assess and evaluate the success of the project, ongoing?*
- *How are we going to build and maintain good connections and relationships with our fellow Canadian and Caribbean sister communities?*
- *Who will be directly involved and what are their roles, duties and responsibilities?*
- *Describe the modelling to be undertaken for this research.*

SN made a brief presentation using PowerPoint (see also available PPT file). She reported on her interest in managing the project's geographical data, and particularly, the ways and means of presenting and communicating spatial data effectively and in support of describing communities' vulnerability and adaptation strategies. SN mentioned the facility of Google Earth and the possibility of using this widely available software in the project for transferring spatial data broadly to communities to identify, measure, model, visualize, and communicate. SN noted that she is already involved in: (i) accessing and assessing existing data; (ii) considering platforms for spatial visualization and communication; (iii) building access to modeling; and (iv) adding and managing local knowledge. SN noted her concern for managing expectations of the project in communities. She also noted her concern for licensing and legal implications of data and software and the need for the project to leverage funding. Finally, SN advised the group to consider a limited number of communities initially (year 1) and to expand based on best practices.

[At 11am, co-applicant presentations were suspended in order to discuss project financial management and reporting issues with invited guest, Daniel Lefebvre from the University of Ottawa Research Grants and Ethics Services.]

3. University of Ottawa Research Grants and Ethics Services (DL2)

DL2 discussed his group's responsibility of annually allocating research funding to the Canadian co-applicant team (present), as had been done for the current year. Meeting participants inquired about the late timing of Year 1 and, consequently, the late start to the project. DL2 confirmed that, now that the allocations had been established, he would be able to send out funding immediately on notification at end of the fiscal year (March 31 annually). He pointed out the lag between the project mid-term and the fiscal year and noted the likelihood of the one year project extension. Meeting participants discussed the need for flexibility in use of funds and the noted inadequacy of funding for students. A discussion ensued on the use of funds for students, for administration, and travel and the need for planning. DL2 encourage the team to consider an act early on any possible ethics requirements that would need to be prepared and applied to respective institutional ethics committees. Finally, DL2 invited the team to follow up and meet with him and Gilles Morier again with respect to Intellectual Property (IP) issues and data sharing agreements.

4. Review of ICURA Project Proposal (continued) (PC, DF)

[Presentations by PC and DF continued following lunch and the earlier interrupted agenda item.]

PC provided a sketch of his background and noted his work as leader of the CURA on Eastern Ontario, “Common Water & Resources” and its link to community adaptation. He reported that he teaches Systems Dynamics (SD) and Soft Systems Methodologies (SSM) that are integral parts of the C-Change project. PC noted that the SD software, STELLA provided a good GUI to teach communities the basics of climate change and that he was preparing to engage a Ph.D. student to assist in this work. Finally, he noted his interest in going to communities to apply SSM as a supporting mechanism.

DF reported his interest in doing science for adaptation planning. He referred to his experience in such programs in Halifax, Vancouver, PEI, and south-eastern NB, as well as the North (Iqaluit). DF noted the importance of local capacity, but that institutions made decisions at higher (not local) levels. He noted his interest in applying science with community consultation, and the need to integrate and partner. DF pointed out that there were considerable useful resources on-line that may be of use to the project, e.g., PEI study, and NB study. He demonstrated the use of the Digital Elevation Model (DEM) that can be used as a tool to simulate flooding. DF noted the importance of scenario development and the science backing up the IPCC limits and estimates of the probability of flooding. He noted that flooding was a function of sea level rise, coastal erosion, and subsidence (sinking of the land).

Following the co-applicants’ presentations, a discussion took place. RM reported on the experience with the Gibsons harbor area design Charette, and the public’s attempt to list and focus on the most important issues. PC suggested that the C-Change project undertake, as soon as possible, a ‘community profile’ or inventory of the community. DF agreed that this would be an important tool and a prerequisite for comparing and contrasting communities and their characteristics. A “wiki of communities” was used to describe this information set.

5. Project Management (CMC, JC)

DL welcomed CMC and JC, C-Change collaborators and C-FOAM members, and asked them to present the draft project work plan and project management elements to the meeting.

JC presented the main elements of the project management work plan that was developed and discussed at previous project meetings. These main elements were described as:

- 1) Activity One: Project Management*
- 2) Activity Two: Community-University Support/Advisory Groups*
- 3) Activity Three: GIS Framework for Spatial Communication*
- 4) Activity Four: Model Scenarios*
- 5) Activity Five: Capacity Building*

The main component activities were described in further detail as follows:

Activity One: Project Governance involves the tasks – (1) hire Project coordinator, operations manager, and administrator; (2) manage and monitor organization of the work to meet the goals; and (3) consolidate the findings into on-going project reports.

Activity Two: Community-University Support and Advisory Groups – (1) Establish C-Change Community-University Support Groups (C-USG) in each community; (2) Meet with each community, on objectives, methodology, participants, and deliverables.

Activity Three: GIS Framework for Spatial Communication – (1) Develop GIS architecture; (2) Gather information on resources, services and priorities, in conjunction with C-USG; (3) Inventory physical (infrastructure, topography, hydrography), economic, social data, institutional; (4) Map data and infrastructure with GIS.

Activity Four: Model Scenarios – (1) Develop environmental impact scenarios; (2) Identify vulnerability/risk indices in each community, long and short term, re SLR, storm surge and severe storms (need some consistency in development of indices); (3) Assess community adaptive capacity and resilience to impacts (resilience index); (4) Develop community adaptation action plans.

Activity Five: Capacity Building – (1) Build capacity at Universities; and (2) Build capacity at Communities.

JC noted the need to prepare and act on the work plan in a timely and efficient manner. The complexity of the Canada to Caribbean program was acknowledged.

6. Milestone Framework Drafting (All)

DL presented the SSHRC-IDRC Milestone Framework to the meeting and asked for feedback on the various questions of the document. (See also the Milestone Framework document for details.) This review and feedback was used to draft a preliminary response to the itemized points.

DL was tasked to use the feedback received in this meeting discussion to provide information back to the meeting the next morning for further review and discussion.

Next meeting: 8:30am, December 15, 2009, DMS7170, 7th Floor Desmarais Building, 55 Laurier Avenue East, Ottawa. The purpose of the follow-up morning meeting was to review the draft Milestone Framework report prior to the open meeting with collaborators and students that began at 10:00am. (See also minutes of the December 15 meeting for details.)

The meeting was adjourned at 5:00pm.

AGENDA
December 15, 2009, Ottawa, Ontario
DMS7170, 7th Floor Desmarais Building,
Telfer School of Management, 55 Laurier Ave East, Ottawa

The purpose of this meeting is to engage the Canadian co-applicants and collaborators in a further discussion on operationalizing the ICURA project “C-Change - Managing Adaptation to Coastal Change: Canada and the Caribbean” and mobilizing the research behind the project. Of immediate interest is the preparation of the draft “Milestone framework” that is a first deliverable of the ICURA to our funders SSHRC and IDRC (due January 15, 2010).

Tuesday, December 15 DMS7170, 7th Floor Desmarais Building, Telfer School of Management, 55 Laurier Ave East, Ottawa

0945 - 1000	CONTINENTAL BREAKFAST
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1000 - 1030	Welcome, Round Table Introductions, Meeting objectivesDan Lane/All
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1030 - 1100	Review of ICURA Project Proposal.....All <ul style="list-style-type: none"> • Participants: Co-applicants, Collaborators, and Partners • Budgets • Communities • Project Management • Roles and Responsibilities
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1100 – 1200	SSHRC-IDRC ICURA Milestone Framework Request (January 15, 2010 deliverable).....Dan Lane/All <ul style="list-style-type: none"> • Update on Work-to-date • Roles, Goals, and Governance • Establish Project Milestones • Discussion
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1200 - 1300	LUNCH: Royal Oak Restaurant, Laurier Street. Ottawa
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1450 - 1530	Milestone Framework Drafting (Section B)All <ol style="list-style-type: none"> 1. Students and Activities 2. Community Partners’ Activities 3. Collaborators’ Activities 4. Research and Knowledge Production 5. Performance Measurement and Evaluation
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1430 - 1445	HEALTH BREAK
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1450 - 1530	Wrap UpAll <ul style="list-style-type: none"> • Action Items • Next Meeting
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ICURA Meetings
C-Change - Managing Adaptation to Coastal Change: Canada and the Caribbean
December 15, 2009, Ottawa, Ontario
DMS7170, 7th Floor Desmarais Building,
Telfer School of Management, 55 Laurier Ave East, Ottawa

Minutes

Date: Monday, December 14, 2009
 10:00am to 4:30pm

Location: Salle/Room **DMS7136**

Present: 13 participants: Sue Nichols (SN), Don Forbes (DF), Philippe Crabbé (PC), Colleen Mercer Clarke (CMC), John Clarke (JC), Maureen Woodrow, (MW – C-FOAM Collaborator), Kaitlin Fahey (KF - OMRN Coordinator), Kathy Cunningham (KC – Research Associate), Hooman Mostofi (HM – M.Sc. Systems Science), Sahar Pakdel (SP - M.Sc. Systems Science), Yuan Liu (YL- Ph.D. Economics), Jenny Gignoux (JG – Telfer Research Office), Dan Lane(DL, Chair)

Excused: Ralph Matthews (RM) (ill)

3. Welcome, Review of the agenda, meeting objectives (DL)

The agenda was accepted as drafted. DL welcomed participants including the Canadian C-Change co-applicants, collaborators, and prospective project student and research associates. He briefly reviewed the day's agenda and meeting objectives.

DL noted that the purpose of this meeting is to engage team members in discussion on operationalizing the ICURA project “C-Change - Managing Adaptation to Coastal Change: Canada and the Caribbean” project, and mobilizing the research behind the project. Of immediate interest is the preparation of the draft “Milestone Framework” that is a first deliverable of the ICURA to funders SSHRC and IDRC (due January 15, 2010).

4. Review of ICURA Project Proposal (DL)

DL presented an overview of the current status of the C-Change ICURA project (PowerPoint file available). This included a review of the project communities in Canada and the Caribbean and the project objectives. The broad definition of communities was discussed with emphasis on the need to describe local decision makers, infrastructure services, the local economy, citizens' groups, and affected individuals. It was noted that all of the selected communities were under threat. DL briefly presented the case of one community, namely Isle Madame, Cape Breton. He also described the research process including the methodology to be applied, the project management plans, and project outputs as proposed.

DL invited feedback from the meeting participants and a discussion ensued.

5. Project Management (CMC, JC)

JC presented the main elements of the project management work plan that was developed and discussed at previous project meetings. These main elements were described as:

- 6) Activity One: Project Governance
- 7) Activity Two: Community-University Support/Advisory Groups
- 8) Activity Three: GIS Framework for Spatial Communication
- 9) Activity Four: Model Scenarios

10) Activity Five: Capacity Building

The main component activities were described in further detail as follows:

Activity One: Project Governance involves the tasks - (1) hire Project coordinator, operations manager, and administrator; (2) manage and monitor organization of the work to meet the goals; and (3) consolidate the findings into on-going project reports.

Activity Two: Community-University Support and Advisory Groups - (1) Establish C-Change Community-University Support Groups (C-USG) in each community to: (2) Meet with each community, on objectives, methodology, participants, and deliverables.

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Activity Five: Capacity Building (1) Build capacity - Universities (2) Build capacity – Communities.

JC noted the need to prepare and act on the work plan in a timely and efficient manner. The complexity of the Canada to Caribbean program was acknowledged.

6. Milestone Framework Drafting (All)

DL presented the SSHRC-IDRC Milestone Framework to the meeting and asked for feedback on the various questions of the document. (See also the Milestone Framework document for details.) This review and feedback was used to draft a preliminary response to the itemized points.

DL was tasked to use the feedback received in this meeting discussion to provide information back to the meeting the next morning for further review and discussion.

A general discussion by all participants considered the following points:

- 1) Noted need to coordinate project activities, especially in terms of linking the activities at the community level; also to be considered is a Management Committee for monitoring operations;*
- 2) Suggestion that the project consider developing a book, e.g., “Managing Coastal Vulnerability” designed for the classroom;*
- 3) Importance noted of establishing Community Advisory Boards with regular meetings engaging community members and academics;*
- 4) Investment in building a project website including capture social networking capabilities;*
- 5) Encourage the integration of students in the project and preparation of interdisciplinary student workshops.*

The meeting was adjourned at 4:30pm.