1998

Taller Internacional sobre Formación de Capacidades para el Manejo de las Costas y los Océanos en el Gran Caribe (International Workshop on Management Capacity Building for Coasts and Oceans in the Wider Caribbean, Havana, Cuba)

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Comisión Oceanográfica Intergubernamental
Intergovernmental Oceanographic Commission

Informe de Reuniones de Trabajo No. 146
Workshop Report No. 146




Agence canadienne de développement international
Canadian International Development Agency

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La Habana, Cuba, 7 al 10 de julio de 1998

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Informe de Reuniones de Trabajo Nº 146
La Habana, Cuba, 7 – 10 de julio de 1988
Original: Español*

IOC Workshop Report Nº 146
Havana, Cuba, 7 – 10 July 1998
Original: Spanish*

* For reasons of budgetary constraints only the reporting section has been translated in English. Annexes and in particular background papers presented during the workshop remain in their original language, i.e. Spanish or English

Resumen

El Taller Internacional sobre Formación de Capacidades para el Manejo de Costas y los Océanos en el Gran Caribe fue organizado conjuntamente por la Universidad de la Habana, el Comité Oceanográfico Nacional de Cuba (CON) y el Instituto de los Océanos de Canadá (IOC), y recibió el apoyo del Programa Gubernamental para la Sustentabilidad de los Océanos de la Agencia Canadiense para el Desarrollo Internacional (ACDI), del Centro de Investigación para el Desarrollo Internacional (CIDI), y de la Comisión Oceanográfica Intergubernamental de la UNESCO. Fue organizado en respuesta a iniciativas recientes para promover las actividades de formación de capacidades en universidades y centros de entrenamiento en países del Gran Caribe, especialmente en Cuba, y en apoyo a los esfuerzos para promover una mayor coordinación de actividades de formación de capacidades entre las universidades y agencias gubernamentales para un manejo integrado de las costas y sistemas insulares en la región. Los objetivos fueron: Examinar y evaluar los esfuerzos de capacitación dirigidos a los planificadores y administradores encargados del manejo de las costas y de los océanos del Gran Caribe; explorar el potencial para la creación de una red regional de instituciones de educación y entrenamiento; identificar las direcciones estratégicas para la formación de capacidades; e identificar los grupos potenciales de asociación e iniciativas como actividades posteriores a la realización del Taller. Ochenta profesionales de 13 países del Gran Caribe y Canadá, así como representantes de 8 organismos intergubernamentles y regionales, discutieron los los 26 trabajos presentados que figuran en el presente informe. La metodología utilizada fue la presentación de los informes en 4 sesiones específicas y su posterior discusión en tres grupos de trabajo. Las conclusiones principales se focalizaron en la necesidad aumentar el conocimiento de los sistemas involucrados, necesidades de educación y entrenamiento, de asociación, de manejo participativo y de implementación de un régimen legal para el manejo integrado de las zonas costeras.

Abstract

The International Workshop on Management Capacity-building for Coasts and Oceans in the Wider Caribbean was jointly convened by the University of Havana, the National Oceanographic Committee of Cuba (CON) and the Oceans Institute of Canada/Institut canadien des océans (OIC), with the support of the Sustainable Oceans Governance Programme of the Canadian International Development Agency (CIDA), the International Development Research Centre (IDRC) and the Intergovernmental Oceanographic Commission (IOC) of UNESCO. The Workshop was convened in response to recent initiatives for the promotion of capacity-building activities at universities and training centers in Wider Caribbean countries, especially in Cuba, and in support of efforts for the promotion of greater coordination of capacity-building activities among universities and government agencies for integrated coastal and island systems management in the region. The principal objectives of the workshop were the following: to survey and assess management capacity-building efforts directed at coastal and ocean planners and managers in the Wider Caribbean; to explore the potential for a regional network of education and training institutions in the Wider Caribbean; to identify strategic directions for management capacity-building in the Wider Caribbean; and to identify potential partnerships and initiatives as follow-up activities. Eighty professionals from 13 wider Caribbean and Canada, as well as representatives of 8 regional and intergovernmental organisms discusses on the 26 papers submitted, published in the present report. The working methodology included the presentation of the papers on 4 specific sessions and further synthesis discussion in three working groups. The conclusions synthesised the various needs for capacity-building for integrated coastal and ocean management identified during the Workshop. Five main conclusions identified knowledge-building needs, education and training needs, partnership needs, co-management needs and legal regime implementation needs for ICZM.

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1. INTRODUCCIÓN

El Taller Internacional sobre Formación de Capacidades para el Manejo de Costas y los Océanos en el Gran Caribe fue organizado para celebrar 1998 como el Año Internacional del Océano. El Taller fue organizado conjuntamente por la Universidad de la Habana, la Comisión Oceanográfica Nacional de Cuba (CON) y el Instituto de los Océanos de Canadá (IOC), teniendo lugar en el Palacio de Convenciones del 7 al 10 de julio de 1998. El Taller recibió el apoyo del Programa Gubernamental para la Sustentabilidad de los Océanos de la Agencia Canadiense para el Desarrollo Internacional (ACDI), el Centro de Investigación para el Desarrollo Internacional (CIDI), y la Comisión Oceanográfica Intergubernamental (COI) de la UNESCO.

El Taller fue organizado en respuesta a iniciativas recientes para promover las actividades de formación de capacidades en universidades y centros de entrenamiento en países del Gran Caribe, especialmente en Cuba, y en apoyo a los esfuerzos para promover una mayor coordinación de actividades de formación de capacidades entre las universidades y agencias gubernamentales para un manejo integrado de las costas en la región.

Para los propósitos del Taller, la formación de capacidades se definió como los esfuerzos de educación y entrenamiento (desarrollo de recursos humanos), las actividades que establezcan o fortalezcan las instituciones para las gestiones costeras y oceánicas (formación institucional), y la asistencia a las comunidades para iniciar y mantener un manejo de recursos basado en la comunidad y un manejo participativo. Fue entendido que el Taller no se ocuparía sólo de las zonas costeras en términos de la interfase costera tierra-mar de los países continentales, sino también con el manejo de los sistemas isleños, incluyendo el territorio insular completo y sus zonas marítimas. El Taller también se ocupó de las economías costeras/oceánicas y de la dimensión social de las actividades en estas áreas. De esta manera, el concepto de planeación y manejo integrales se utilizó en un sentido general para cubrir una variedad de interacciones humanas terrestres/marinas.

2. OBJETIVOS

Los principales objetivos del Taller fueron los siguientes:

(i) Examinar y evaluar los esfuerzos de capacitación dirigidos a los planificadores y administradores encargados del manejo de las costas y de los océanos del Gran Caribe;

(ii) explorar el potencial para la creación de una red regional de instituciones de educación y entrenamiento del Gran Caribe;

(iii) identificar las direcciones estratégicas para la formación de capacidades en el Gran Caribe;

(iv) identificar los grupos potenciales de asociación e iniciativas como actividades posteriores a la realización del Taller.

3. PARTICIPANTES

Los participantes del Taller principalmente fueron funcionarios del gobierno, instructores universitarios y personal de organizaciones no gubernamentales (ONG) que trabajan en las comunidades. Los participantes fueron invitados en base a sus actividades de formación de capacidades actuales y a la diversidad geográfica e institucional. Los siguientes países fueron representados: Barbados, Brasil, Canadá, Colombia, Costa Rica, Cuba, Guyana, Jamaica, México, Nicaragua, Panamá, Sta. Lucía, y Trinidad y Tobago. También participaron varias organizaciones internacionales, agencias donantes nacionales e instituciones regionales y subregionales, incluyendo la Comunidad Caribeña (CARICOM), ACDI, la Comisión Económica de las Naciones Unidas para Latinoamérica y el Caribe (CELAC), CIDI, la Organización Marítima Internacional, COI, IOCARIBE, Organización de Estados del Caribe del Este (OECE), y el Programa de las Naciones Unidas para el Desarrollo (PNUD). La lista completa de participantes se encuentra en el Anexo II.

El presidente General del Taller fue el Lic. Guillermo García Montero, Director del Comité Oceanográfico Nacional de Cuba y Vice-Presidente de la COI. El rapporteur General del Taller fue el Dr. Aldo Chircop, coordinador del Programa de Asuntos Marinos de la Universidad Dalhousie y miembro asociado del Instituto de los Océanos de Canadá.

4. PROGRAMA DE SESIONES

4.1 CEREMONIA DE APERTURA

La ceremonia inaugural tuvo lugar en el Aula Magna de la Universidad de la Habana. El discurso inicial fue presentado por la Dra. María Elena Ibarra Martín, Directora del Centro de Investigaciones Marinas de la Universidad de la Habana, el Lic. Guillermo García Montero, presidente general del Taller, el Dr. Juan Vela Valdés, Rector de la Universidad de la Habana, el Sr. Peter Outhit, Presidente y Director Ejecutivo del Instituto de los Océanos de Canadá, y Su Excelencia Keith Christie, Embajador de Canadá. También se encontraron presentes el Dr. José Luis García Cuevas, Vice-Ministro de Educación Superior, y el Dr. Daniel Codorniú Pujol, Vice-Ministro de Ciencia, Tecnología y Medio Ambiente del gobierno de Cuba.

La Dra. Ibarra Martín habló acerca de la importancia de un manejo integral costero en Cuba, dadas las amenazas que enfrenta el área costera del país. La Dra. Ibarra Martín remarcó los retos que enfrentan las universidades cubanas de responder a las urgentes necesidades educativas; también informó a la audiencia de la iniciativa conjunta de las universidades de Cienfuegos, Habana y Oriente, en cooperación con las universidades Dalhousie y Saint Mary's en Canadá, de desarrollar y ofrecer un grado de maestría en manejo integral costero. El Lic. García Montero recalcó a los participantes del taller sobre la necesidad de explorar oportunidades para una más cercana cooperación entre individuos y/u organizaciones vinculadas al Manejo Integrado de la Zona Costera tanto a nivel nacional como internacional para potenciar los beneficios que ofrecen los recursos costeros en Cuba y en Caribe. El Dr. Vela le dio la bienvenida a los participantes a la Universidad de la Habana y explicó acerca de la larga y rica tradición de la universidad, la cual fue la primera en ser establecida en la región latinoamericana. El Sr. Outhit manifestó el apoyo del IOC a este importante evento organizado para celebrar el Año Internacional del Océano, así como el apoyo del Instituto para continuar actividades en el Gran Caribe. El Embajador Christie presentó los comentarios finales sobre el programa del Taller, enfatizando sus objetivos de formación de capacidades para un manejo integral costero e isleño, y su significado para Cuba y la región del Gran Caribe.

4.2 SESIONES PLENARIAS

La parte fundamental del Taller fue iniciada por el Dr. Chircop con una presentación sumaria de los objetivos del Taller, de sus procesos y de sus resultados. El Taller fue planeado para operar en tres etapas: una primera etapa de presentaciones sobre la región en un formato plenario; una segunda etapa en formato de grupos de trabajo, y finalmente una sesión plenaria para resumir el programa y las conclusiones. Las presentaciones invitadas que cubrieron las perspectivas de capacitación de gobiernos, universidades y ONG se expusieron durante la primera etapa. Cada sesión se inició con un documento introductorio, seguido por una serie de informes de varias instituciones en la región.

4.2.1 Sesión Plenaria 1: Gestión de las Necesidades de Capacitación en las Agencias de Gobierno con Injerencia de Manejo/Planificación

La Sesión Plenaria 1 fue presidida por el Profesor Francisco de Asís Silva Batiz, de la Universidad de Guadalajara, México, y la cual enfocó las necesidades de capacitación de las agencias de gobierno. Los autores del documento introductorio fueron Neil Bellefontaine, Leslie Burke y Evelyne Meltzer, del Departamento de Pesca y los Océanos de Canadá, y fue presentado por el Sr. Burke, quién expuso una perspectiva funcional de las necesidades de formación de capacidades en agencias de gobierno con responsabilidades en el manejo costero y marino.

El Sr. Burke observó el número de cambios ocurridos en la forma de pensar institucional, incluyendo del mandato y control a la consulta y cambios la participación; del poder centralizado a la gestión participativa; de la imposición al cumplimiento; y, del nacionalismo al regionalismo.

El primer informe, presentado por el Lic. Daniel Alvarez, se refirió a los problemas de manejo ambiental urbano-portuario de la Ciudad de la Habana. Se identificaron varios puntos prioritarios, incluyendo el desarrollo de recursos humanos y la importancia de capacitar personal en instituciones de investigación y administración. El Sr. Angel Raúl León Pérez del Centro de Investigaciones Algológicas de Cienfuegos, presentó un informe sobre los esfuerzos del manejo integrado de la Bahía de Cienfuegos en Cuba. Otro informe sobre Cuba, el del Dr. Pedro Alcolado, Director del Proyecto PNUD/FMAM sobre el ecosistema del archipiélago de Sabana-Camagüey, describió una importante investigación preliminar encaminada a la protección de la biodiversidad en esta sensible área en Cuba.

Los tres informes siguientes se refirieron a experiencias de Trinidad y Tobago, Jamaica y Panamá. El Dr. Arun Wagh, Director del Marine Affairs Institute, hizo observaciones acerca de los esfuerzos de investigación y capacitación en la zona costera de Trinidad y Tobago. El Sr. Franklin McDonald, Director de la Natural Resources Conservation Authority en Jamaica, dio una extensa presentación de las iniciativas políticas, legales e institucionales en Jamaica, y discutió un marco de referencia de manejo funcional para la gestión costera y marina, enfatizando la necesidad de armonizar leyes y políticas internacionales y domésticas en el área marina y del medio ambiente. La presentación conjunta de la Srta. Alida Spadafora y el Ing. Javier Bru Roncallo, de la Dirección General de Recursos Marinos y Costeros, y de Transporte Marino, respectivamente, presentó la Autoridad Marítima de Panamá, sus objetivos y tareas para un desarrollo sostenible de la zona costera, y de las necesidades de conocimientos en varias agencias.

La discusión en esta sesión enfatizó la necesidad de recursos humanos con una mayor educación y entrenamiento horizontal (esto es, entre sectores y multi/interdisciplinario) en administración pública. Se remarcó la cuestión sobre el tipo y el balance apropiado de generalistas y especialistas. Los tópicos incluídos deben ser multidisciplinarios pero con la intención de proveer una perspectiva interdisciplinaria. Se debe buscar el entrenamiento no sólo en un sentido formal (esto es, a través de cursos), sino también en forma de internados y aprendices para dar énfasis a las aplicaciones.

Se señaló que muchos gobiernos en la región no tienen la suficiente capacidad para implementar totalmente ciertos acuerdos internacionales, incluyendo la Convención de las Naciones Unidas sobre la Ley del Mar, la Convención de Cartagena y Agenda 21. Puntos de acción deben incluir el reforzamiento de mandatos legislativos para un manejo integral costero y mayor educación am-biental. También se discutió la necesidad de involucrar más a la comunidad en la gestión costera y marina.

Estas cuestiones necesitan tratarse con acercamientos de solución de problemas dentro de un marco de asociaciones. Es importante para las instituciones de desarrollo de recursos humanos, tales como universidades de la región, ofrecer educación en manejo costero y dar entrenamiento relevante para la solución de problemas.

4.2.2 Sesión Plenaria 2: Gestión de las Necesidades de Capacitación en Instituciones de Educación y Entrenamiento con Propósitos de Desarrollo de Recursos Humanos

La Sesión Plenaria 2 fue presidida por el Dr. Mario Oliva, Vice-Rector de Investigación en la Universidad de la Habana. La sesión enfocó en las necesidades de capacitación en las instituciones de educación y entrenamiento en el desarrollo de recursos humanos. El documento introductorio fue presentado por el Sr. Hugh Williamson, del Programa de Asuntos Marinos de la Universidad Dalhousie y miembro asociado del Instituto de los Océanos de Canadá, en el que enfatizó la importancia de los programas nacionales, de la necesidad de conectarlos internamente y con la región, y de la necesidad de coordinar el desarrollo curricular con las posibles fuentes de empleo. El Sr. Williamson ilustró la presentación con experiencias de cursos de entrenamiento cortos y largos por el Insituto Internacional del Océano y de instituciones regionales del Pacífico del Sur.

El primer informe fue preparado por la Dra. Ibarra Martín, el Dr. Pedro Beatón Soler, Vice-Rector de la Universidad de Oriente, y el Dr. Maximino Pena Matos, antiguo Vice-Rector de la Universidad de Cienfuegos en Cuba. El informe ofreció una actualización sobre la iniciativa de las tres universidades de establecer un programa nacional de posgrado sobre el manejo integral de la zona costera, en forma de un programa de maestría con un curriculum compartido. El Dr. Alejandro Gutiérrez, de la Universidad Nacional en Costa Rica, hizo una presentación sobre el trabajo del Centro Operativo del Instituto Internacional del Océano en ese país, y de su entrenamiento orientado a las aplicaciones en la planeación integral del manejo costero. Este informe fue seguido por una presentación del Dr. Jeremy Woodley, de la Universidad de West Indies (UWI), sobre los esfuerzos de investigación, educación y entrenamiento en dicha universidad, la cual tiene un mandato regional.

La discusión general que siguió enfatizó la necesidad de educación y entrenamiento orientados a las aplicaciones, de manera que se requiere de metodologías de instrucción que cubran este propósito. Hubo consenso de que los estudiantes graduados deben estar capacitados para facilitar el desarrollo de planes de gestión. Sin embargo, se reconoció que no hay suficientes programas de educación y entrenamiento, ni de posgrado o cursos de entrenamiento que se apliquen a las necesidades regionales. Es importante no sólo iniciar nuevos programas sino capacitar las instituciones educativas y de entrenamiento para diseñar y desarrollar nuevos programas regionales. Se sugirió considerar el acercamiento en sistemas para formar la capacidad en el manejo costero y del océano basado en asociaciones intra e interregionales. Se enfatizó la necesidad de cooperación entre las agencias de gobierno, universidades y el sector público.

4.2.3 Sesión Plenaria 3: Gestión de las Necesidades de Capacitación en Comunidades para un Manejo de los Recursos Basado en la Comunidad/Manejo Participativo

La Sesión Plenaria 3 fue presidida por el Sr. Keith Nichols, de la Natural Resources Management Unit (NRMU) de la Organización de Estados del Caribe del Este (OECE). El documento introductorio fue preparado por el Dr. Yvan Breton, de la Universidad de Laval, Quebec, y co-representando también al CIDI en el Taller. El Dr. Breton presentó un extenso estudio de los problemas que surgen en la planeación y gestión para y por las comunidades costeras en la región, incluyendo la dificultad de definir "comunidad" para propósitos basados en la comunidad o de manejo participativo, así como las preocupaciones analíticas y metodológicas al considerar la formación de capacidades en las comunidades.

El primer informe fue presentado por el Sr. Roberto Rigby, del Proyecto de Monitoreo del Area Costera (CAMP-LAB) en Nicaragua, quien habló de una investigación participativa en la que detalla la experiencia de comunidades indígenas en la Cuenca de Laguna Perla, en busca de un balance entre desarrollo y medio ambiente. La ponencia preparada por el Sr. Kai Wulf, del Soufriere Marine Management Area, fue presentada por el Sr. Nichols. Esta describió la iniciativa de esta comunidad y su experiencia en tratar el manejo de conflicto por usos múltiples. La Dra. Beatriz Díaz, de la Universidad de la Habana, exploró las opciones cubanas para el manejo de recursos costeros por las comunidades, incluyendo prioridades como la de generar consenso entre los principales actores sociales, la determinación de la agenda, la formación de capacidades para la investigación y gestión interdisciplinarias en apoyo de comunidades costeras. El Dr. Patrick McConney, Ministro de Agricultura y Desarrollo Rural en Barbados, discutió la integración de la pesca dentro del manejo costero en ese país. Hizo énfasis en los elementos básicos necesarios en apoyo del manejo participativo, incluyendo la necesidad de dar autoridad a través de conocimientos, así como de entrenamiento especializado.

La discusión general que siguió identificó numerosos tópicos que requieren ser tratados al promover el manejo de recursos basado en la comunidad, o el manejo participativo, incluyendo la importancia del conocimiento tradicional donde sea disponible, la necesidad de entrenar comunidades para recopilar datos con propósitos de investigación y gestión, y la necesidad de iniciar proyectos prácticos en asociación con agencias del gobierno y otras instituciones.

Se sugirió además perseguir la idea de una reunión regional sobre manejo participativo para discutir experiencias y explorar la factibilidad de una red regional. Al mismo tiempo, se sugirió que dicha red regional deba tratar asuntos de gobernanza generales, incluyendo la necesidad de una reforma en la administración pública.

4.2.4 Sesión Plenaria 4: Prácticas y Experiencias de Agencias Donantes y Organizaciones Regionales en Apoyo de la Gestión de la Capacitación

La última Sesión Plenaria fue presidida por el Sr. Michael Butler, Vice-Presidente del Instituto de los Océanos de Canadá (IOC). El documento introductorio fue presentado por el Sr. Lennox O'Riley Hinds, de la Rama sobre Políticas de ACDI, y en él hizo una revisión de prácticas y experiencias de las agencias de desarrollo internacional en apoyo de la formación de capacidades, reflejando la perspectiva tanto del donante como del receptor, las oportunidades y las limitantes.

El primer informe, en el que se describieron los programas de ACDI en la zona del Caribe para las costas, los océanos y el medio ambiente, fue presentado por el Sr. Stephen Free, Director Regional del Programa Caribeño. Este informe ofreció nuevas direcciones y perspectivas a futuro del enfoque de asistencia canadiense para el desarrollo en esta área, en respuesta a necesidades regionales, requisitos y prioridades. El Dr. Brian Davy, CIDI, presentó el programa de esta organización en los ecosistemas costeros en Latino América y el Caribe. Los principios guiantes de este programa de investigación incluyen el mejoramiento de soluciones locales, la tarea de análisis de géneros, el mejoramiento de capacidades administrativas, atracción de técnicas especializadas, reforzamiento de las redes de comunicación e intercambio, y el desarrollo de indicadores de un manejo de recursos exitoso. La Dra. Carol James, Asesora Decana en Desarrollo Sostenible en el Programa de las Naciones Unidas para el Desarrollo (PNUD) en Trinidad y Tobago, presentó las perspectivas de formación de capacidades del PNUD en los paises de la CARICOM; recomendó la identificación de recursos nacionales y regionales, la integración de iniciativas dentro de colocaciones existentes, la racionalización del establecimiento de puntos focales nacionales con propósitos de cooperativas y redes, y compartir información en la región. PEl Dr. Victor Scarabino, de la Unidad de Formación de Capacidades en la COI (UNESCO) en París, discutió acerca del proyecto piloto de esta Comisión para América Latina y el Caribe sobre una estrategia a largo plazo de formación de capacidades a través de redes y proyectos subregionales. El Sr. K. Mustafa Touré del Directorate of Regional Trade and Economic Integration de la CARICOM en Guyana, presentó la propuesta del plan de acción para el desarrollo sostenible de las áreas costeras y oceánicas caribeñas, adoptada en una reunión previa de CARICOM en Trinidad y Tobago. Esta propuesta atiende las necesidades de formación de capacidades en relación a los arreglos en políticas, legislación y regulaciones, y la ciencia y la tecnología. El último orador, el Dr. Rafael Steer Ruiz, Secretario Ejecutivo de IOCARIBE en Colombia, presentó la estrategia de esta organización para la formación de capacidades en las regiones caribeña y adyacentes. En particular, presentó el marco estratégico para una continua participación en apoyo del manejo integral de la zona costera en la región.

En la discusión general que siguió se hizo notar que se necesita que los países en la región movilicen recursos internos en apoyo de un manejo integral de la zona costera en dirección de la independencia y sustentabilidad, mientras que, al mismo tiempo se requiere de una mayor coordinación de los donantes. Hay numerosas iniciativas y actividades regionales relacionadas al manejo costero y marino, tanto intergubernamentales como no gubernamentales, y un mayor grado de enfoque y diálogo facilitaría la eficiencia y la efectividad. Esto también reduciría la repetición que tiende a surgir de una reunión regional a la siguiente. En relación a esto, se encuentra la necesidad de "modernizar" la relación donante-receptor a una que minimice la dependencia y enfatice una asociación genuina.

Hubo una sugerencia de diversificar los personajes involucrados, y quizás de explorar más asociaciones entre los sectores públicos y privados en apoyo de la formación de capacidades, ya que recursos del sector privado pueden ser dirigidos para este propósito. Evidentemente, es importante que los esfuerzos de formación de capacidades sean factibles no sólo desde el punto de vista técnico, económico y financiero, sino también en términos de sostenibilidad en el país que concierne.

4.3 SESIONES E INFORMES DE GRUPOS DE TRABAJO

Se organizaron tres grupos de trabajo para emprender una discusión más profunda acerca de las cuestiones que surgieron durante las presentaciones de documentos e informes. Para facilitar esta discusión, se asignaron ciertas preguntas a cada grupo.

4.3.1 Grupo de Trabajo 1: Manejo Integral Costero en Cuba

Este grupo fue presidido por la Dra. Ibarra Martín, con el Dr. Gaspar González Sanson de la Universidad de la Habana como rapporteur. Las preguntas asignadas fueron las siguientes:

1. ¿Cuál es la capacidad actual de Cuba para una planeación y manejo integrales de las costas y los océanos? (Status actual de actividades)
2. ¿Qué lecciones se han aprendido?
3. ¿Qué se necesita para facilitar la planeación y manejo integrales?
4. ¿Es útil la cooperación regional e interregional y qué tipo de cooperación apoyaría usted?
5. ¿Tiene algunas recomendaciones? ¿Para quién?

El Grupo de Trabajo concluyó que hay capacidades significativas para emprender un MIZC en Cuba. En particular, el Grupo anotó las siguientes: recursos humanos bien calificados, un sistema de planeación para la ciencia y la tecnología; una estructura institucional coherente basada en participación popular, y la existencia de una estructura específica para tratar problemas ambientales; un sistema bien desarrollado para la planeación del uso de la tierra; una legislación básica para la estrategia y política ambientales; y, un nivel aceptable de comprensión de las necesidades ambientales desde las perspectivas de territorio y comunidades.

Con el propósito de facilitar una planeación y manejo integrales en Cuba, se identificaron como prioridades útiles las siguientes: incrementar el entrenamiento y participación de profesionistas de las ciencias sociales y económicas en todas las actividades de MIZC; desarrollar una estrategia de formación de capacidades para el manejo integral a través de acuerdos entre los diversos niveles y sectores relevantes; desarrollar un programa nacional de educación ambiental para todas las edades, sectores y niveles de la sociedad; y, si es necesario, crear instituciones con capacidad real de manejo, autorizadas vía legislación correspondiente que complemente la existente.

El Grupo de Trabajo propuso a la sesión plenaria las siguientes recomendaciones:

* Fomentar la iniciativa de las universidades cubanas de establecer un programa de maestría en MIZC con asistencia de universidades canadienses y una amplia participación de instituciones cubanas con actividades o intereses en la zona costera.
* Reforzar la cooperación regional en la formación de capacidades para el MIZC a través de la creación de un programa que promueva la participación de expertos de la misma región. Se recomienda que, como parte de este programa, se establezcan uno o dos centros regionales.
* Apoyar la propuesta del Comité Oceanográfico Nacional de Cuba para organizar un taller nacional sobre el MIZC en Cuba, con una amplia participación de las instituciones que tienen impacto en la zona costera.
* Con la experiencia cubana como una premisa, y donde se considere apropiado, se recomienda que cada estado en la región considere el desarrollo y promulgación de una ley costera.
* Es necesario dar una mayor publicidad a las iniciatival de MIZC de Cuba, algunas de las cuales han sido bien recibidas internacionalmente.

4.3.2 Grupo de Trabajo 2: Manejo de Recursos Basado en la Comunidad y Manejo Participativo

Este Grupo fue presidido por el Dr. Brian Davy, con el Dr. Yvan Breton como rapporteur. Las preguntas asignadas fueron las siguientes:

1. ¿Qué clase de actividades en el manejo de recursos basado en la comunidad (MRBC) y manejo participativo en la zona costera se encuentran actualmente organizados en el Gran Caribe?
2. ¿Qué lecciones se han aprendido?
3. ¿Qué se necesita para facilitar el MRBC y manejo participativo en la zona costera?
4. ¿Es útil la cooperación regional e interregional y qué tipo de cooperación apoyaría usted?
5. ¿Tiene algunas recomendaciones? ¿Para quién?

El Grupo de Trabajo consideró importante identificar diferentes clases de MRBC y manejo participativo. El número y contenido de las experiencias varió de país en país y de acuerdo a cada subregión. Los tópicos que forman el problema conceptual examinado por el Grupo de Trabajo incluyeron: sistemas de arriba hacia abajo y de abajo hacia arriba; ambiente histórico; sistemas de manejo formales e informales; qué es una "comunidad"; pesca y otras actividades; y, la menguada utilidad de mecanismos con accesos limitados.

Se identificaron varias lecciones aprendidas: la acción de gestionar debe involucrar a las comunidades; hay un continuum entre la acción individual y la colectiva; el tiempo es importante para la educación en general, la educación de comunidades, la promoción del uso sostenible para actividades económicas alternativas e involucramiento de los usuarios; hay una necesidad de investigar las condicionantes para la acción colectiva; hay una necesidad de apoyo informativo apropiado en términos de ayudas visuales y mapas; y, hay una necesidad de estudios financieros y microeconómicos de nuevas opciones.

Para poder facilitar el MRBC y manejo participativo en la zona costera, es importante prestar atención a las iniciativas locales; mejorar la comunicación entre las personas involucradas, incluyendo un modelado de traducción, y paradigmas de investigación apropiados; promover una nueva "mentalidad" en instituciones de investigación, universidades, agencias gubernamentales y tomadores de decisiones, y; usar y valorar diferentes historias y experiencias recientes de cómo evolucionaron los sistemas.

Lo descrito en el párrafo anterior es relevante tanto desde una perspectiva interregional como local. Todos los niveles de experiencia son importantes, y es crítico que ésta se comparta en el Caribe. Sin embargo, esto no debe ocurrir a expensas de la diversidad local. En el presente es difícil especificar el tipo óptimo de cooperación. En el caso de la pesca este es el principal enfoque inicial pero, en mayor medida, el enfoque debe cambiar para incluir otros sectores, como la agricultura, el turismo y la minería.

El Grupo de Trabajo propuso a la sesión plenaria las siguientes recomendaciones:

* Mejorar la comprensión de y cómo utilizar los instrumentos legales.
* Promover la asociación de pescadores y otras al compartir información, lecciones aprendidas, etc.
* Iniciar proyectos piloto de demostración en áreas críticas de uso "competido".
* Definir, documentar y diseminar ejemplos de historias "existosas".
* Promover la educación ambiental y formación de conciencia entre las personas involucradas, especialmente quienes toman decisiones.
* Promover un mejor balance entre las ciencias sociales y naturales en el MRBC y manejo compartido.
* Considerar intercambios que incluyan también pescadores visitando otras áreas.

4.3.3 Grupo de Trabajo 3: Sistemas de Toma de Decisiones para el Manejo Integral Costero y de los Océanos

Este Grupo de Trabajo fue presidido por el Dr. Rafael Steer Ruiz, Secretario de IOCARIBE en Cartagena de Indias, Colombia, con el Dr. Franklin McDonald, Natural Resources Conservation Authority, Jamaica, como rapporteur. Las preguntas asignadas fueron las siguientes:

1. ¿Qué clase de acercamientos existen en planeación y manejo integrales y sistemas de toma de decisiones existen para las costas y océanos en el Gran Caribe?
2. ¿Qué lecciones se han aprendido?
3. ¿Qué se requiere para facilitar un manejo y planeación integrales?
4. ¿Es útil la cooperación regional e interregional y qué tipo de cooperación apoyaría usted?
5. ¿Tiene algunas recomendaciones? ¿Para quién?

El Grupo de Trabajo identificó marcos legales y políticos globales relevantes para un manejo y planeación integrales, incluyendo: Capítulo 11 de la Agenda 21, el Programa de Acción SIDS, la Convención sobre la Prevención de la Polución del Mar a Partir de Buques (MARPOL 73/78), la Convención sobre el Cambio Climático, así como el trabajo de la Comisión para el Desarrollo Sustentable. Las contrapartes regionales incluyen la Convención de Cartagena y los protocolos que la acompañan sobre polución a partir de actividades en tierra, emergencias por derrames de petróleo y áreas especialmente protegidas.

El Grupo de Trabajo listó las diversas organizaciones regionales y globales, incluyendo el PNUMA (con CEPNET, REMPEC, CEPPOL, IPID y los varios centros y redes de actividades regionales), la UNESCO, FAO, OMI, OMM, COI, CARICOM (en particular el Foro del Mar Caribe), ACS (Comité sobre la Protección del Mar Caribe), OECE (especialmente NRMU), e IOCARIBE. A éstas se deben agregar las iniciativas específicas que son relevantes para un sector, incluyendo CARICOMP, CFRAMP, ACC y CMO. Existen también muchas agencias nacionales que deben considerarse como parte de los arreglos institucionales para la planeación y manejo integrales en la región.

En cuanto a las lecciones que se pueden aprender, el Grupo de Trabajo identificó varias. Es importante evaluar los programas previos en la región para las costas y los océanos. Cuestiones sobre capacidad humana continuan surgiendo. La planeación y el manejo integrales siguen siendo un proceso difícil debido a intereses competitivos y conflictivos. El acercamiento de arriba hacia abajo que existe en muchas partes de la región debe armonizarse con acercamiento de abajo hacia arriba. Desde este punto de vista, son críticos los acercamientos participativos. Se necesita la evaluación del medio ambiente en la toma de decisiones para asegurar que las cuestiones costeras y marinas están siendo totalmente consideradas. Se hizo notar que los asuntos marinos y de MIZC tienden a recibir poca prioridad en la región. Hay una falta de visión integrada, quedando la planeación sectorial como el acercamiento de gestión dominante. También hay una falta de capacidades en políticas, legales e institucionales apropiadas.

Para complementar las lecciones aprendidas, el Grupo de Trabajo propuso seis pasos necesarios:

* Establecer principios de planeación y manejo integrales por las agencias apropiadas.
* Consultar con las personas involucradas para construir una visión compartida en base a un consenso.
* Formulación de programas para un manejo integral y planes estratégicos con prioridades institucionales clave identificadas.
* Adopción legal de programas de manejo integral.

* Difusión de programas de manejo integral a niveles locales y regionales, incluyendo instituciones locales, comunidades y el sector privado.

* Establecimiento de una red de estructuras organizacionales para la implementación y evaluación.

5. CONCLUSIONES Y RECOMENDACIONES

En la sesión final, el rapporteur del Taller presentó un resumen de conclusiones que sintetizaron las diversas necesidades de formación de capacidades para el manejo integral de la costa y el océano identificadas durante el curso del Taller. Los participantes discutieron varios temas de MIZC desde una macro hasta una microperspectiva, reconociendo la necesidad de llevar a cabo tareas complejas para promover desarrollo mientras que, al mismo tiempo, se mantenga la integridad de la base de recursos costeros. La discusión se alimentó de experiencias de varios países del Gran Caribe, proporcionando una sana diversidad de puntos de vista. Durante las intensas sesiones de Trabajos de Grupo se hicieron ver necesidades temáticas que sugirieron direcciones generales de formación de capacidades en la región: formación de conocimientos, educación y entrenamiento, asociación, manejo participativo e implementación de un régimen legal. Aunque no todos los temas de las conclusiones representan todos los puntos de vista de los participantes, éstos sugieren una gama de inquietudes compartida por varios países en la región.

(a) Necesidades de formación de conocimientos:

* La integración de formación de conocimientos debe ser una prioridad. Los participantes acordaron que son indispensables los acercamientos multi e interdisciplinarios para sustentar la formación de conocimientos con propósitos de gestión. Hay una necesidad de dar un mejor balance entre las ciencias naturales y sociales en la formación de conocimientos.

* Se observó la necesidad de una mejor apreciación de fuentes de conocimiento tanto formales como informales. El conocimiento tradicional sigue siendo subestimado; se debe reconocer su papel y contribución potencial en el manejo de la región.

* Los países del Gran Caribe deben reforzar la comprensión básica del manejo ecológico, económico y otros procesos en el manejo de sus zonas costeras. Se necesitan promover mejores formas de evaluación de recursos y ecosistema.

* Los participantes reconocimieron los problemas únicos de las islas como unidades medioambientales y sus limitaciones de recursos humanos, dando como resultado el "síndrome de muchos sombreros" y reduciendo así la capacidad de cumplir efectivamente las tareas de manejo costero. A este respecto, es importante para los gestionadores tener presentes estas necesidades particulares como distintivas de las necesidades de MIZC de áreas continentales más grandes.

* Las capacidades científicas marinas en apoyo de un MIZC en el Gran Caribe están distribuídas asimétricamente. Existe la necesidad de iniciativas intrarregionales que faciliten la cooperación de las ciencias marinas.

(b) Necesidades de educación y entrenamiento:

* El Gran Caribe requiere de un sistema regional para entrenamiento en MIZC. Son pocas las instituciones que ofrecen educación y entrenamiento, y éstas se encuentran dispersas por toda la región. Los programas educativos a largo plazo a nivel terciario y otros son una prioridad, así como programas a corto plazo que cubran los requisitos de recursos humanos inmediatos.

* Hay una necesidad de profesionistas en el manejo costero con entrenamiento horizontal (multi/interdisciplinario) en administración pública. Los gestionadores en muchas agencias del gobierno siguen teniendo sesgos disciplinarios o sectoriales. Dichos gestionadores se beneficiarían con un entrenamiento en MIZC a corto plazo.

* Los participantes reconocieron el carácter genérico del MIZC como un campo multi e interdisciplinario, y que la educación en MIZC tiende a producir generalistas. A este respecto enfatizaron la importancia de educar generalistas para trabajar más efectivamente en equipo con especialistas.

* Los programas de educación y entrenamiento en el Gran Caribe deben desarrollarse con una orientación aplicada y de solución de problemas para asegurar su relevancia en las tareas gestionadoras. Los participantes en estos programas requieren de instrucción en el diseño e implementación de planes integrales.

* Además de una educación formal y de los cursos de entrenamiento, los participantes notaron la importancia de un entrenamiento informal, no curricular. En particular se reconocieron los internados como formas útiles de aprendizaje. Además de su valor obvio en el reclutamiento doméstico de jóvenes profesionistas, los internados se pueden buscar como una base de intercambio en la región.

* La formación de capacidades para el MIZC debe proceder en base a la utilización de fortalezas existentes, en lugar de comenzar desde cero.

* Los participantes alentaron a las universidades en Cuba y en toda la región a considerar el establecimiento de programas de posgrado en MIZC como una opción educativa de largo plazo para los profesionistas en sus países.

(c) Necesidades de asociación:

* A nivel doméstico, hay una necesidad de mayor cooperación entre las agencias de gobierno y las universidades en el desarrollo de recursos humanos. Las agencias de gobierno eventualmente reclutarán los graduados universitarios y, por lo tanto, hay una contribución obvia que dichas agencias pueden hacer en los esfuerzos de educación universitaria para asegurar una relevancia curricular. Los participantes recomendaron, por una parte, una mayor coordinación de esfuerzos entre los educadores y entrenadores y, por la otra, por quienes emplearán a los gestionadores de costas.

* A nivel doméstico, el potencial de asociaciones entre los sectores públicos y privados en el manejo integral costero sigue, en gran medida, sin ser explotado y debe considerársele como una oportunidad.

* A nivel internacional, hay una necesidad de reforzar la coordinación en apoyo del manejo costero entre organizaciones donantes e internacionales para maximizar la eficiencia y reducir una duplicación inecesaria. El apoyo del donante debe buscar construir independencia en la región.

* Los participantes reconocieron el reto de una reforma en la administración pública que trate con las tareas de MIZC. Se sugirió una reunión regional sobre gobernanza para tratar la reforma de la administración pública en el manejo costero, organizada con apoyo de las agencias donantes.

(d) Necesidades de manejo participativo:

* Los participantes enfatizaron el papel valioso e indispensable de las comunidades costeras en el MIZC. Existe ya una fuente de experiencias útiles y, como consecuencia, se recomienda organizar una reunión regional para compartir experiencias sobre el papel de las comunidades en el MIZC y manejo participativo, así como considerar el posible establecimiento de una red regional de iniciativas de manejo participativo.

* Las comunidades costeras pueden asistir en el proceso de formación de capacidades con referencia a sus áreas locales. De acuerdo a esto, se debe reclutar y entrenar a las comunidades para participar en la recolección de datos para apoyar la investigación científica marina.

* Para los propósitos de manejo participativo, existe una necesidad de acercamientos más sistemáticos de abajo hacia arriba y participativos. De esta forma, las comunidades pueden asumir una mayor responsabilidad local en el cuidado medioambiental y mejorar sus condiciones de vida. Un acercamiento útil para promover el manejo participativo es el establecimiento de proyectos demostrativos.

(e) Necesidades de implementación en el régimen legal para el MIZC:

* Aunque la mayoría de los estados del Gran Caribe son parte de muchos instrumentos importantes de la ley medioambiental internacional, el nivel de implementación de estos instrumentos continua siendo inadecuado. En particular, se necesita armonizar la ley doméstica con los instrumentos sobre el medio ambiente internacionales.

* A pesar de la importancia del MIZC, pocos países en la región tienen una ley costera que proteja y maneje adecuadamente las áreas costeras. Los países en la región deben considerar la adopción de una ley costera en apoyo del manejo integral de la costa.

* Finalmente, los participantes promovieron una educación medioambiental pública más intensiva como herramienta para prevenir una degradación del medio ambiente de la zona costera. Esta educación llegaría muy lejos promoviendo el cumplimiento de las medidas legales y de gestión, y minimizando las necesidades y costos de hacer cumplir estas medidas.

En conclusión, el Taller fue un valioso y fructífero intercambio de puntos de vista de toda la cuenca para enfocar la atención regional y del donante en las necesidades de formación de capacidades para el MIZC. El Lic. García Montero, Presidente del Taller, sugirió en la sesión final organizar periódicamente en la región un taller similar que evalue el estado de los esfuerzos de formación de capacidades en el MIZC.

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1. INTRODUCTION

The International Workshop on Management Capacity-building for Coasts and Oceans in the Wider Caribbean was initiated to celebrate 1998 as the International Year of the Ocean. The Workshop was jointly convened by the University of Havana, the National Oceanographic Committee of Cuba (CON) and the Oceans Institute of Canada/Institut canadien des océans (OIC), at the Palacio de Convenciones, between 7-10 July 1998. The Workshop received the support of the Sustainable Oceans Governance Programme of the Canadian International Development Agency (CIDA), the International Development Research Centre (IDRC) and the Intergovernmental Oceanographic Commission (IOC) of UNESCO.

The Workshop was convened in response to recent initiatives for the promotion of capacity-building activities at universities and training centres in Wider Caribbean countries, especially in Cuba, and in support of efforts for the promotion of greater coordination of capacity-building activities among universities and government agencies for integrated coastal management in the region.

For the purposes of the workshop, capacity-building was defined as education and training efforts (human resources development), activities that establish or strengthen public institutions for coastal and ocean management (institution building), and assistance to communities to initiate and maintain community-based management or co-management. It was understood that the workshop was concerned not purely with coastal zones in terms of the coastal land-sea interface of continental countries, but also with the management of island systems, including the entire insular territory and their maritime zones. The workshop was also concerned with coastal/ocean economies and the social dimension of activities in these areas. Thus, the concept of integrated planning and management was used in a general sense to cover a variety of terrestrial/marine-human interactions.

2. OBJECTIVES

The principal objectives of the workshop were the following:

(i) to survey and assess management capacity-building efforts directed at coastal and ocean planners and managers in the Wider Caribbean;

(ii) to explore the potential for a regional network of education and training institutions in the Wider Caribbean;

(iii) to identify strategic directions for management capacity-building in the Wider Caribbean; and

(iv) to identify potential partnerships and initiatives as follow-up activities.

3. PARTICIPANTS

The participants were primarily government officials, university instructors and personnel of non-governmental organizations (NGOs) working with communities and international organizations. The participants were invited on the basis of their current capacity-building activities and geographical and institutional diversity. The following countries were represented: Barbados, Brazil, Canada, Colombia, Costa Rica, Cuba, Guyana, Jamaica, Mexico, Nicaragua, Panama, St. Lucia, and Trinidad and Tobago. Several international organizations, national donor agencies and regional and sub-regional institutions also participated, including: Caribbean Community (CARICOM), CIDA, United Nations Economic Commission for Latin America and the Caribbean (ECLAC), IDRC, International Maritime Organization (IMO), Intergovernmental Oceanographic Commission of UNESCO (IOC), and its Sub-Commission for the Caribbean and Adjacent Regions (IOCARIBE), Organisation of Eastern Caribbean States (OECS), and United Nations Development Programme (UNDP). A full list of participants is attached as Annex II.

The general Chairman of the Workshop was Mr. Guillermo García Montero, Chairman of the National Oceanographic Committee of Cuba and IOC First Vice-Chairman. The Rapporteur of the Workshop was Dr. Aldo Chircop, Co-ordinator of the Marine Affairs Programme at Dalhousie University and Associate of the Oceans Institute of Canada.

4. SESSIONS PROGRAMME

4.1 OPENING CEREMONY

The opening ceremony took place at the Aula Magna of the University of Havana. Opening speeches were given by Dr. María Elena Ibarra Martín, Director of the Centre for Marine Research at the University of Havana, Mr. Guillermo García Montero, Workshop Chairman, Dr. Juan Vela Valdés, Rector of the University of Havana, Mr. Peter Outhit, President and Executive Director of the Oceans Institute of Canada, and His Excellency, Ambassador Keith Christie of Canada. Also attending were Dr. Jose Luis García Cuevas, Vice-Minister for Higher Education, and Dr. Daniel Codorniú Pujol, Vice-Minister for Science at the Ministry of Science Technology and Environment of the Government of Cuba.

Dr. Ibarra Martín spoke to the importance of integrated coastal management in Cuba given the threats the country's coastal area is facing. Dr. Ibarra Martín highlighted the challenges facing universities in Cuba in addressing the urgent educational needs. She informed the audience of the joint initiative of the Universities of Cienfuegos, Havana and Oriente, in co-operation with the Universities of Dalhousie and Saint Mary's in Canada, to develop and deliver a masters degree in integrated coastal management. In his welcoming remarks, Mr. García Montero encouraged participants to the Workshop to explore the opportunities for closer co-operation in integrated coastal zone management at the national, regional and international levels to enhance the contribution of coastal resources to the economic and social well-being of Cuba and throughout the wider Caribbean. Dr. Vela welcomed participants to the University of Havana and explained the long and rich tradition of the university, which was the first to be established in the Latin American region. Mr. Outhit expressed the OIC's support for this important event convened to celebrate the International Year of the Ocean and the Institute's support for continuing activities in the Wider Caribbean. Ambassador Christie provided concluding comments on the programme of the Workshop, highlighting its objectives in support of capacity-building for integrated coastal and island management and its significance for Cuba and the Wider Caribbean region.

4.2 PLENARY SESSIONS

The substantive part of the Workshop was opened by Dr. Chircop with a summary presentation on workshop objectives, process and outputs. The Workshop was planned to operate in three stages: a first stage of presentations on the region in plenary format; a second stage in working group format; and finally a plenary session to summarize the proceedings and conclusions. Invited presentations covering capacity-building perspectives from governments, universities and NGOs were presented during the first stage. Each session was opened by a background paper, followed by briefs from a selection of institutions in the region. The background papers and briefs are reproduced in Annex IV.

4.2.1 Plenary Session 1: Management Capacity-building Needs of Government Agencies with Planning/Management Mandates

Plenary session 1 was chaired by Professor Francisco de Asís Silva Batiz, University of Guadalajara, and focused on the capacity-building needs of government agencies. The background paper co-authored by Mr. Neil Bellefontaine, Mr. Leslie Burke and Ms. Evelyne Meltzer, of the Department of Fisheries and Oceans in Canada, was presented by Mr. Burke and presented a functional perspective of

capacity-building needs in government agencies with responsibilities for coastal and marine management. Mr. Burke observed a number of shifts in institutional thinking, including from command and control to consultation and participation, from centralized power to co-management, from enforcement to compliance, and from nationalism to regionalism.

The first brief concerned the urban-port environmental management problems of the City of Havana and was presented by Mr. Daniel Alvarez. Several priority issues were identified, including human resources development and the importance of training managers at research and management institutions. Mr. Angel Raúl León Pérez, Centre for Algae Research of Cienfuegos, presented a brief on the integrated management efforts in Cienfuegos Bay in Cuba. Another brief on Cuba, by Dr. Pedro Alcolado, Director of the UNDP/GEF Project on the ecosystem of the archipelago of Sabana-Camagüey, described important baseline research under way on the protection of biodiversity in this sensitive area in Cuba.

The next three briefs concerned experiences from Trinidad and Tobago, Jamaica and Panama. Dr. Arun Wagh, Director of the Institute of Marine Affairs, provided observations on research and capacity-building efforts in the coastal zone of Trinidad and Tobago. Mr. Franklin McDonald, Executive Director of the Natural Resources Conservation Authority in Jamaica, provided an extensive presentation of policy, legal and institutional initiatives in Jamaica, and discussed a functional management framework for coastal and marine management, emphasizing the need to harmonize international and domestic law and policy in the marine and environmental area. A joint presentation by Ms. Alida Spadafora and Mr. Javier Bru Roncallo, respectively from the Directorate for Marine and Coastal Resources and Maritime Transportation Department, discussed the Maritime Authority of Panama, its objectives and tasks for sustainable development of the coastal zone, and the knowledge needs in various agencies.

The discussion in the session emphasized the need for human resources with more horizontal (i.e. cross-sectoral and multi/interdisciplinary) education and training in public administration. The issue of the type and appropriate balance of generalists and specialists was highlighted. The inputs into education and training should be multidisciplinary but with the intent to provide an interdisciplinary perspective. Training should be pursued not only in a formal sense (i.e. courses), but also in the form of internships and apprenticeships to emphasize applications.

It was pointed out that many governments in the region do not have sufficient capacity to fully implement certain international agreements, including the United Nations Convention on the Law of the Sea, the Cartagena Convention and Agenda 21. Action items should include the strengthening of legislative mandates for integrated coastal management and more environmental education. There was also discussion on the need for increased community involvement in coastal and marine management.

These issues need to be addressed with problem-solving approaches in a partnership setting. It is important for human resources development institutions, such as the universities of the region, to offer coastal management education and training relevant to problem solving.

4.2.2 Plenary Session 2: Management Capacity-building Needs of Education and Training Institutions for Human Resource Development Purposes

Plenary session 2 was chaired by Dr. Mario Oliva, Vice-Rector for Research at the University of Havana. The session focused on the capacity-building needs of education and training institutions in human resources development. The background paper was presented by Mr. Hugh Williamson, Marine Affairs Programme at Dalhousie University and Associate of the Oceans Institute of Canada. He emphasized the importance of national programmes, the need to network these internally and within the region, and the need to co-ordinate curriculum development with prospective employers. He illustrated the presentation with experiences of short- and long-training courses from the International Ocean Institute and South Pacific regional institutions.

The first brief was prepared by Dr. Ibarra Martín, Dr. Pedro Beatón Soler, Vice-Rector of the University of Oriente, and Dr. Maximino Pena Matos, former Vice-Rector of the University of Cienfuegos, in Cuba. The brief provided an update on the initiative of the three universities to establish a national graduate programme in integrated coastal zone management in the form of a masters degree with a shared curriculum. Dr. Alejandro Gutiérrez, National University in Costa Rica, made a presentation on the work of the International Ocean Institute's (IOI) Operational Centre in that country and its applications-oriented approach to training in integrated planning for coastal management. This brief was followed by a presentation by Dr. Jeremy Woodley, University of the West Indies (UWI), on research, education and training efforts at that university, which has a regional mandate.

The general discussion that followed emphasized the need for education and training that is applications oriented, thus necessitating instruction methodologies that fulfill this purpose. There was an understanding that graduates should be able to facilitate the development of concrete management plans. However, it was recognized that there are not enough education and training programmes, both degree programmes and training courses, to address regional needs. It is important not only to initiate new programmes, but to build capacity for educational and training institutions in the region to design and develop new programmes. It was suggested that a systems approach to capacity-building for coastal and ocean management, based on intra- and inter-regional partnerships should be considered. The need for co-operation between government agencies, universities and the public sector was emphasized.

4.2.3 Plenary Session 3: Management Capacity-building Needs in Communities for Community-based Resource Management/Co-management

Plenary session 3 was chaired by Mr. Keith Nichols, of the Natural Resources Management Unit (NRMU) of the Organisation of Eastern Caribbean States (OECS). The background paper was prepared by Dr. Yvan Breton, from Université Laval, Quebec, and co-representing IDRC at the Workshop. Dr. Breton provided a comprehensive survey of the issues arising in planning and management for and by coastal communities in the region, including the difficulty in defining "community" for community-based or co-management purposes, as well as analytical and methodological concerns in approaching capacity-building in communities.

The first brief was presented by Mr. Roberto Rigby, of the Coastal Area Monitoring Project (CAMP-LAB) in Nicaragua. He addressed participative research that detailed the experience of indigenous communities in Laguna Perla Basin in searching for a balance between development and environment. A presentation prepared by Mr. Kai Wulf of the Soufriere Marine Management Area was delivered by Mr. Nichols. The presentation described this community initiative and their experience in addressing multiple use conflict management. Dr. Beatriz Díaz, University of Havana, explored Cuban options for a perspective on community-based coastal resource management, including priorities that included consensus building among major social actors, agenda setting, capacity-building for interdisciplinary research and management in support of coastal communities. Dr. Patrick McConney, Ministry of Agriculture and Rural Development in Barbados, discussed the integration of fisheries within coastal management in that country. He emphasized basic elements needed in support of co-management, including the need for knowledge empowerment and specialized training.

The general discussion that followed identified numerous issues that need to be addressed in promoting community-based resource management, or co-management, including the importance of traditional knowledge, where available, the need to train communities to collect data for scientific research and management purposes, and the need to initiate practical projects in partnership with government agencies and other institutions. It was also suggested that a regional meeting on co-management to share experiences and explore the feasibility of a regional network should be pursued. At the same time, it was suggested that such a regional meeting should address general governance concerns, including the need for public administration reform.

4.2.4 Plenary Session 4: Practices and Experiences of Donor Agencies and Regional Organizations in Support of Management Capacity-building

The last plenary session was chaired by Mr. Michael Butler, Vice-President of the OIC. The background paper was presented by Mr. Lennox O'Riley Hinds, CIDA Policy Branch, Canada. He presented an overview of practices and experiences of international development agencies in supporting capacity-building, reflecting on both donor and recipient perspectives, opportunities and constraints.

The first brief describing CIDA's Caribbean programmes for coasts, oceans and the environment was delivered by Mr. Stephen Free, CIDA Regional Director of the Caribbean Programme. The brief offered new directions and future prospects in terms of the Canadian development assistance focus in this area in response to regional needs, requirements and priorities. Dr. Brian Davy, IDRC, presented this organization's coastal ecosystems programme in Latin America and the Caribbean. The programme's guiding principles include enhancement of local solutions, undertaking of gender analysis, enhancement of management skills, drawing on specialized skills, strengthening communication and exchange networks and development of indicators of successful resource management. Dr. Carol James, Senior Sustainable Development Advisor with the United Nations Development Programme (UNDP) in Trinidad and Tobago, presented UNDP's perspectives on capacity-building in CARICOM countries. She recommended identification of national and regional resources, integration of initiatives into existing allocations, rationalizing the establishment of national focal points for co-operative purposes and networks and sharing of information in the region. Dr. Victor Scarabino, IOC/TEMA Capacity-building Unit at IOC (UNESCO) in Paris, discussed the IOC's pilot project for Latin America and the Caribbean for a long-term capacity-building strategy through sub-regional networking and projects. Mr. K. Mustafa Touré, from the Directorate of Regional Trade and Economic Integration of CARICOM in Guyana, presented the draft action agenda for the sustainable development of Caribbean coastal and oceanic areas adopted at an earlier CARICOM meeting in Trinidad and Tobago. This addressed capacity-building needs in relation to policy, legislation and regulatory arrangements and science and technology. The final speaker, Dr. Rafael Steer Ruiz, Secretary of the IOC Sub-Commisssion for the Caribbean and Adjacent Regions in Colombia, presented this organization's strategy for marine science capacity-building in the region. In particular, he presented IOCARIBE's strategic framework for on-going involvement in support of integrated coastal zone management in the region.

In the general discussion that followed, it was noted that there is a need for countries in the region to mobilize internal resources in support of integrated coastal management in the direction of self-reliance and sustainability, while at the same time, more donor co-ordination was needed. There are numerous regional coastal and marine management-related initiatives and activities, both intergovernmental and non-governmental, and a higher degree of focus and dialogue would facilitate efficiency and effectiveness. This would also reduce the repetition that tends to emerge from one regional meeting to another. Related to this is the need to "retrofit" the donor-recipient relationship to one that minimizes dependency and emphasizes genuine partnership.

There was a suggestion to diversify the actors involved, and perhaps explore more public-private sector partnerships in support of capacity-building, as resources from the private sector could be targeted for this purpose. Clearly, it is important for capacity-building efforts to be feasible not only from a technical, economic and financial standpoint, but also in terms of longer-term sustainability in the country concerned.

4.3 WORKING GROUP SESSIONS AND REPORTS

Three Working Groups were set up to undertake more in-depth discussion of the issue areas raised during the presentation of papers and briefs. To facilitate discussion, questions were assigned to each group.

4.3.1 Working Group 1: Integrated Coastal Zone Management in Cuba

This Working Group was chaired by Dr. Ibarra Martín, with Dr. Gaspar Gonzales Sanson of the University of Havana as rapporteur. The questions assigned were the following:

1. What is Cuba's current capacity for integrated planning and management for coasts and oceans? (Current status of activities)
2. What lessons have been learned?
3. What is needed to facilitate integrated planning and management?
4. Is regional and inter-regional co-operation useful and what type of co-operation would you advocate?
5. Any recommendations, and for whom?

The Working Group concluded that there are significant capabilities to undertake ICZM in Cuba. In particular, the Working Group noted: well-qualified human resources; a planning system for science and technology; coherent institutional structure, based on popular participation, and the existence of a specific structure to address environmental problems; a well-developed system for land-use planning; basic legislation for environmental policy and strategy; and an acceptable level of understanding of the environmental needs from the perspectives of territory and communities.

For the purposes of facilitating integrated planning and management in Cuba, the following were identified as useful priorities: increase training and participation of social science and economics professionals in all ICZM activities; develop a capacity-building strategy for integrated management through agreements between the relevant levels and sectors of government; develop a national programme for environmental education for all ages, sectors and levels of society; and create institutions with real management capacity as necessary, empowered by corresponding legislation which should complement that which is already in existence.

The Working Group proposed the following recommendations to the plenary session:

* Encourage the initiative of Cuban universities to establish a masters programme in ICZM with the assistance of Canadian universities and broad participation of all Cuban institutions with activities or interests in the coastal zone.
* Strengthen regional cooperation in capacity-building for ICZM through the creation of a programme that promotes participation of experts from the same region. It is recommended that one or two regional centres should be established as part of this programme.
* Support the proposal by the National Oceanographic Committee of Cuba to convene a national workshop on ICZM in Cuba with the wide participation of institutions that have an impact on the coastal zone.
* With the Cuban experience as a premise, and where this is considered appropriate, it is recommended that every state in the region should consider the development and enactment of a coastal law.
* It is necessary to better publicize the ICZM initiatives of Cuba, some of which have been well received internationally.

4.3.2 Working Group 2: Community-based Resource Management and Co-management

This Working Group was chaired by Dr. Brian Davy, with Dr. Yvan Breton as rapporteur. The questions assigned were the following:

1. What kind of co-management and community-based resource management (CBRM) activities in the coastal zone are currently in place in the Wider Caribbean?
2. What lessons have been learned?
3. What is needed to facilitate co-management and community-based resource management in the coastal zone?
4. Is regional and inter-regional co-operation useful and what type of co-operation would you advocate?
5. Any recommendations, and for whom?

The Working Group considered it important to identify different kinds of CBRM and co-management. The number and content of experiences varied from country to country and according to sub-region. The issues forming the conceptual problem examined by the Working Group included: centralized and decentralized systems as context; historical background; informal and formal systems of management; what is a "community"; fishing and other activities; and the reduced usefulness of limited entry mechanisms.

Various lessons learned were identified: management action must involve communities; there is a continuum between individualism and collective action; time is important for education in general, community education, promotion of sustainable utilization, alternative economic activities and involvement of users; there is a need for research on constraints for collective action; there is a need for appropriate information support in terms of visual aids and maps; and there is a need for financial and micro-economic studies of new options. In order to facilitate co-management and CBRM in the coastal zone, it is important to pay attention to local initiatives; to improve stakeholder communication, including appropriate translation modelling and research paradigms; to promote a new "mentality" in research institutions, universities, government agencies and decision-makers; and to use and value different recent histories and experiences on how systems have evolved.

What is described in the previous paragraph is relevant from regional and inter-regional, as well as local, perspectives. All levels of experience are important, and regional sharing in the Caribbean is critical. However, this should not take place at the expense of local diversity. At present, it is difficult to specify the optimum type of co-operation. In the case of fishing, this is the main initial focus, but increasingly, the focus must shift to include other sectors, including agriculture, tourism, and mining.

The Working Group proposed the following recommendations to the plenary session:

* Improve understanding of and how to use legal instruments.
* Promote fishers' and other associations by sharing information, lessons learned, etc.
* Initiate pilot demonstration projects in critical areas of "competing use".
* Define, document and disseminate examples of "success" stories.
* Promote environmental education awareness-building among stakeholders, especially decision-makers.
* Promote a better balance among social and natural sciences in co-management and CBRM.
* Consider exchanges that also include fishers visiting other areas.

4.3.3 Working Group 3: Integrated Planning and Management Decision-making Systems for Coasts and Oceans

This Working Group was chaired by Dr. Rafael Steer Ruiz, Secretary of IOCARIBE with Dr. Franklin McDonald, Natural Resources Conservation Authority, Jamaica, serving as rapporteur. The questions assigned were the following:

1. What kind of integrated planning and management approaches and decision-making systems are in place for coasts and oceans in the Wider Caribbean?
2. What lessons have been learned?
3. What is needed to facilitate integrated planning and management?
4. Is regional and inter-regional co-operation useful and what type of co-operation would you advocate?
5. Any recommendations, and for whom?

The Working Group identified global legal and policy frameworks relevant for integrated planning and management, including: Chapter 17 of Agenda 21, the SIDS Programme of Action, the Convention on the Prevention of Pollution from Ships (MARPOL 73/78), the Framework Convention on Climate Change, as well as the work of the Commission for Sustainable Development. The regional counterparts include the Cartagena Convention and accompanying protocols on pollution from land-based activities, oil spill emergencies and specially protected areas.

The Working Group listed the various relevant global and regional organizations, as UNEP (including CEPNET, REMPEC, CEPPOL, IPID and the various RACs/RANs), UNESCO, FAO, IMO, WMO, IOC, CARICOM (in particular the Caribbean Sea Forum), ACS, OECS (especially NRMU). To these should be added sector-specific initiatives that are relevant, including CARICOMP, CFRAMP, CCA and the CMO. There are also many national agencies that should be considered as part of the existing institutional arrangements for integrated planning and management in the region.

As to lessons that can be learned, the Working Group identified several. It is important to evaluate previous programmes for coasts and oceans in the region. Human capacity issues keep on coming up. Integrated planning and management remains a difficult process due to competing and conflicting interests. The top-down approach in place in many parts of the region should be harmonized with bottom-up approaches. In this respect, participatory mechanisms are critical. Environmental assessment in decision making is needed to ensure that coastal and oceans issues are fully considered. It was noted that marine issues and ICZM tend to receive low priority in the region. There is a lack of an integrated vision, with sectoral planning remaining the dominant management approach. There is also a lack of appropriate policy, legal and institutional capacities.

To follow-up on lessons learned, the Working Group proposed six necessary steps:

* Establishment of integrated planning and management principles by appropriate agencies.
* Consultation with stakeholders to build a shared vision on the basis of consensus.
* Formulation of programmes for integrated management and strategic plans with key institutional priorities identified.
* Legal adoption of the integrated management programme.
* Diffusion of integrated management programmes at the local and regional levels, including local institutions, communities and the private sector.
* Establishment of a network of organizational structures for implementation and evaluation.

5. CONCLUSIONS AND RECOMMENDATIONS

In the final session, the Workshop rapporteur presented a concluding summary that synthesized the various needs for capacity-building for integrated coastal and ocean management identified during the Workshop. The Workshop participants addressed various ICZM themes from both macro and micro perspectives, recognizing the need to build capabilities to perform complex tasks to promote development, while maintaining the integrity of the coastal resource base. The discussion drew on experiences from the various Wider Caribbean countries represented, providing a healthy diversity of views. In the more intensive Working Group sessions, thematic needs emerged that suggested general directions for capacity-building in the region: knowledge-building, education and training, partnerships, co-management, and legal regime implementation. Although not all the concluding themes necessarily represent all participants' views, they suggest a range of concerns shared by various countries in the region.

(a) Knowledge-building needs:

* Integration in knowledge-building should be a priority. Participants agreed that multi- and interdisciplinary approaches to the building of knowledge bases for management purposes is indispensable. There is a need for a better balance between the natural and social sciences in knowledge-building.

* The need for better appreciation of both formal and informal sources of knowledge was also noted. Traditional knowledge continues to be underestimated. Its role and potential contribution to management in the region should be recognized.

* Wider Caribbean countries must strengthen basic understanding of ecological, economic and other processes in the management of their coastal zones. They also need to promote improved resource and ecosystem valuation.

* Participants acknowledged the unique problems of islands as environmental units and their human resource shortages resulting in the "many hats syndrome," thus reducing their ability to fulfil coastal management tasks effectively. In this respect, it is important for managers to be aware of these particular needs as distinct from the ICZM needs of larger continental areas.

* Marine scientific capabilities in support of ICZM in the Wider Caribbean are asymmetrically distributed. There is a need for intra-regional initiatives to facilitate marine science co-operation.

(b) Education and training needs:

* The Wider Caribbean requires a regional system for ICZM training. The institutions offering education and training are few and dispersed widely throughout the region. Both long-term education programmes at tertiary and other levels, as well as short-term training programmes to address immediate human resource requirements are priorities.

* There is a need for coastal management professionals with horizontal (multi/interdisciplinary) training in public administration. Managers in many government agencies continue to have disciplinary or sectoral bias. Such managers could benefit from short-term ICZM training.

* Participants acknowledged the generic character of ICZM as a multi- and interdisciplinary field, and that ICZM education tends to produce generalists. In this respect, they emphasized the importance of educating generalists to work more effectively with specialists in teams.
* Education and training programmes in the Wider Caribbean should be developed with an applied and problem-solving orientation to ensure relevance to managerial tasks. Trainees require instruction in the design and implementation of integrated plans.
* In addition to formal education and training courses, participants noted the importance of informal non-curricular training. Internships, in particular, were recognized as useful forms of apprenticeships. In addition to their obvious value for domestic recruitment of young professionals, internships could also be pursued on an exchange basis in the region.
* Capacity-building for ICZM should proceed on the basis of utilization of existing strengths, rather than starting from a clean slate.
* Participants encouraged universities in Cuba and throughout the region to consider establishing degree programmes in ICZM as a long-term education option for professionals in their countries.

(c) Partnership needs:

* At the domestic level, there is a need for more co-operation between government agencies and universities in human resources development. Government agencies will eventually recruit university graduates, and therefore there is an obvious contribution such agencies can make to university education efforts to ensure curricular relevance. Participants recommended greater co-ordination of efforts between educators and trainers on the one hand, and employers of coastal managers on the other.
* Also at the domestic level, the potential for public-private sector partnerships in integrated coastal management remains largely unexploited and should be considered as an opportunity.
* At the international level, there is a need for strengthened co-ordination of support for coastal management among donor and international organizations to maximize efficiency and reduce unnecessary duplication. Donor support should aim at building self-reliance in the region.
* Participants acknowledged the challenge for public administration reform to address ICZM tasks. It was suggested that a regional meeting on governance to address public administration reform for coastal management should be convened with donor support.

(d) Co-management needs:

* Participants emphasized the valuable and indispensable role of coastal communities in ICZM. There is already useful experience to draw on and consequently a regional meeting to share experiences on the role of communities in ICZM and co-management, as well as to consider the possible establishment of a regional network of co-management initiatives, was recommended.
* Coastal communities can assist the knowledge-building process with reference to their local areas. Accordingly, communities should be recruited and trained to participate in data collection to support marine scientific research.
* For co-management purposes, there is a need for more systematic bottom-up and participatory approaches. In this way communities can assume greater local responsibility for environmental stewardship and improve their living conditions. A useful approach to the promotion of co-management is the establishment of demonstration projects.

(e) Legal regime implementation needs for ICZM:

* Although most Wider Caribbean states are parties to many important instruments of international environmental law, the level of implementation of these instruments remains inadequate. In particular, there is a need for harmonization of domestic law with international environmental instruments. However, attention should be focused on capacity-building to facilitate effective domestic implementation of international environmental instruments.
* Despite the importance of ICZM, few countries in the region have a coastal law that adequately protects and manages coastal areas. Countries in the region should consider the adoption of a coastal law in support of integrated coastal management.
* Finally, participants promoted intensive public environmental education as a tool to prevent environmental degradation in the coastal zone. This education would go a long way in promoting compliance with legal and management measures and minimizing enforcement needs and costs.

In conclusion, the Workshop was a valuable and fruitful cross-basin exchange of views to focus regional and donor attention on capacity-building needs for ICZM. Mr. García Montero, Workshop Chairman, suggested at the concluding session that a similar workshop to assess the state of ICZM capacity-building efforts should be convened periodically in the region.

ANEXO I/ANNEX I

PROGRAMA DEL TALLER

MARTES, 7 de JULIO

19:00 **Ceremonia de Apertura en la Aula Magna de la Universidad de La Habana**

Discurso de Introducción:

Dra. María Elena Ibarra Martín
Directora
Centro de Investigaciones Marinas
Universidad de la Habana
Habana, Cuba

Bienvenida por:

Dr. Juan Vela Valdés
Rector
Universidad de la Habana
Habana, Cuba

Mr. Guillermo García Montero (Presidente del Taller)
Director, Comité Oceanográfico Nacional de Cuba y
Primer Vice-Presidente, Comisión Oceanográfica
Intergubernamental de la UNESCO
Paris, Francia

Sr. Peter Outhit
Presidente y Director Ejecutivo
Instituto de los Océanos de Canadá
Halifax, Canadá

Excelencia Sr. Keith Christie
Embajador de Canadá en Cuba
Habana, Cuba

Recital

Recepción Formal auspiciada por la Universidad de La Habana

MIERCOLES, 8 de JULIO

09:00 **Objetivos y Mecanismos del Taller**

Expositor: Dr. Aldo Chircop (Rapporteur del Taller)
Coordinador
Programa de Asuntos Marinos
Universidad Dalhousie
Instituto de los Océanos de Canadá
Halifax, Canadá

09:05 **SESION PLENARIA 1**: ***Gestión* de las Necesidades de Capacitación en las Agencias de Gobierno con Injerencia de Manejo/ Planificación**

Presidente de la Sesión: Prof. Francisco de Asís Silva Batiz
Director
Centro de Ecología Costera
Universidad de Guadalajara
Melaque, México

09:10 ***Documento Introductorio*: A Functional Approach to Integrated Coastal and Ocean Management: The Capacity-building Needs of National Government Agencies (Una perspectiva Funcional hacia las Necesidades de Capacitación en las Agencias con Injerencia en el Manejo Sostenible de las Costas y Océanos)**

Expositor: Sr. Leslie Burke
Director Regional
Sección de Economía y Políticas
Departamento de Pesca y Océanos
Halifax, Canadá

09:30 ***Informe 1*: Asamblea Provincial, Poder Popular, Ciudad Habana**

Expositor: Mr. Daniel Alvarez
Gobierno de la Capital
Habana, Cuba

09:50 ***Informe 2*: Manejo Integrado de la Bahía de Cienfuegos**

Expositor: Sr. Angel Raúl León Pérez
Centro de Investigaciones Costeras de Cienfuegos
Cienfuegos, Cuba

10:10 ***Informe 3*: El Proyecto del Ecosistema Sabana-Camagüey**

Expositor: Dr. Pedro Alcolado
Director
PNUD/FMAM Proyecto Ecosistema Archipiélago de Sabana-Camagüey
Habana, Cuba

10.30 Discusión

11.10 ***Informe 4*: Some Observations on Management Capacity-building for Sustainable Coastal Zone Management in Trinidad and Tobago (Algunas Observaciones en Gestión de Capacitación para Manejo de la Zona Costera en Trinidad y Tobago)**

Expositor: Dr. Arun Wagh
Director
Institute of Marine Affairs
Puerto España, Trinidad y Tobago

11.30 ***Informe 5*: Capacity Creation in Jamaica (Gestión de Capacitación en Jamaica)**

Expositor: Sr. Franklin McDonald
Director
Natural Resources Conservation Authority
Kingston, Jamaica

11.50 ***Informe 6*: La Autoridad Marítima de Panamá; Metas y Desafíos hacia el Desarrollo Sostenible de la Zona Costera**

Expositor: Srta. Alida Spadafora
Dirección General de Recursos Marinos y Costeros
Autoridad Marítima de Panamá
Puerto Vacamonte, República de Panamá

Ing. Javier Bru Roncallo
Transporte Marítimo
República de Panamá

12.10 Discusión

13.25 **SESION PLENARIA 2: Gestión de Necesidades de Capacitación en Instituciones de Educación y *Entrenamiento* con propósitos del Desarrollo de Recursos Humanos**

Presidente de la Sesión: Dr. Mario Oliva
Vice-Rector de Investigación
Universidad de La Habana
Habana, Cuba

13.30 ***Documento Introductorio*: Capacity-building Needs of Education and Training Institutions for Human Resources Development Purposes (Necesidades de Capacidades en Instituciones de Educación y Entrenamiento con Propósitos del Desarrollo de Recursos Humanos)**

Expositor: Sr. Hugh Williamson
Profesor Adjunto, Programa de Asuntos Marinos
Universidad Dalhousie
Instituto de los Océanos de Canadá
Halifax, Canadá

13.50 ***Informe 1*: Las Iniciativas para un Grado de Maestría en Manejo Integral de la Zona Costera en Cuba**

Expositores: Dra. María Elena Ibarra Martín
Centro de Investigaciones Marinas
Universidad de la Habana,
Habana, Cuba

Dr. Pedro Beatón Soler
Vice-Rector, Universidad de Oriente
Santiago de Cuba, Cuba

Dr. Maximino Pena Matos
Vice-Rector, Universidad de Cienfuegos
Cienfuegos, Cuba

14.10 ***Informe 2*: La Experiencia del Centro Operativo Regional para América Latina y el Caribe del Instituto Internacional del Océano (IOI-Costa Rica), 1995-97**

Expositor: Dr. Alejandro Gutiérrez
Universidad Nacional
Heredia, Costa Rica

14.30 ***Informe 3*: UWI Training Programmes in Coastal Resource Management (Programas de Entrenamiento en el Manejo de los Recursos Costeros en la Universidad de las Indias Occidentales)**

Expositor: Dr. Jeremy Woodley
Centro de Ciencias Marinas
University of West Indies
Kingston, Jamaica

14:50 Discusión

15.35 **SESION PLENARIA 3: Gestión de las Necesidades de Capacitación de Comunidades para un Manejo de los Recursos Basado en la Comunidad/Manejo Participativo**

Presidente de la Sesión: Sr. Keith Nichols
OECE-NRMU
Castries, St. Lucia

15:40 ***Documento Introductorio*: Planeación y Ordenamiento en Comunidades Costeras: Un Enfoque Analítico y Metodológico**

Expositor: Dr.Yvan Breton
Université Laval
Quebec City, Canadá

16:00 ***Informe 1*: Coastal Area Monitoring Project (CAMP-LAB): Assistance to Self-sustainable Human Development in Pearl Lagoon Basin, Southern Autonomous Atlantic Region, Nicaragua (Equilibrio entre el Desarrollo y Sustentabilidad Ambiental: Experiencia en Comunidades Indígemas de Laguna Perla, RAAS, Nicaragua)**

Expositor: Sr. Roberto Rigby
CIDCA
Blue Fields, Nicaragua

16:20 ***Informe 2*: Conflict Resolution and Participatory Planning: The Case of the Soufriere Marine Management Area, St. Lucia (Resolución de Conflictos y Planificación participatoria: el Caso del Area de Manejo Marino de Sufriere, St. Lucía).**

Expositor: Sr. Keith Nichols, por Sr. Kai Wulf
Soufriere Marine Management Area
Soufriere, St. Lucia

16:40 ***Informe 3*: Manejo de los Recursos Costeros por las Comunidades: Perspectivas para su uso en Cuba**

Expositor: Dra. Beatriz Díaz
Universidad de la Habana y FLACSO
Habana, Cuba

17:00 ***Informe 4*: Integrating Fisheries into Coastal Management in Barbados (Integrando la Pesca en el Manejo Costero en Barbados)**

Expositor: Dr. Patrick McConney
Ministro de Agricultura y Desarrollo Rural
Bridgetown, Barbados

17:20 Discusión

JUEVES, 9 de JULIO

08:55 **SESION PLENARIA 4: Prácticas y Experiencias de Agencias Donantes y Organizaciones Regionales en el Apoyo a la Gestión de la Capacitación**

Presidente de la Sesión: Sr. Mike Butler
Vice-Presidente
Instituto de los Océanos de Canadá
Halifax, Canadá

09:00 ***Documento Introductorio*: Practices and Experiences of International Development Agencies in Supporting Capacity-building (Prácticas y Experiencias de Agencias de Desarrollo Internacional en el Apoyo a la Capacitación)**

Expositor: Sr. Lennox O'Riley Hinds
Asesor Principal en Políticas
La Rama sobre Políticas, ACDI
Ottawa/Hull, Canadá

09:20 ***Informe 1*: CIDA's Caribbean Programmes for Coasts, Oceans and the Environment (ACDI Programas para las Costas, Océanos y Ambiente)**

Expositor: Sr. Stephen Free
Director Regional
Programa Caribeño, ACDI
Ottawa/Hull, Canadá

09:40 ***Informe 2*: IDRC Programmes in Latin America and the Caribbean on Coastal Ecosystems (Programas del CIDI en Latino América y el Caribe en Ecosistemas Costeros)**

Expositor: Dr. Brian Davy
Secretario Ejecutivo
Estrategia para la Investigación de Pesca Internacional
CIDI
Ottawa/Hull, Canadá

10:00 ***Informe 3*: Capacity-building and Human Resources for Coasts and Oceans Management in CARICOM Countries: UNDP Perspectives (Capacitación y Recursos Humanos para Manejo de las Costas y Océanos en CARICOM: Perspectiva del PNUD)**

Expositor: Dra. Carol James
Asesora Decana en Desarrollo Sostenible
PNUD
Port of Spain, Trinidad y Tobago

10:20 ***Informe 4*: Long-term Capacity-building Strategy through Sub-regional Networking and Projects: The IOC(UNESCO)/FER(EU) Pilot Project for Latin America and the Caribbean (Estrategia de Largo Plazo para Capacitación a Través de Proyectos y Redes Sub-regionales: Proyecto Piloto COI (UNESCO) /FER (EU) para Latino-América y el Caribe)**

Expositor: Dr. Víctor Scarabino
COI/TEMA
Secretariado de la COI/UNESCO
Paris, Francia

11:00 ***Informe 5*: The 1998 Action Agenda for Integrated Coastal and Oceanic Management of the Caribbean Sea (La Agenda de Acción de 1998, para el Manejo Integral Costero y Oceánico del Mar Caribe)**

Expositor: Sr. K Mustafa Touré
Directorate of Regional Trade and Economic Integration
Comunidad del Caribe (CARICOM) Secretariat
Georgetown, Guyana

11:20 ***Informe 6*: The IOCARIBE Strategy for Marine Capacity-building in the Caribbean and Adjacent Regions (La Estrategia de IOCARIBE para Capacitación en el Caribe y Regiones Adyacentes)**

Expositor: Dr. Rafael Steer Ruiz
Secretario
IOCARIBE
Cartagena de Indias, Colombia

11:40 Discusión

13:00 Formación e Informe de los Grupos de Trabajo (GT)

13:30 Sesiones Paralelas de GT

GT1: **Manejo Integral Costero en Cuba** (Presidente: Dra. Ibarra Martín; Rapporteur: Dr. Gaspar Gonzáles)

GT2: **Comunidades y Manejo Participativo** (Presidente: Dr. Brian Davy, Rapporteur: Dr. Yvan Breton)

GT3 & GT4: **Sistemas de Toma de Decisión para Manejo Integral Costero** (Presidente: Dr. Rafael Steer Ruiz, Rapporteur: Sr. Franklin McDonald)

13:30 GT Paralelos (continuación)

VIERNES, 10 DE JULIO

09:00 GT (continuación y conclusión)

10:30 **SESION PLENARIA 5: Presentación de Informes de GTs**

Presidente de la Sesión: Mr. Guillermo García Montero
Presidente, Comité Oceanográfico Nacional de Cuba y Vice-Presidente,
Comisión Oceanográfica Intergubernamental de la UNESCO

GT1 Presentación y Discusión
GT 2 Presentación y Discusión

13.30 GT 3 &GT 4 Presentación y Discusión

15.30 **SESION PLENARIA 6: Direcciones para Redes de Trabajo y Formación de Alianzas en Manejo Integral Costero (MIC), Capacitación en el Gran Caribe; Conclusiones, Recomendaciones y Fase Consecutiva**

Presidente de la Sesión: Mr. Guillermo García Montero
Presidente, Comité Oceanográfico Nacional de Cuba y Vice-Presidente,
Comisión Oceanográfica Intergubernamental de la UNESCO

16.00 **Presentación de Resúmenes por los Rapporteurs de la Conferencia y otros, seguido por Discusión de Conclusiones**

17.00 **Clausura del Taller**:

Observaciones por:

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WORKSHOP PROGRAM

TUESDAY, JULY 7

18:30 Registration until 20.30

19:00 **Opening Ceremony at the Aula Magna University of Havana**

Introductory speech:

Dr. María Elena Ibarra Martín
Director
Center for Marine Research
University of Havana
Havana, Cuba

Welcome by:

Dr. Juan Vela Valdés
Rector
University of Havana
Havana, Cuba

Mr. Guillermo García Montero (Workshop Chair)
Chairman, National Oceanographic Committee of Cuba and
First Vice-Chairman, Intergovernmental Oceanographic Commission of UNESCO
Paris, France

Mr. Peter Outhit
President and Executive Director
Oceans Institute of Canada
Halifax, Canada

His Excellency Mr. Keith Christie
Ambassador of Canada to Cuba
Havana, Cuba

WEDNESDAY, JULY 8

09:00 **Objectives and Mechanics of the Workshop**

Speaker: Dr. Aldo Chircop (Workshop Rapporteur)
Marine Affairs Programme
Dalhousie University
Oceans Institute of Canada
Halifax, Canada

09:05 **PLENARY SESSION 1: Management Capacity-building Needs of Government Agencies with Planning/Management Mandates**

Session Chair: Prof. Francisco de Asís Silva Batiz
Director
Centre for Coastal Ecology
University of Guadalajara
Melaque, Mexico

09:10 **Background Paper: A Functional Approach to Integrated Coastal and Ocean Management: The Capacity-building Needs of National Government Agencies**

Speaker: Mr. Leslie Burke
Regional Director
Policy and Economics Branch
Department of Fisheries and Oceans
Halifax, Canada

09:30 ***Brief 1:*** **Asamblea Provincial, Poder Popular, Ciudad Habana (Provincial Assembly, Popular Government, City of Havana)**

Speaker: Mr. Daniel Alvarez
Government of the Capital
Havana, Cuba

09:50 ***Brief 2:*** **Manejo Integrado de la Bahía de Cienfuegos (Integrated Management of Cienfuegos Bay)**

Speaker: Mr. Angel Raúl León Pérez
Center for Algae Research of Cienfuegos
Cienfuegos, Cuba

10:10 ***Brief 3:*** **El Proyecto del Ecosistema Sabana-Camagüey (Protection of the Sabana-Camagüey Ecosystem)**

Speaker: Dr. Pedro Alcolado
Director
UNDP/GEF Archipelago of Sabana-Camagüey Ecosystem Project
Havana, Cuba

10:30 Discussion

11:10 ***Brief 4*****: Some Observations on Management Capacity-building for Sustainable Coastal Zone Management in Trinidad and Tobago**

Speaker: Dr. Arun Wagh
Director
Institute of Marine Affairs
Port of Spain, Trinidad and Tobago

11:30 ***Brief 5*****: Capacity Creation in Jamaica**

Speaker: Mr. Franklin McDonald
Director
Natural Resources Conservation Authority
Kingston, Jamaica

11:50 ***Co-authored Government Brief 6*****: La Autoridad Marítima de Panamá; Metas y Desafíos hacia el Desarrollo Sostenible de la Zona Costera (The Maritime Authority of Panama; Goals and Challenges of Sustainable Management of the Coastal Zone)**

Speaker: Ms. Alida Spadafora
Directorate for Marine and Coastal Resources
Maritime Authority of Panama
Puerto Vacamonte, Panama

Mr. Javier Bru Roncallo
Maritime Transportation Department
Panama

12:10 Discussion

13:25 **PLENARY SESSION 2: Management Capacity-building Needs of Education and Training Institutions for Human Resource Development Purposes**

Session Chair: Dr. Mario Oliva
Vice-Rector for Research
University of Havana
Havana, Cuba

13:30 **Background Paper: Capacity-building Needs of Education and Training Institutions for Human Resources Development Purposes**

Speaker: Mr. Hugh Williamson
Adjunct Professor, Marine Affairs Programme
Dalhousie University
Oceans Institute of Canada
Halifax, Canada

13:50 ***Co-authored Brief 1*: Las Iniciativas para un Grado de Maestría en Manejo Integral de la Zona Costera en Cuba (The Initiative for a Masters Degree in Integrated Coastal Zone Management in Cuba)**

Speakers: Dr. María Elena Ibarra Martín
Center for Marine Research
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Havana, Cuba

Dr. Pedro Beatón Soler
Vice-Rector
Oriente University
Santiago de Cuba, Cuba

Dr. Maximino Pena Matos
Vice-Rector
University of Cienfuegos
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14:10 ***Brief 2*: La Experiencia del Centro Operativo Regional para América Latina ye el Caribe del Instituto Internacional del Océano (IOI-Costa Rica), 1995-97 (The Experience of the Latin America Regional Office of the International Ocean Institute (IOI-Costa Rica)**

Speaker: Dr. Alejandro Gutiérrez
National University
Heredia, Costa Rica

14:30 ***Brief 3*: UWI Training Programmes in Coastal Resource Management**

Speaker: Dr. Jeremy Woodley
Centre for Marine Science
University of the West Indies
Kingston, Jamaica

14:50 Discussion

15.35 **PLENARY SESSION 3: Management Capacity-building Needs in Communities for Community-based Resource Management/Co-Management**

Session Chair: Mr. Keith Nichols
OECS-NRMU
Castries, St. Lucia

15:40 **Background Paper: Planeación y Ordenamiento en Comunidades Costeras: Un Enfoque Analítico y Metodológico (Planning and Regulation in Coastal Communities: An Analytical and Methodological Focus)**

Speaker: Dr.Yvan Breton
Université Laval
Quebec City, Canada

16:00 ***Brief 1*: Coastal Area Monitoring Project (CAMP-LAB): Assistance to Self-sustainable Human Development in Pearl Lagoon Basin, Southern Autonomous Atlantic Region, Nicaragua**

Speaker: Mr. Roberto Rigby
CIDCA
Blue Fields, Nicaragua

16:20 ***Brief 2*: Conflict Resolution and Participatory Planning: The Case of the Soufriere Marine Management Area, St. Lucia**

Speaker: Mr. Keith Nichols for Mr. Kai Wulf
Soufriere Marine Management Area
Soufriere, St. Lucia

16:40 ***Brief 3*: Manejo de los Recursos Costeros por las Comunidades: Perspectivas para su uso en Cuba (Community-based Coastal Resource Management: A Cuban Perspective)**

Speaker: Dr. Beatriz Díaz
University of Havana and FLACSO
Havana, Cuba

17:00 ***Brief 4*: Integrating Fisheries into Coastal Management in Barbados**

Speaker: Dr. Patrick McConney
Ministry of Agriculture and Rural Development
Bridgetown, Barbados

17:20 Discussion

THURSDAY, JULY 9

08:55 **PLENARY SESSION 4: Practices and Experiences of Donor Agencies and Regional Organizations in Supporting Management Capacity-building**

Session Chair: Mr. Mike Butler
Vice-President
Oceans Institute of Canada
Halifax, Canada

09:00 **Background Paper: Practices and Experiences of International Development Agencies in Supporting Capacity-building**

Speaker: Mr. Lennox O'Riley Hinds
Senior Policy Advisor, Oceans, Marine Affairs and Fisheries
Policy Branch, CIDA
Ottawa/Hull, Canada

09:20 ***Brief 1*: CIDA's Caribbean Programmes for Coasts, Oceans and the Environment**

Speaker: Mr. Stephen Free
Regional Director
Caribbean Programme, Americas Branch, CIDA
Ottawa/Hull, Canada

09:40 ***Brief 2*: IDRC Programmes in Latin America and the Caribbean on Coastal Ecosystems**

Speaker: Dr. Brian Davy
Executive Secretary
Strategy for International Fisheries Research, IDRC
Ottawa/Hull, Canada

10:00 ***Brief 3*: Capacity-building and Human Resources for Coasts and Oceans Management in CARICOM Countries: UNDP Perspectives**

Speaker: Dr. Carol James
Senior Sustainable Development Advisor
UNDP
Port of Spain, Trinidad and Tobago

10:20 ***Brief 4*: Long-term Capacity-building Strategy through Sub-regional Networking and Projects: The IOC(UNESCO)/FER(EU) Pilot Project for Latin America and the Caribbean**

Speaker: Dr. Victor Scarabino
IOC/TEMA Capacity-building Unit
IOC Secretariat
Paris, France

11:00 ***Brief 5*: The 1998 Action Agenda for Integrated Coastal and Oceanic Management of the Caribbean Sea**

Speaker: Mr. K Mustafa Touré
Directorate of Regional Trade and Economic Integration
Caribbean Community (CARICOM) Secretariat
Georgetown, Guyana

11:20 ***Brief 6*: The IOCARIBE Strategy for Marine Capacity-building in the Caribbean and Adjacent Regions**

Speaker: Dr. Rafael Steer Ruiz
Secretary, IOCARIBE
Cartagena de Indias, Colombia

11:40 Discussion

13:00 Formation and briefing of Working Groups (WGs)

13:30 Concurrent WG Sessions

WG1: **Integrated Coastal Management in Cuba** (Chair: Dra. Ibarra Martín; Rapporteur: Dr. Gaspar Gonzáles)
WG2: **Communities and Co-Management** (Chair: Dr. Brian Davy, Rapporteur: Dr. Yvan Breton)
WG3 &WG4: **Integrated Coastal Management Decision-Making Systems** (Chair: Dr. Rafael Steer Ruiz, Rapporteur: Mr. Franklin McDonald)

13:30 Concurrent WG sessions continued

FRIDAY, JULY 10

09:00 Concurrent WG sessions continued and concluded

10:30 **PLENARY SESSION 5: Presentation of WG Reports**

Session Chair: Mr. Guillermo García Montero
Chairman, National Oceanographic Committee of Cuba and
First Vice-Chairman, IOC of UNESCO

WG1 presentation and discussion

WG2 presentation and discussion

13:30 WG 3 &WG 4 presentations and discussion

15:30 **PLENARY SESSION 6: Directions for Networking and Partnership-building in Integrated Coastal Mangement (ICM) Capacity-building in the Wider Caribbean Region; Conclusions, Recommendations and Follow-up**

Session Chair: Mr. Guillermo García Montero
Chairman, National Oceanographic Committee of Cuba and
First Vice-Chairman, IOC of UNESCO

16:00 Summary Presentations by Conference Rapporteurs and others, followed by Concluding Discussion

17:00 Workshop Closing

Closing remarks by:

Dr. María Elena Ibarra Martín
Director, Center for Marine Research
University of Havana

Mr. Guillermo García Montero
Chairman, National Oceanographic Commission of Cuba and
First Vice-Chairman, IOC of UNESCO

Mr. Mike Butler
Vice-President
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Closing address by:

Dr. Daniel Codorníu Pujals
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ANEXO/ANNEX II

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ANEXO/ANNEX III

LISTA DE SIGLAS Y ABREVIATURAS/ LIST OF ACRONYMS AND ABBREVIATIONS

ACC	Asociación para la Conservación del Caribe
ACDI	Asociación Canadiense para el Desarrollo Internacional
ACS	Committee on Protection of the Caribbean Sea
AEC	Asociación de Estados Caribeños
AMP	Autoridad Marítima de Panamá
CAREC	Centro de Epidemiología del Caribe
CARICOM	Comunidad del Caribe
CARPAS	Comisión Asesora Regional de Pesca para el Atlántico Sudocidental
CITMA	Ministerio de Ciencia, Tecnología y Medio Ambiente (Cuba)
CCST	Consejo de Ciencia y Tecnología para el Caribe
CELAC	Comisión Económica para Latino América y el Caribe
CEP	El Programa Ambiental del Caribe
CEPNET	Programa par reforzar la capacidad de ordenación de los recursos ambientales marinos y costeros en la región del Gran Caribe
CIDI	Centro de Investigación para el Desarrollo Internacional
COI	Comisión Oceanográfica Intergubernamental (UNESCO)
IOCARIBE	Subcomisión de la COI para el Caribe y Regiones Adyacentes
CMO	Organización Meteorológica del Caribe
CONVEMAR	Convención de las Naciones Unidas sobre el Derecho del Mar
FAO	Organización de las Naciones Unidas para la Agricultura y la Alimentación
FMAM	Fondo para el Medio Ambiente Mundial
IOC	Instituto de los Océanos de Canadá
IOC	Intergovernmental Oceanographic Commission (UNESCO)
IOI	Instituto Internacional del Océano
IPID	Programa para la evaluación y el manejo de la contaminación ambiental (AMEP)
MIZC	Manejo Integral de la Zona Costera
MRBC	Manejo de Recursos Basado en la Comunidad
NRMU	Unidad de Manejo de Recursos Naturales (OECE)
OECE	Organización de Estados del Caribe del Este
OMI	Organización Marítima Internacional
OMM	Organización Meteorológica Mundial
ONG	Ogranizaciones no gubernamentales
PIPD	Pequeños Estados Insulares en Desarrollo
PNUD	Programa de las Naciones Unidas para el Desarrollo
PNUMA	Programa de las Naciones Unidas para el Medio Ambiente
POLMAR	Convención sobre la Prevención de la Polución del Mar a Partir de Buques 1973/78
REMPEC	Centro Regional de Emergencias Regionales en Contaminación Marina
UNESCO	Organización de las Naciones Unidas para la Educación, la Ciencia y la Cultura
UWI	Universidad de West Indies
WMO	World Meteorological Organization

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SESIÓN PLENARIA 1/PLENARY SESSION 1

A Functional Approach to Integrated Coastal and Ocean Management: The Capacity-building Needs of National Government Agencies

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INTRODUCTION AND BACKGROUND

Over the last century, as coastal populations increased, technologies became more sophisticated and efficient, and the industrial revolution opened new opportunities to exploit ocean space, the ability to manage individual resources and activities has become increasingly difficult. Typically, the stresses of human settlement and economic development have resulted in degraded habitats, depleted resources, lost opportunities and intense user conflicts. This development pattern has had a profound impact on the health of the coastal and marine resources and as a consequence, on the human communities that depend on them. Economic dislocation and hardship often followed in the wake of marine environmental deterioration.

With the misuse and overuse of coastal and marine areas, there was growing international recognition of the need to effectively and equitably integrate the interests of economic development and environmental protection into a rational management framework (IUCN 1991). The notion of development was re-examined. Development needed to meet the needs of the present without compromising the ability of future generations to meet their needs (WCED 1987). The principle of sustainable development entered the lexicon. Further, it was recognized that the traditional sectoral approach to planning and managing human use of the marine environment was ineffective. The single sector approach failed to recognize the interrelationships and interdependencies with other sectors, ecosystem processes and institutional capacity. While acknowledging the ongoing and necessary role of "enhanced" sectoral management, there is now a recognized need to shift from traditional sectoral management of coastal and marine areas to management that is integrated.

Since 1992, with United Nations Conference on Environment and Development (UNCED) and Agenda 21 marking the turning point, the world community has endeavoured to establish a framework to achieve this sustainable balance through the principles of integration, precaution and sustainable development. Sustainable development of the marine environment is now the prescribed goal of coastal states.

This distinct shift in approach to integrated coastal and ocean management (ICOM) is reflected in several international instruments and conferences including the United Nations Convention on the Law of the Sea, the Rio Declaration, Chapter 17 of Agenda 21, the Convention on Biodiversity, the Jakarta Mandate on Marine and Coastal Biodiversity, the Framework Convention on Climate Change, the Programme of Action for the Sustainable Development of Small Island Developing States, the International Coral Reef Initiative, and the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities. The international community negotiated these global conventions and soft laws in response to widespread depletion of littoral and marine resources, degradation of and destruction of critical habitats, loss of marine biodiversity, and the adverse impact on coastal and ocean space from atmospheric changes and depositions. There is global recognition that regional and international co-operation and co-ordination is necessary to protect, rehabilitate and sustain ocean resources, especially as these transboundary resources are part of an ecosystem that is not contained by political boundaries or national policies.

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The challenge confronting government agencies charged with ocean conservation and management is how to effectively implement the concepts of sustainable development and integrated ocean management. Moving from knowing to doing, or theory to practice, is a giant step and the way is uncharted and uncertain. This is as relevant in the developing as it is in the industrialized world. New disciplines, management capabilities and structures are required to cope with the pace of development, technological advancements, the range of user groups, and the diverse pressures and impacts on the natural environment. In an effort to meet the challenge of sustainable ocean development within the areas of national jurisdiction, coastal states are beginning to adopt and apply integrated coastal and ocean management principles and strategies to an expanding number of situations and areas.

In Canada, a new law to govern ocean use was recently enacted. The *Canada Oceans Act* was passed in December 1996. This is umbrella legislation that designates the Department of Fisheries and Oceans as the lead agency responsible for facilitating the development of a national oceans strategy and integrated management plans. The Act states that the development of the Oceans Management Strategy will be based on the precautionary approach, integrated ocean management and sustainable development. This new law signals a shift in the governance process. As the lead federal agency, we recognize that in order to effectively implement the new legislation, there is a need for capacity- building at the institutional level, at the individual level, and at the community level.

The Oceans Act operates within the context of the 1995 legislation amending the Auditor General Act, introducing measures to strengthen the federal government's ability to protect the environment and promote sustainable development. All ministers of government agencies are required to prepare and implement sustainable development strategies. These strategies are intended to help federal departments broaden their perspective on what they do and how they do it "to more systematically take into account environmental, economic and social considerations, in their policies, programs and operations.[1] "These strategies are meant to help turn sustainable development from words into action" (Commissioner of the Environment and Sustainable Development 1998). However, this has been a most difficult task. By 15 December 2000, all federal government departments are required to present their second sustainable development strategies.

In order to understand the government agency's capacity-building needs, it is essential to recognize the shifts in approach and operations required to implement integrated management strategies. Then we must identify the changes involved relative to existing policies and procedures to implement the proposed measures (Tobin 1992). Departmental consensus on the goals and strategies may not be readily achieved. Similarly, it may be difficult to reach a consensus with other federal and provincial government agencies and aboriginal groups. How to achieve multi-sectoral and inter-governmental co-ordination is not clear and requires institutional building and strengthening. Will the proposed policies and procedures require a new perspective toward working with other sectors, stakeholders, disciplines, and countries? Equally important is the determination of whether the department's personnel have the professional and technical capabilities required to perform the tasks under the new regime. Will job descriptions be changed? What are the training and education needs? Over what time frame will these changes be introduced?

This paper presents a functional approach to identifying capacity-building needs of a government department charged with integrated ocean management. Recognizing that integrated management is an evolving concept with little practical guidance or history, we will be proceeding from the premise that the policy formulation and decision-making process is a system and, like the ecosystem, there are many variables and many unknowns. As a government agency we will try to articulate clear objectives, carefully identify the problems, present policy options based on the best available scientific, economic, legal, social, and other required information, endeavour to anticipate and prevent adverse impacts and avoid conflicts, make decisions erring on the side of caution and conservation; implement measures in a fair, open, transparent manner in consultation with the stakeholders; and monitor activities according to stated objectives and adapt and adjust as necessary.

While Canada is a continental coastal state with three enormous coastlines along the Atlantic, Arctic and Pacific oceans, we recognize that regional and international co-operation and co-ordination are vital to protect and conserve the marine environment. Whether it is acid rain or other atmospheric deposition issues affecting the Arctic or temperate areas, transboundary or high seas fishing issues (particularly anadromous and straddling stocks) or marine environmental quality, endangered species and coastal zone management problems in the Gulf of Maine, there is a need for integrated strategies and regional co-operation. This adds yet another dimension to the demands of ocean

governance and capacity-building. At the same time, such mechanisms present opportunities for improving efficiencies and sharing of human, financial and capital resources, e.g., research programs, research vessels, monitoring, surveillance and control, and search and rescue.

WHAT IS INTEGRATED COASTAL AND OCEAN MANAGEMENT?

There are a number of definitions[2] of integrated coastal and ocean management (ICOM). Each of the definitions stress the dynamic nature of the management process and emphasize the need for integration.

Olsen and Hale (1998, 1-2) wrote that

> *as coastal lands and waters become more intensely utilized, the cumulative impacts of the many activities and compounding modifications to coastal ecosystems have ever greater "and often unforeseen" impacts on one another and the services that these ecosystems can provide. It becomes increasingly necessary to adopt an integrated view of the development process, and to achieve balance among environmental qualities, and a diversity of competing human needs and pressures. Coastal [and ocean] management is an attempt to define and implement such balances.*

The Jakarta Mandate defines integrated coastal and marine area management as

> *an integrated, cross-sectoral and co-ordinated approach to managing marine and coastal resources, involving a wide variety of stakeholders (e.g. local, provincial and federal government agencies, local and indigenous communities, NGOs, and the private sector), and addressing a wide range of activities and threats* (IUCN 1996, 2).

A recent GESAMP report (1996) defines integrated coastal management (ICM) as "a continuous and dynamic process that unites government and the community, science and management, sectoral and public interests in preparing and implementing an integrated plan for the protection and development of coastal ecosystems and resources". The report further defines the goal of ICM is "to improve the quality of life of human communities which depend on coastal resources while maintaining the biological diversity and the productivity of coastal ecosystems".

Cicin-Sain and Knecht (1998, 143) state that ICOM has an "overarching objective to ensure that coastal and ocean areas serve the users and the public in an equitable and sustainable fashion indefinitely, at the least possible cost and in a way that does not foreclose options for future generations."

What Does Integration Mean?

Integration is one of the most central ideas to this management concept. It is generally agreed by practitioners and academics that there are several forms of integration within the definition of ICOM. Integration means a comprehensive, multi-sectoral process that takes into account the economic, social and environmental concerns, recognizing the interconnections and interdependence of the air, land and marine systems and the impacts of human activities. An integrated management strategy should consider as many or all of the following components:

- geographical features (coral reefs, mangroves, salt marshes, continental shelf, banks, troughs, vents, plate tectonics, etc.)
- temporal scales [fishing seasons, short term (3-5 years), mid term (5-10 years), long term (25 years), inter- and intra-generational concerns]
- inter-sectoral concerns (fishing, transportation, navy, mariculture, oil and gas development, recreation, tourism, waste disposal, agriculture, etc.)
- spatial (air, land, sea, adjacent areas and those far away)
- inter-governmental and political levels horizontal and vertical integration[3] (>top down' and >bottom up') at the international, national, regional, provincial or state, district, municipal, local, community levels
- interdisciplinary issues (biology, oceanography, geology, sociology, law, anthropology, economics, political science, education, health, engineering, etc.)

- science and management (science informing policy and management and *vice versa*)
- multi-stakeholder interests (industry, research institutions, academia, non governmental organizations, public, etc.)

Integration has many different levels but generally functions to create a planning and management scheme that is holistic, insures harmony between uses, protects the environment, and enables coastal communities to be sustainable. Integration is the vehicle that will allow institutions, industry, organizations and individuals to act as a collective to effectively address the pressures of the contemporary world to meet present and future needs.

CHANGES IN PRACTICE: FROM SINGLE SECTOR TO INTEGRATED MANAGEMENT

The Shift from Development to Sustainable Development

The adverse impacts from and the environmental limitations of economic development are now well recognized. The pressures on the Earth's carrying capacity[4] present a spectre for all nations. The 1972 Stockholm Declaration[5] noted that humankind was exerting pressures on the natural environment beyond sustainable limits. Moreover, the Stockholm Declaration linked environmental protection to the development and welfare of humankind "recognizing that one of the first victims of poverty is often the environment. The notion of "sustainable development" was formally introduced into international law in 1987 through an UN resolution.[6] Cicin-Sain and Knecht note that sustainable development has become "a central guiding principle of the United Nations, governments and private institutions, organizations and enterprises" (1998, 81), and is fundamental to implementing ICOM.

We now recognize the need to rehabilitate and protect the environment. We need to generate wealth in our economy to meet the needs of society. We must do this without compromising the needs of future generations. It is important to note that wealth does not always emerge from growth. Like ICOM, sustainable development is an important concept and an imperative; but how to achieve it remains a challenge. From the Canadian experience we know that ecological and socio-economic benchmarks are necessary, as are clear and measurable targets. Monitoring must be ongoing and corrective action must be taken when necessary. However, government agencies are reluctant to change and need more guidance to get beyond the *status quo*.[7] A fundamental shift in the mode of thinking is required. Both individual and institutional capacity-building are required to develop the necessary awareness, knowledge and skills to develop these strategies and to implement the necessary changes.

The Shift to Holistic, Multi-sectoral Management

Integrated ocean management is based on the need to address issues concerning water quality, fisheries, energy extraction, shoreland use, navigation, etc., in a holistic manner in recognition of the interrelationships and interdependence of the Earth's geophysical, biological and social systems. Rather than controlling inter- and intra-sector use conflicts through traditional sectoral planning and sectoral management as shown in Figure 1, the on-going challenge is to reconcile multiple resource use conflicts and achieve sustainable development through inter-sectoral and multi-sectoral management.

This shift is often accompanied by the establishment of an institutional arrangement to facilitate integration, usually through creation of a new lead agency, expanding the duties of an existing agency, or creating an inter-ministerial or inter-agency co-ordinating committee (Meltzer 1998a). Regardless of the institutional arrangement adopted, expanded or new mandates and duties for the relevant agency or inter-agency committee generate significant capacity-building issues for the affected departments and agencies, as well as personnel.

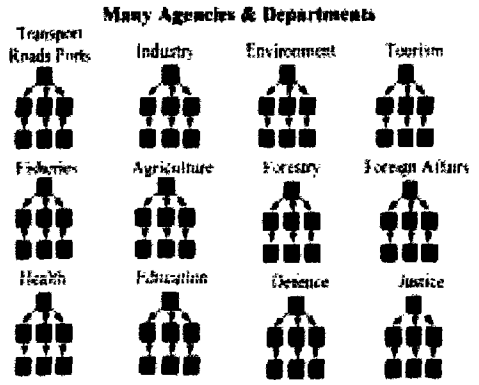

Figure 1: Traditional Sectoral Planning and Management Model

To effectively implement this multi-sectoral approach, governments must establish intra-governmental co-operation and co-ordination. "Where institutional capacity is lacking and inter-agency conflicts dominate, this is in itself a major undertaking" (Hale *et al.* 1998, 13). Achieving inter-agency co-operation often involves financial incentives (or sometimes lack of funds encourages co-operation as we have seen in Canada); strategic exercises whereby issues are framed as shared problems that can only be resolved through collaboration; visioning exercises identifying the shared goal that is complex and multi-faceted and can only be achieved through co-operation and collaboration; and, establishing a structure that institutionalizes opportunities for regular inter-agency discussion and co-ordinated action.

Integrated management does not generally replace sectoral management, but instead supplements it (Cicin-Sain 1993). While there may be one lead agency designated to oversee integrated ocean management, there will always be separate sectoral interests and agencies. "The complex overlay of issues and institutions along coastlines [and oceans] makes it impossible for a single agency to meet the challenges of management alone" (Hale *et al.* 1998, 18). No one government agency has the full jurisdictional responsibility or capability to address the complex issues affecting coastal and marine systems (Meltzer 1998a).

This means that government agencies must co-ordinate resource use management and policy reform across sectors as well as *within* individual sectors. This shift accordingly demands enhanced sectoral management. It is suggested that a parallel process is required whereby the lead agency needs building and strengthening in tandem with the individual sectoral departments as shown in Figure 2 to fulfil the national and departmental mandates and functions.

Shift to People-centered, Resource Use Approach

This integrated approach to planning and managing coastal and ocean resource use also necessitates a shift from a resource-centred approach to one that is people-centred. A people-centred approach recognizes that it is human activity that is being managed, not the resource. Increasingly, the principal focus of "resource managers" is to regulate and manage human use in an equitable and sustainable manner in both the short term and the long term, ensuring that opportunities are not foreclosed for future generations. When "managing " natural resources, coastal state governments now endeavour to rehabilitate and protect degraded and endangered marine environments.

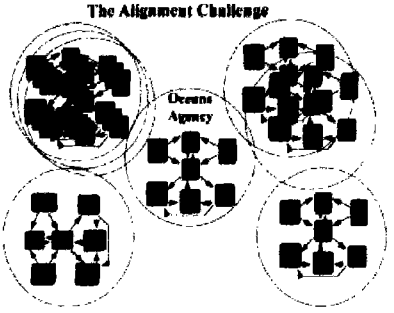

Figure 2: Enhanced Sectoral Management Model

This shift also signals a recognition of the complexity and ever-changing nature of the marine environment and the planetary ecosystem. There is a new appreciation for anthropogenic impacts and the finitude of renewable resources. As a result, the emphasis is now placed on managing people and protecting as well as conserving resources. This requires a whole new skill set as well as new management practices.[8]

Shift to an Anticipatory/Precautionary Approach

The degradation of the world's coastal and marine resources and the need to rehabilitate and conserve the biological diversity found in the oceans have highlighted the limitations of over reliance on the reactive, mitigative approach to management. The high cost of restoration, the high levels of uncertainty inherent in most, if not all, environmental decisions, and the limited success with restoration efforts, have convinced governments throughout the world of the need to anticipate and prevent serious or irreversible adverse impacts and exercise caution. For the ocean manager, sustainable development signals a proactive approach (incorporating a development planning element) rather than reactive (i.e., waiting for development proposals before taking action) (World Bank 1993, 7). Managers are mandated to take a "better safe than sorry" approach to resource use, rather than the classical "wait and see" approach, whereby resource use continued until the evidence was available to indicate that harm had occurred "often the evidence was the patent environmental damage.

This shift in perspective has legal and administrative implications as the burden of proof shifts and the evidentiary requirements change. Further, it has economic implications as environmental economics must now take into account human health and well-being issues, non-consumptive use values and resource valuation, qua the resource were it to become depleted, extirpated or endangered. As well, it has major scientific implications as scientists will be required to furnish models and data to establish, as much as possible, that the proposed activity is within a precautionary limit.

Shift in the Role of Science

With the evolution of ICOM, the role of science and scientists has also changed. Under the single sector approach, scientists were assigned the responsibility to provide decision makers with a "scientifically correct" policy or decision. Managers (and stakeholders) often did not appreciate the limitations of scientific models and the inherent large margins of error, nor the difficulty of predicting natural resource processes to resolve environmental problems. Under ICOM, the role of science is still integral to the policy- and decision-making process, however, science is now viewed as informing the policy debate, clarifying options and highlighting the implications of different policies. Further, there is a recognition of the need for scientists from different disciplines to work together to address coastal and ocean issues.

An interdisciplinary approach is fundamental to achieving the precepts of ICOM. Both the natural and social sciences are vital to understanding how ecosystems function, to clarify the origin of human-induced problems, and to finding solutions that can be effectively implemented. The NRC (1995) suggests three ways to improve science-policy interactions:

- improve mechanisms for interaction between scientists, coastal policy makers, resource users, and indigenous peoples;

- employ integrated and adaptive approaches in coastal policy making and implementation;
- deploy resources to support the foregoing objectives.

Need for Marine Affairs Professionals

Prior to the late 1970s, problems that today are recognized as lying within the broad domain of marine affairs, were addressed exclusively by natural and physical scientists and a few lawyers and economists (West 1985). To the extent that solutions were identified, West states "they were usually couched in the context of physical and natural science objectives with only minor considerations to societal needs" (West 1985, 11). Viable marine policies and management plans demanded persons with the capability of addressing interdisciplinary marine management problems. As a result, many interdisciplinary programmes have been created over the years to educate a cadre of marine affairs professionals. A component of marine affairs is integrated coastal zone management.[9] Similar programs have been established for integrated coastal management, concentrating on the narrower geographical area and fewer sectors, but similar principles, techniques and tools are used.

Importance of Articulating Specific Objectives

While the strategic focus of ICOM is to achieve sustainable and equitable utilization and development of coastal regions and marine resources, it is recognized that not all issues can be addressed in an integrated fashion simultaneously. Clear, specific objectives must be articulated with action plans that can be monitored, reviewed and amended/adapted as necessary. Issues need to be prioritized and addressed in a goal driven/action oriented manner. "Deciding which issues to address: and where and when to address them is among the most crucial decision that a program makes" (Hale *et al.* 1998 16). The importance of adopting and maintaining a strategic focus throughout the development and implementation process cannot be overstated.

This is often more difficult to achieve than it would seem. An agency may have conflicting objectives. This is not uncommon in fisheries, for example, where the resource has many stakeholders and historically has tried to satisfy competing interests and socio-economic objectives. The task is more difficult when a lead agency must set objectives that are shared by different departments and different sectors, each with their own distinct interests or mandates and each representing different user groups. Politics further complicates the process.

The Noordwjik Guidelines (World Bank 1993) stress that the policy and goal setting phases should be transparent, open and accessible to the general public and other stakeholders. It may be that through transparency, the process of goal-setting will be improved and will incorporate the necessary checks and balances.

The Shift From Command and Control to Consultation and Participation

The shift from a centralized command and control structure to one that recognizes the importance of involving local municipalities, coastal communities and other stakeholders in the formulation of policies and decision-making is reflected in numerous international instruments, including Principles 10[10] and 22[11] of the Rio Declaration, sections 17.5 and 17.6 of Agenda 21, Convention on Biological Diversity,[12] and the Jakarta Mandate. This shift to community participation[13] is based on the recognition that these individuals have a vested interest in the sustainability of the resource, that data and other information they provide will be important to informing the policy- and decision-making processes, that the alternatives they suggest will be more likely to be followed than those imposed, and traditional conflicts may be reduced.

Under ICOM, meaningful participation requires a shift from traditional informing or consultation roles. To achieve ICOM, we must integrate concerns of all relevant sectors of society and the economy (Clark 1995, 2). Numerous pilot projects have led to the fulfilment of integrated coastal zone management (ICZM) objectives through indigenous or local efforts. Attention to programmes that increase awareness and reinforce indigenous abilities enabling their participation in the process lead to successful long-term sustainable management . It should be noted that the effectiveness and success of such participatory mechanisms vary with no single strategy being applicable to all situations.

A corollary to this shift in programme ownership is that participatory mechanisms also assist government in the policy development, planning and management of coastal and ocean regions.[14] The complex nature of ICOM is beyond a single government entity: success lies in forging partnerships among institutions, user groups and those who provide technical assistance. Building such productive and sustainable partnerships is key to the success of ICOM. Such a shift not only requires skilful facilitation of multi-stakeholder organizations to achieve collaboration, it also requires a new perspective on the role of the government agency and the relevant players.

The Shift From Centralized Power to Co-management

Under ICOM, the locus of power for ocean management decisions is shifting from the national level to the sub-regional and community level.[15] This is in keeping with the fact that the issues are too complex for one agency or level of government to address and requires participation and shared responsibility[16] with communities and industry. As Hildebrand notes, "experience around the world is building on community-based coastal management, wherein the people who live and work in coastal areas and depend on these resources, are enabled to take an active and responsible role, and increasingly share planning and decision-making responsibilities" (1997, 1).

Accordingly, "capacity-building strategies will need to not only build a national core, but also take into account the probable need for rapid expansion of capacity at the sub-national level as a means of ensuring implementation effectiveness" (Crawford *et al.* 1993, 316). With decentralization or devolution of power, responsibilities are increasingly shared as co-management strategies are implemented. This is turn means an increase in capacity needs at the sub-regional and local levels. As Crawford *et al.* state, the "establishment of national programs requires the initial establishment of national capacity... it is often quickly followed by a need for local capacity-building, particularly in regard to implementation arrangements" (1993, 316).

As ICOM has evolved many coastal states have adopted a strategy of combining the 'top down' and the 'bottom up' approaches to integrating resource use management and policy reform.[17] This is the principle underlying the "two-track" approach deployed in the United States, Australia, the Philippines, New Zealand, Ecuador, and is currently evolving in Canada and Tanzania. This approach simultaneously and incrementally builds capacity both within central governments (both national and provincial) and at selected community sites. "National and local governments, in partnership with communities and resource users are involved in the analysis of development issues and in taking responsible action. The power of this approach lies in creating a dialogue that links the tracks and promotes a sense of shared purpose at all levels" (Hale *et al.* 1998, 17).

Introduction of New Tools to Achieve ICOM

A much broader set of regulatory and non-regulatory tools are now used in ICOM. In addition to the standard techniques such as risk assessment, economic valuation, vulnerability assessment, resource accounting, cost-benefit analysis, and outcome-based monitoring, there are new tools including geographic information systems (GIS), zoning, marine protected areas (MPAs), facilitated multi-stakeholder collaboration, conflict avoidance, and alternative dispute resolution.

Shift of Emphasis From Enforcement to Compliance

Under ICOM, the goal of government agencies is often to promote stewardship of coastal and marine resources and regions through sharing responsibility for environmental protection and resource use management with other stakeholders. These dual notions of stewardship and shared responsibility have led to a shift from the conventional enforcement paradigm to one of self restraint through codes of conduct or codes of practice, environmental management systems[18] (EMS), and other voluntary compliance mechanisms. While enforcement and appropriate penalties are still required to control and deter violations, the management objective of achieving sustainable coastal and oceans resource use can only be achieved with the co-operation and compliance of user groups. User groups need to understand that co-ordinated action for rational resource use is in their best interest, both in the short term and in the long term. Otherwise, the inevitable and inexorable process of environmental abuse and economic hardship will follow.

To achieve this attitudinal shift requires an understanding and appreciation of the concepts of sustainable development and ICOM. Public education and outreach programmes, curriculum development for school children, targeted training and education programmes for certain user groups, and support for research and higher education marine affairs programmes are components of the budget of federal agencies charged with ICOM. In addition, government needs to actively collaborate with stakeholders to develop the strategy and implement an action plan (sharing responsibility for programme delivery) to achieve common goals.

Shift From Nationalism to Regionalism

Another aspect of ICOM is integrating and co-ordinating national interests and concerns with those of neighbouring coastal states. National and regional systems of governance need to be compatible, given that the "problems of ocean space are closely interrelated and need to be considered as a whole" (Borgese 1995, 113). Through the United Nations Conference on the Law of the Sea and subsequent international conferences, coastal states repeatedly recognize that co-ordinated action at the regional, if not international level is of paramount importance to conserve and manage ocean resources. As Alastair Couper eloquently states, "unlike land use management, ocean management is complicated by the fluidity of the medium, its three dimensional parameters, mobility of many resources and activities, the complexity of interactive ecosystems, and the lack of relevance of administrative boundaries to the natural environment" (1992, 2).

New regional structures and mechanisms have been established to plan and regulate the expanded and intensified level of regional activities. In the Caribbean region, there are sub-regional and regional organizations including the Organisation of Eastern Caribbean States (OECS) and the Caribbean Community (CARICOM) that have established programmes to deal with transboundary marine issues which can be best understood on a bioregional scale. Regional co-operation of coastal communities and other stakeholders is well developed through the United States/Canada initiative, the Gulf of Maine Council, to govern the transboundary Gulf of Maine. The "Council differs significantly from the traditional state-centric ocean governance model. The Council is effective both through the work it achieves collectively, and through the work that the individual jurisdictions pursue *on the ground* in their home jurisdictions which is oftentimes initiated by the Council" (Brady and Snow-Cotter 1997, 890).

THE CHALLENGE OF ACHIEVING ICOM

ICOM has been interpreted and operationalized in discrete areas, often as pilot projects, throughout the world. The challenge remains to implement ICOM on a national and regional scale. The participatory and issue driven nature of ICOM and its emphasis on collaborative action between many levels of government and agencies with distinct missions is considerably different than the traditional approaches. ICOM requires the formation and professional development of multidisciplinary teams who think and act strategically, resolve conflicts, administer complicated projects, understand how coastal and marine ecosystems work, understand the various aspects of coastal and ocean uses, and work collaboratively with coastal communities and ocean stakeholders. ICOM is a task that will become increasingly complex as new uses and interests are identified, pressure to utilize undeveloped areas increases, more stakeholders become involved in the process, jurisdictional boundaries become increasingly less meaningful, and greater integration of coastal shoreland use and adjacent ocean management becomes necessary.

To date the major achievements in ICOM have been largely institutional "better governance has resulted in cost efficiencies, harmonized policy, conflict avoidance and a reduced number of conflicts. This is not to underscore their importance. As Borgese states, "If the system is to be an integrated one, then there have to be integrative mechanisms" (1995, 105). Nonetheless, tangible results from successful integrated coastal and ocean management are not easy to identify. Environmental and sustainable development outcomes are more difficult to track, for baselines or indicators are usually not benchmarked and it is difficult to identify an ICOM programme's contribution to a specific outcome.

CAPACITY-BUILDING

"Acknowledgement of the need to build in-country capacity for integrated management runs through all the decisions reached at the Earth Summit and is strongly emphasized in Chapter 17 of Agenda 21" (Cicin-Sain and Knecht 1998, 104). Cicin-Sain and Knecht believe there has been considerable progress since UNCED in the area of capacity-

building in ocean and coastal management. They cite as examples the UN-sponsored efforts to build capacity at national, regional and sub-national levels, as well as the various training[19] and education initiatives available at the international, regional and national levels (Cicin-Sain and Knecht 1998, 109-116). We must recognize there is a need for both individual and institutional capacity-building. Both are essential.

These numerous short-term training initiatives retool the skills and expertise of individuals responsible for resource and environmental management. Foreign funds have been made available for a "copious number of scholarships in many countries" (Linden and Lundin 1996) to pursue both short-term training as well as long-term higher education in integrated coastal zone management and marine affairs. As noted above, interdisciplinary programmes were established at the Masters level throughout the world to fill the demand for a cadre of marine affairs professionals capable of formulating viable marine policies and management plans. In addition, several long-term institutional strengthening programmes, often sponsored by the UN and donor agencies, have been introduced in an effort to build capacity and awareness.

Nevertheless the translation of improvements in technical know-how into more sustainable coastal management is often difficult to demonstrate. According to Hale *et al.* there is still "a paucity of professionals with the knowledge, skills and experience required to design and implement effective ICOM programs" (1998, 21). "Lack of skilled human resources remains a stumbling block ... and one of the most critical issues is the lack of well trained managers" (Linden and Lundin 1996, 23). Linden and Lundin conclude that "despite the obvious growth in preparedness and good intentions among managers, many of them still seem to be largely unaware of the issues, requirements and skills needed for ICZM" (or ICOM) (1996, 23). In their estimation "critical skills missing include techniques for problem solving, research planning, programme evaluation and analysis, and conflict resolution." Presupposing there is a recognition of the need and ability to accurately identify the problem and tasks, there is a subsequent heavy dependence on expatriates and consultants in many countries, and on non-technical administrative personnel.

Another major impediment to achieving ICOM is bridging the institutional gap from "knowing to doing". Lowry (1985) referred to this as the "implementation gap". Often the objectives and the workloads outlined in an implementation plan outstrip the capacity and financial resources. Furthermore, as Linden and Lundin observe, "good plans do not necessarily lead to good development. A rather unfortunate situation often seems to exist, where technical knowledge, advice and findings are often not supported or incorporated into decision-making" (1996, 23). It is here that the critical link between having the human resource management and technical capacity in house supplemented by external support (consultants, ex patriots, etc.) and the institutional system to operationalize policies and decisions effectively exists. It is therefore recommended that coastal states adopt a series of parallel capacity-building initiatives:

- individuals within government trained and educated in ICOM
- institutional strengthening and building to implement ICOM
- sub-national, local and community capacity and institutional building
- public awareness[20] to raise environmental consciousness, to expand the constituency for environmentally sustainable economic development, encourage participation,[21] and to promote compliance

CAPACITY-BUILDING (INSTITUTIONAL AND INDIVIDUAL) WITHIN GOVERNMENT

In order to implement ICOM all, elements of the system must be effective autonomous units that are interconnected and work co-operatively. This is applies within and between the departments or agencies which control activity in the coastal and ocean zones.

Key questions confronting marine affairs managers are

- How are objectives set?
- How are data requirements identified? How are data gathered, processed and disseminated?
- How are policy options and development alternatives identified? How are recommendations made?

- What provisions are made for stakeholder and public participation?
- How are decisions made?
- How are the proposed measures and programmes delivered and by whom?
- How is compliance achieved? How are programmes enforced?
- How are measures and programmes monitored? How are the operations appraised?
- How are policies and programmes adjusted in an effort to realize the stated objectives?

It is suggested that government agencies remember that ICOM is a complex, iterative process. All the inputs, outputs and processes relating to a particular operation or activity need to be considered: moving from problem identification, policy development, implementation, evaluation of effects, and objective and target setting though to management, operational control and audit before starting the cycle again.

CONCLUSION

ICOM and sustainable development are two fundamental concepts that government agencies are endeavouring to move from theory to practice. Principally these shifts include moving from conventional economic development to sustainable development; from traditional sectoral management to horizontal, multi-sectoral planning and management together with *enhanced* sectoral management; and, from command and control approaches to a more participatory process involving many stakeholders where planning and management of coastal and marine areas and resources are perceived as a common concern and a shared responsibility. While ICOM and sustainable development have become part of international and, in many cases, domestic law in the last few years, little guidance is provided to nations on how to govern coastal and ocean resources in a sustainable, integrated manner; how to address the cumulative and synergistic effects of human use; and how to integrate coastal and ocean use both within national boundaries as well as on a regional and international scale.

Understanding that ICOM is a comprehensive and dynamic process integrating environment and development concerns is an important first step. But how do we shift from the status quo? The process of moving from knowing to doing requires both institutional as well as individual capacity-building. This is a difficult task for all coastal states, both developing and industrialized.

Formal institutional mechanisms need to be established enabling integration of policy, planning and management decisions both within and across departments and with stakeholders. There is no template or cookie cutter. Each coastal state and each region is different and must tailor their own response to the needs and interests of their natural and social environments. In addition to institutional building and strengthening activities, training and education for individuals within government at different levels, as well as for other stakeholders and the public, is essential.

Government agencies must lead the way by continually raising awareness of the issues and evolving concepts, facilitating and forging new partnerships and networks, and expanding upon the systematic, functional activities traditionally involved in addressing the complex problems of coastal and ocean planning and management in an integrated manner.

NOTES

1. A Commissioner of the Environment and Sustainable Development was appointed to help parliamentarians monitor the strategies.
2. There is no common approach or definition for integrated coastal and/or ocean management. Various definitions have emerged from conferences and international agreements such as Agenda 21 (Chapter 17).
3. This shift in approach requires an integration of governance at all levels: between government departments, within government departments, with other levels of government, and with non-state actors. The inter-sectoral integration is referred to as horizontal (inter-departmental and multi-lateral) integration, and vertical integration (from central or national government departments down to the community) is known as 'top down' and/or 'bottom up' where the community is empowered to act and effect policy changes.

4. There are many definitions for carrying capacity. The Island Resources Foundation (IRF) refers to "limits on acceptable change" which " attempt to assess stress in both the natural and the social and economic environment [in order to] define the maximum degree of change which is tolerable" (IRF, 1996. *Guidance for Best Management Practices for Caribbean Coastal Tourism*. Internet site: www.irf.org/ir_bmp.html).

5. Declaration of the UN Conference on the Human Environment, Stockholm, June 5, 1972. See Section I, Proclamation 1,2,3, and Section II, Principle 2.

6. UN Resolution 42/187 (WCED 1987). See also discussion in Cicin-Sain and Knecht, 1998 at p. 81.

7. Commissioner of the Environment and Sustainable Development 1998, 1-8. Canada did prepare a *Guide to Green Government* but many departments found it difficult to change the way they do business.

8. Ed Miles in his seminal 1989 article "Concepts, approaches, and applications in sea use planning and management," refers to policy as a purposive course of action in response to a set of perceived problems. Implementation is the transforming of policy decisions into action. Management is the control exercised over people, programmes and resources. Integrated coastal and ocean management thus encompasses integrated policy, implementation and management.

9. There are many terms for ICZM, including integrated coastal area management, coastal resources management, and integrated coastal area planning. While ICZM is still widely used, the term gaining increasing acceptance in the literature is integrated coastal management (ICM).

10. Environmental issues are best handled with the participation of all concerned citizens at the relevant level. At the national level, each individual shall have appropriate access to information concerning the environment that is held by public authorities, ... and the opportunity to participate in decision-making processes.

11. Indigenous peoples and their communities, and other local communities have a vital role in environmental management and development because of their knowledge and traditional practices. States should recognize and support their identity, culture and interests and enable their effective participation in the achievement of sustainable development.

12. Articles 10 (d) and 13 (a) and (b) of the Convention on Biological Diversity stress public awareness and education, and community participation through remedial action.

13. In its broadest definition, public participation is "the means by which the views of all parties interested in a given issue are integrated into the decision-making process. Its ultimate objective is to make and implement better decisions than would result in its absence" (Becker 1993, 237).

14. Cicin-Sain and Knecht (1998, 143) propose that community involvement and participation must occur in the earliest stages for the following reasons:

    - *information provided by stakeholders who actually live within and use the resources of the coastal and ocean area represents an important understanding of the economic, social and environmental factors present and may provide useful insights into the "make-up" of an effective management strategy*
    - support for an ICOM process is more likely if the affected communities have been involved in the process
    - governments are recognizing the need to enter into partnerships with local community members or organizations in order to achieve the goals and objectives of the programme

15. Rodal and Mulder (1993) present an increasingly comprehensive approach to the participatory continuum ranging from little involvement to total involvement in which complete responsibility for a programme is devolved to the community. As power is devolved, governmental involvement decreases or changes.

16. The Stockholm Declaration called for citizens, communities and institutions to accept responsibility for environmental protection. See Section I, Proclamation 7 and Principles 4 and 5 of Section II.

17. A 'top down' approach focuses upon central government, its procedures and structures, and the need for national policy reform. A 'bottom up' approach works to enable change at the community and local level with the hope that success at the local level can be transferred and multiply across society.

18. Environmental management systems (EMS) are used by industry and other commercial interests to improve environmental performance. They are a formalized procedure for establishing an integrated framework for all the inputs, outputs and processes relating to a particular operation or activity. EMS is an iterative process, moving from review, policy development, implementation, evaluation of effects, and objective and target setting though to management, operational control and audit before starting the cycle again. See Meltzer, 1998b.

19. According to Neils West, the single most important distinction between training and education is that training is primarily concerned with the transfer of existing knowledge whereas the long-term goal of education is to prepare the students with new concepts, principles, methods and techniques within a given subject area (West 1987).

20. The *Noordwijk Guidelines for Integrated Coastal Zone Management* state that "ICZM seeks the input of all important stakeholders to establish policies for the equitable allocation of space and resources in the coastal zone" (World Bank 1993, 6). Another principle is that "ICZM promotes the awareness at all levels of government and community about the concepts of sustainable development and the significance of environmental protection" (World Bank 1993, 7).

21. The FAO recognizes and promotes the belief that public involvement should be included within any national coastal area management plan. The general public is regarded as one of the largest and most important user groups within the coastal zone, and this fact alone triggers the need for consultation and involvement in decision-making in order that an integrated management strategy be achieved. As well, such involvement also speaks to the possibility of offsetting or deterring resource use conflicts that are occurring or have the potential to occur in the coastal and marine area (Boelaert-Suominen *et al.* 1994).

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Asamblea Provincial, Poder Popular, Ciudad Habana

Daniel Alvarez
Gobierno de la Capital

Deseo en primer lugar expresarles nuestro agradecimiento a los organizadores de este taller por la invitación que nos cursaron y el honor que sentimos de tener la oportunidad de compartir con ustedes algunas reflexiones respecto a las responsabilidades que les corresponde asumir a las estructuras gubernamentales sobre el rescate y preservación del medio ambiente.

El Consejo de la Administración de la capital ha venido adoptando acciones encaminadas para restaurar el daño causado a la naturaleza por las generaciones pasadas y actuales. No se trata ahora juzgar a las anteriores y actuales generaciones respecto a qué hicieron mal, sino, qué nos corresponde hacer, con qué urgencia hacerlo, con qué prioridad, pues hemos adquirido la suficiente conciencia del desastre que presenta el medio ambiente. Las futuras generaciones de cubanos tendrán mayor conciencia, de ello, no albergamos ninguna duda. Para eso trabajamos.

Recientemente la Asamblea Provincial del Poder Popular, máximo organismo estatal de la capital, examinó la situación medioambiental en que viven sus ciudadanos. Aunque no afronta los graves problemas de contaminación ambiental de otras grandes ciudades en el mundo, sí se producen daños y alteraciones en la atmósfera, en sus cuencas hidrográficas, altos niveles de ruido en zonas urbanas, problemas con el manejo de los residuales sólidos y la necesidad de incrementar más la reforestación.

Cada uno de estos problemas se encuentran debidamente identificados y se trabaja en un programa integral de acciones ambientales a corto plazo para minimizarlos, y en algunos casos resolverlos definitivamente. Asimismo, la Asamblea Provincial del Poder Popular adoptó las seis líneas de Estrategia Ambiental para la ciudad, con mayor alcance y carácter más sistémico e integrador.

Los propósitos principales de la estrategia están encaminados a:

- Promover el desarrollo sostenible como vía para mejorar la calidad de vida humana, elevando la eficiencia en el proceso socioeconómico del territorio; y
- Garantizar la protección de la salud humana y la conservación de los recursos naturales que sustentan la vida: aire, agua, suelo, flora y fauna.
- Formación de capacidades para el manejo sostenible de ecosistemas.

Estimados amigos permítanme decirles que el gobierno de la capital, a partir de las legislaciones y regulaciones vigentes en el país, sobre la conservación del medio ambiente, constituyó el Consejo Provincial de Cuencas Hidrográficas así como los respectivos consejos de las cuatro cuencas que conforman el territorio: "Bahía de La Habana", "Almendares-Vento", "Este" y "Oeste" de la ciudad. Doce ríos forman parte de ellas y desembocan en el litoral habanero generando un impacto ambiental negativo.

ALGUNOS APUNTES SOBRE LA BAHIA DE LA HABANA

Tres períodos fundamentales distinguen el desarrollo del asentamiento poblacional circundante a la bahía: la etapa colonial (1519-1900), la etapa seudorepublicana (1900-1959) y la revolucionaria, 1959 hasta la actualidad.

Entre 1750 y 1830 se produce un rápido deterioro de su sistema ecológico. Con el libre comercio de España con Cuba; a partir de 1765, el puerto operó miles de toneladas de mercancías, calculándose un tráfico de 1,200 buques anuales como promedio; todo lo cual elevó considerablemente el volumen de residuos sólidos y líquidos que junto con la población vertían a la bahía.

Durante la etapa de la seudorepública, La Habana creció desmesuradamente, la ciudad se expandió hacia el sureste y se establecen los primeros asentamientos industriales en la margen sureste de la bahía.
El Puerto de La Habana se mantiene como el más importante del país, trasegando el 90 por ciento del total de las exportaciones. Alrededor de su recinto se conformó un cordón industrial y se incrementó la cantidad de almacenes.

A los usos comercial y portuario se sumó el industrial, por lo que sus aguas fueron utilizadas para enfriamiento de los procesos tecnológicos, por lo que a la contaminación orgánica y química se le sumó la térmica.

Se puede afirmar entonces que la Revolución en 1959 heredó una bahía contaminada producto del desarrollo espontáneo y el uso irracional del recurso durante varios siglos de explotación, de ahí que la primera estrategia del Gobierno Revolucionario se basó en la elaboración de planes de transformación. En un período relativamente corto se eliminaron los barrios de mayor insalubridad y se realizaron nuevas obras portuarias como la Terminal Marítima de La Habana, el Puerto Pesquero y la Terminal de Granos Turcios Lima.

En la década del 80 se inicia la elaboración del Plan Director de la Ciudad en el que la bahía ocupó un lugar importante en la composición urbanística de la ciudad, adicional importancia económica en su función de puerto.

SITUACION AMBIENTAL ACTUAL DE LA BAHIA

En las márgenes de la Bahía de La Habana se asientan 53 industrias e instalaciones que vierten directamente sus aguas residuales al cuerpo de agua. Entre las industrias litorales que más contribuyen a la contaminación de la bahía se encuentran la Refinería de Petróleo, Empresa Industrial Pesquera de Regla, Empresa Industrial Pesquera de Hacendado, Refinadora de Aceites Comestibles y el Puerto Pesquero de La Habana. La industria con mayor aporte de materia orgánica e hidrocarburos a la bahía es la Refinería de Petróleo Nico López con 22.5 t.día-1 de materia orgánica expresada como DBO5 y 14.3 t.día-1 de hidrocarburos.

Las industrias del litoral aportan un volumen estimado de agua dulce de 2,401 $m^3.día^{-1}$, una carga orgánica expresada como DBO5 de 26.8 $t.día^{-1}$, una carga en hidrocarburos de 14.5 $t.día^{-1}$, una carga en sólidos suspendidos de 1.5 $t.día^{-1}$ y una carga en nutrientes (NT) de 0.18 $t.día^{-1}$.

El 38 % de estas industrias poseen órganos de tratamiento pero con baja eficiencia, el 52 % carece de tratamiento para sus residuales y el 10 % trata sus residuales parcialmente.

Los ríos tributarios a la bahía constituyen colectores de residuos urbanos e industriales a lo largo de su recorrido. Al Río Luyanó vierten directamente sus aguas residuales alrededor de 37 industrias e instalaciones y 23 de ellas contribuyen significativamente en la contaminación de sus aguas. En particular, la Fábrica de Levadura Héroes de Bolivia, Fábrica de Ron Ronera Occidental, los Mataderos Antonio Maceo y Jesús Menéndez y la Licuadora Luís Pauté entre otros constituyen los de mayor impacto negativo.

También vierten sus aguas residuales al río más de 7 colectores de aguas servidas procedentes de los repartos periféricos de la Ciudad de La Habana y alrededor de 16 drenajes pluviales y ramales de alcantarillado.

El Río Luyanó aporta a la Bahía de La Habana 121,000 $m^3.día^{-1}$ de agua dulce, una carga orgánica expresada como DBO5 de 28.5 $t.día^{-1}$, una carga en hidrocarburos de 0.08 $t.día^{-1}$ una carga en sólidos suspendidos de 17.8 $t.día^{-1}$ y una carga en nutrientes de 4.8 $t.día^{-1}$.

El Río Martín Pérez recibe las aguas residuales de 20 industrias e instalaciones asentadas en su cuenca. Entre las que se destacan, la Tenería César Escalante, Empresa de fundición no ferrosa Sergio González, la industria Marmolera, Distribuidora de Combustibles Habana, Empresa semi-remolque Ramón Peña, Taller galvánico Emilio Pérez Olivera y Botellería Habana. Asimismo, vierten sus aguas alrededor de 10 drenajes pluviales y ramales de alcantarillado de los repartos asentados en su cuenca.

El Arroyo Tadeo recibe las aguas residuales de tintorerías, talleres automotores, 12 ramales de alcantarillado y gran parte del sector urbano de los municipios de Regla y Guanabacoa. La carga contaminante aportada por esta corriente fluvial a la bahía es menor que los ríos Luyanó y Martín Pérez.

Las corrientes fluviales aportan un volumen de aguas dulce a la bahía estimado en 161,804 $m^3.dia^{-1}$, con una carga en materia orgánica de 29 $t.día^{-1}$, una carga en hidrocarburos de 0.9 $t.día^{-1}$, una carga en sólidos suspendidos de 19.3 $t.día^{-1}$ y una carga en nutrientes (NT) de 5.12 $t.día^{-1}$.

A la bahía también tributan los drenajes pluviales, colectores de aguas residuales urbanas, Arroyo Matadero, Agua Dulce y San Nicolás, y más de 10 drenajes pluviales menores. El drenaje más importante que tributa a la bahía es

el Arroyo Matadero que aporta un volumen de 78,126 $m^3.día^{-1}$ de agua dulce, una carga en materia orgánica expresada como DBO5 de 20 $t.día^{-1}$, una carga en hidrocarburos de 2 $t.día^{-1}$, una carga en sólidos suspendidos de 22.7 $t.día^{-1}$ y una carga en nutrientes (NT) de 4 $t.día^{-1}$. En conjunto los drenajes pluviales aportan un volumen de agua dulce estimado en 168,034 $m^3.día^{-1}$, una carga en hidrocarburos de 4 $t.día^{-1}$, una carga en sólidos suspendidos de 38 $t.día^{-1}$ y una carga en nutrientes (NT) de 5.1 $t.dia^{-1}$ y una carga en materia orgánica expresada como DBO5 de 30 $t.día^{-1}$.

Los desechos procedentes de la actividad marítima-portuaria, principalmente las basuras y mezclas oleosas de buques y los residuos sólidos y petrolíferos flotantes producen también efectos perjudiciales sobre la bahía y en la degradación de su paisaje.

En el Puerto de La Habana se generan 758 $t.año^{-1}$ de basuras de buques con un índice de producción de 1.76 $kg.tripulante^{-1}.día^{-1}$. El índice de producción de las mezclas oleosas generadas en los buques corresponde a 5.7 $m^3.buque^{-1}$ con una producción de 6,919 $m^3.año^{-1}$.

El volumen de desechos flotantes "residuos sólidos y petrolíferos" presentes en las aguas y costas de la Bahía de La Habana se estima en 22,500 m^3 con un 60% de residuos petrolíferos y un 40% de residuos sólidos que ocupan un área de contaminación extrema de 1.3 km^2 que representa el 25% del área total de la bahía, localizada a todo lo largo del litoral Oeste y el litoral Sur (ensenadas de Atarés y Guasabacoa), así como al Noreste de la bahía en la Ensenada de Marimelena.

Las fuentes terrestres tributan a la bahía 30 $m^3.día^{-1}$ de desechos flotantes 18.5 $m^3.día^{-1}$ de residuos petrolíferos y 11.5 $m^3.día^{-1}$ de residuos sólidos. El Río Luyanó aporta 6 $m^3.día^{-1}$ de residuos sólidos que constituye el 52% del total, mientras que la refinería de petróleo Ñico López y los drenajes pluviales aportan en su conjunto 16.1 $m^3.día^{-1}$ de residuos petrolíferos que representa el 87%.

Tabla 1: Resumen de los aportes que ingresan diariamente a la bahía

Tipo de Fuentes	Volumen de agua dulce (m^3/d)	DBO (t/d)	H/C (t/d)	SST (t/d)	NT (t/d)
Directas	2,401	26.8	14.5	1.5	0.18
Fluviales	161,804	29.0	0.9	19.3	5.12
"Pluviales"	168,034	30.0	4.0	38.0	5.10
Totales	**332,239**	**85.8**	**19.4**	**58.8**	**10.40**

Leyenda: DBO- demanda bioquímica de oxígeno; HIC- hidrocarburos; SST- sólidos en suspensión totales; NT- nutrientes totales (nitrógeno y fósforo)

Queremos reconocer que gracias a la colaboración del Programa de Naciones Unidas para el desarrollo y las instituciones de investigación cubanas, y los calificados especialistas participantes, se han podido ejecutar los estudios imprescindibles del ecosistema de la Bahía de La Habana y disponer de todo este caudal de información tan necesaria para la toma de decisiones de los órganos gubernamentales competentes. En tal sentido identificamos seis tipos de acciones importantes a ejecutar:

1. Saneamiento de las cuencas de los ríos.
2. Medidas de mitigación en las industrias.
3. Desconexión de industrias y ramales de alcantarillado al sistema de drenaje pluvial.
4. Fortalecimiento de la actividad de saneamiento portuario.
5. Sistema de vigilancia ambiental.
6. Formación de recursos humanos.

Además tenemos listo un proyecto de ley que reglamenta los usos y protección de la bahía, que luego de su aprobación por el Consejo de Ministros favorecerá significativamente la disciplina en la preservación y desarrollo del ecosistema.

Otras acciones puntuales se han ejecutado. Cambios de tecnologías no contaminantes al medio en la refinería de alcohol, la industria de producción de gas doméstico, la eliminación del matadero vacuno, la barrera de contención de la refinería de petroleo, entre otros, cuyos desechos eran altamente contaminantes.

Recientemente el Comité Ejecutivo del Consejo de Ministros aprobó la creación del Grupo de Trabajo Estatal que atenderá el saneamiento, conservación y desarrollo de esta bahía. Tendrá todas las facultades para integrar a los organismos y entidades involucradas para detener la contaminación y recuperar este medio natural. Es uno de los ejemplos de la prioridad que nuestro Gobierno le presta al medio ambiente.

Los resultados de estas y otras acciones modestas ejecutadas nos permite asegurar que nuestra bahía es perfectamente recuperable. Especies de vidas marinas aparecen hoy en lugares de donde habían desaparecido. Este es un signo de esperanza para todos y estimula seguir trabajando.

Como se puede apreciar, existe una identificación de todos los problemas de contaminación que afectan al principal puerto del país. Disponemos del inventario de todos los que tributan materias indeseables a las aguas de ríos que desembocan en su recinto, como también directamente a ella. Conocemos puntualmente qué debemos hacer a corto, mediano y largo plazo para resolver definitivamente los problemas que afectan su ecosistema. La limitación principal que enfrentamos es de recursos financieros.

Para que se tenga una idea, hemos valorado la necesidad de disponer de unos 43,5 millones de pesos para cumplir con cinco objetivos puntuales de importancia, sin contar las cuantiosas inversiones necesarias que se deben ejecutar en las industrias.

RESUMEN DE ESTIMADOS DE COSTOS DE INVERSION PARA SOLUCIONES INGENIERAS

Proyectos de Inversion Propuestos	Costos Estimados (en miles de pesos cubanos)		
	Total	**MN**	**MLC**
Soluciones de alcantarillado, drenaje y disposición final de la cuenca tributaria	22,610.4	17,349.2	5,261.2
Fortalecimiento del saneamiento marítimo-portuario	4,800.0	1,800.0	3,000.0
Implantación del sistema de manejo de los residuos sólidos urbanos que afectan la Bahía de La Habana y el Río Luyanó	1,150.0	650.0	500.0
Implantación del sistema de vigilancia ambiental de la Bahía de La Habana	36.0	26.0	10.0
Rehabilitación de los fondos contaminados de la Bahía de La Habana	14,900.0	7,000.0	7,900.0
TOTALES	**43,496.4**	**26,852.2**	**16,671.2**

Finalmente deseamos concluir que estamos necesitados de trabajar con una mejor perspectiva en la estrategia de formación de capacidades de especialistas y dirigentes para el manejo sostenible de los ecosistemas de nuestra capital, y apoyarnos más en las instituciones de investigaciones comprometidas en tan humanos y nobles propósitos.

Viva el año internacional de los océanos!

Manejo Integral de la Bahía de Cienfuegos

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CARACTERISTICAS DE LA BAHIA DE CIENFUEGOS

La Bahía de Jagua o de Cienfuegos fué visitada por Cristobal Colón en 1494. En 1508, Sebastian de Ocampo fue designado para bojear Cuba y carenó sus naves en la bahía dentro de la región que sus primitivos habitantes nombraban Xagua, dándola a conocer como uno de los dos puertos que consideraba de sumo valor, junto a Puerto Carenas, o sea, el futuro puerto de La Habana (Le Riverend 1967). Esta es una bahía de bolsa bien abrigada y segura. Se extiende sobre un área de unos 88 km^2 en el centro y sur de Cuba y posee 100 km de costas (ACC 1990). Su canal de entrada, estrecho e irregular, es accesible a buques de gran porte (Distrito Marítimo del Centro 1991). En su costa existen 50 puntas y 20 ensenadas o caletas, tres de ellas usadas como resguardo para embarcaciones pequeñas y de mediano porte en caso de vientos fuertes. Las formaciones costeras más características de la Bahía son: playas rocosas, playas arenosas, manglares, margas y uverales. Formaciones boscosas como manigua costera y monte seco. También existen dentro de la Bahía 14 cayos, siendo los más importantes Cayo Carenas, Cayo Ocampo y Cayo Alcatraz.

Cuatro cuencas tributan a la Bahía: la del Damují con un área de 1,167.3 km^2, la del Salado con un área de 137 km^2, la del Caunao que ocupa un área de 590.6 km^2 y la del Arimao con un área de 978.5 km^2 (Dirección General de Suelos y Fertilizantes 1985).

Usos Sociales y Económicos Principales de la Bahía

- **Preservación de la naturaleza**. Utiliza unos 41 km de largo, es el mayor uso, poseyendo áreas de humedales con bosque de manglar en las desembocaduras de los ríos y corrientes, pero también formaciones vegetales como matorral xeromorfo costero y monte seco espinoso con vegetación endémica, así como uverales y vegetación típica de playas rocosas y arenosas.

- **Actividades marítimas y portuarias**. Estas utilizan unos 22 km de la zona costera de la bahía y son una de las más importantes desde el punto de vista económico. Hay unos 30 muelles, atracaderos y espigones usados por diferentes empresas, organizaciones y comunidades.

- **Uso turístico y recreativo**. Usan aproximadamente 16 km. Hay tres hoteles, uno de ellos dedicado a turismo internacional. Hay dos marinas, una para turismo internacional y otra para los botes de particulares usados en pesca deportiva o de alquiler; y, 19 playas de las cuales, debido a la contaminación y otras causas sólo se utilizan 8. El tramo costero entre Punta Revienta Cordeles y Ensenada de Marsillán ha sido usado tradicionalmente para la práctica y competencia de deportes náuticos efectuándose ahí desde 1997 las competencias internacionales de motonáutica "La Isla Grande".

- **Industria:** utiliza 8.2 km de la zona costera unida a las actividades portuarias para transportar la materia prima y la producción. El principal desarrollo ha sido desde Punta Caimanerita a Punta Caoba. Las principales industrias en la zona costera son: refinería de petróleo, planta de fertilizantes nitrogenados, industria pesquera (con planta de procesamiento de peces y crustáceos, frigorífico, astillero, etc.), fábrica de piensos, molinos de trigo, termoeléctrica, centro para empaquetamiento de cítricos y de embarque de azúcar a granel. Se prevé la construcción de una zona franca al sur de la bahía con industrias poco contaminantes y usando facilidades de atraque ya construidas.

- **Areas urbanas**. La ciudad comparte parte de su costa con las actividades ya mencionadas, el área principal comprende la porción de costa desde la Punta O'Bourke a Punta Yerba y hay urbanizaciones en el área de la Ensenada de Las Calabazas y canal de entrada donde se encuentra el poblado de pescadores del Castillo del Jagua que se está extendiendo hasta Perché, considerándose que la línea costera urbana crezca hasta 5.9 km en corto plazo.

- **Pesquerías**. Hay tradición pesquera desde fines del siglo IXX, muchas familias obtienen sus ingresos de la pesca, aunque en muchos casos de forma furtiva. En la bahía se pesca camarón con arrastreros, también se desarrolla la acuicultura del ostión y se realizan experimentos de cultivo de peces. Se valora la explotación de los bancos naturales de algas y su cultivo.

Contaminación e Interacción entre Usuarios

El uso de artes de pesca no idóneas y la pesca furtiva en zonas de cría afectan las capturas comerciales. Los vertimientos de residuales a la bahía han alterado zonas de cría comercial de peces y crustáceos, se consideran más nocivos los de los centrales que vierten a los ríos Damují y Caonao, la Papelera Damují, las industrias construidas en la zona de cría del lóbulo noroccidental y algunos centros de recreación y servicios con mal o ningún tratamiento de sus residuales, así como los desechos de la ciudad. La disminución del volumen de agua dulce vertida en las zonas de distribución del camarón afecta también, la más crítica es debido al represamiento del río Arimao afectando la Laguna Guanaroca como zona de cría. El dragado de la bahía para la actividad marítimo-portuaria en ocasiones ha producido la afectación directa a zonas de pesca y en la mayoría de los casos a las áreas de cría; el caso más reciente fue en 1986 al realizar el dragado para los muelles de la refinería de petróleo eliminando la zona de arrastre que existía en el lugar. También la pesquería es afectada por la contaminación que producen los barcos y los vertimientos accidentales de hidrocarburos, residuos oleosos y tóxicos; ésta, unida a los desechos sólidos, afecta la actividad turística y recreativa al ensuciar las playas y los botes de turismo y extranjeros en la marina y en las competencias deportivas, disminuye las áreas de baño y daña el paisaje. Los residuos orgánicos son también agresivos para las estructuras portuarias e industriales.

Actividades de Manejo

La política del Gobierno Provincial y Municipal y la de organismos nacionales, también ha estado dirigida a la protección del entorno en la bahía, presionando a los contaminadores para solucionar el problema. Varias investigaciones sobre el impacto antropogénico se han realizado; Milera y Arguelles en 1970 discutieron la afectación al ostión de mangle debido a las operaciones industriales de la papelera en el río Damují y de la planta de fertilizantes en el río Salado. Suarez (1973) estudió factores fisioecológicos limitantes de la distribución del camarón en la Bahía. El Ministerio de Salud Pública (MINSAP) estudió la contaminación con arsénico debido a un derrame accidental que detuvo las pesquerías durante tres meses (MINSAP 1974), Tomczak y García (1975) elaboraron un modelo de circulación para la bahía. En 1979 la COMARNA (Comisión Nacional de Protección del Medio Ambiente y los Recursos Naturales de la Academia de Ciencias de Cuba) unida a institutos de investigaciones nacionales, realizaron un estudio sobre la contaminación y las características de la bahía el cual sirvió para proponer una serie de medidas para su control .

En el acto central por el aniversario del 26 de julio de 1984 el Comandante en Jefe Fidel Castro planteó "... El desarrollo actual y perspectivo de esta provincia (Cienfuegos) sólo podrá medirse en la medida que seamos capaces de mantener limpias las aguas de la Bahía..." Esto estimuló a la dirección del Gobierno y el Partido en la provincia para chequear mejor la limpieza de la bahía y entre enero de 1988 y diciembre de 1989 fue ejecutado el Programa Nacional de Investigaciones en la bahía de Cienfuegos y la Costa Adyacente; seguidamente fué establecido el monitoreo ecológico permanente para estudiar los efectos antropogénicos sobre ella. En 1993 comenzó el Programa para el Rescate del Medio Ambiente de la Bahía de Cienfuegos como parte de la aplicación de los principios de la Agenda 21 en la Provincia. En 1994 el Gobierno Provincial aprobó las Regulaciones Técnico-Jurídicas para el Uso Sostenido de la Bahía de Cienfuegos delineando las tareas de cada organismo involucrado.

Consecuente con la política del Ministerio de Ciencia, Tecnología y Medio Ambiente (CITMA), creado en 1994, fué actualizado el Plan de Manejo de la Bahía en 1995 (Serra*et al.* 1995). En 1996 comienzan a aplicarse los Reglamentos Para la Inspección Ambiental Estatal y para Evaluación de Impacto Ambiental en las instituciones que afectaban con su contaminación. En 1998 se constituyó el Consejo Provincial de Cuencas Hidrográficas que también velará por la contaminación de los ríos que afectan a la bahía.

Los Gobiernos Provincial y Municipal y el Partido han realizado un chequeo continuo de la contaminación de la bahía desde finales de los 70 mediante reuniones periódicas llamadas "Reuniones de Bahía" con los dirigentes de las empresas contaminadores, los organismos reguladores, los usuarios de la bahía y los técnicos y especialistas en

control del medio ambiente para buscar soluciones conjuntas a los problemas existentes en los diversos centros contaminadores que inciden en la bahía y que han sido detectados en los estudios realizados.

Seguidos de cerca por estas reuniones las empresas han realizado acciones para reducir o eliminar la contaminación; entre estas podemos nombrar como ejemplos: Recoger los desechos sólidos y aguas de sentina en los buques fondeados en el puerto y sellado de las bodegas antes de entrar a puerto para evitar vertimientos. Disminución de los desechos en la fábrica de glucosa (una de las más contaminadoras en materia orgánica), reducción de las aguas negras y residuos de bagazo en la Papelera Damují, uso de un pequeño embalse como laguna de oxidación secundaria para evitar los residuales orgánicos del cebadero porcino reduciendo practicamente a cero la carga orgánica que aportaban a la bahía, mayor control en los vertimientos de las lagunas de oxidación de los centrales azucareros a la cuencas que tributan a la Bahía, recogida de estructuras hundidas en la bahía, actividades de limpieza en cayos y playas y de reforestación con mangle impulsada por la Unidad de Medio Ambiente de la Provincia y otros organismos y la formación de una comisión de control de las playas.

PROYECTO DE CONFECCIÓN DE UN PROGRAMA DE MANEJO INTEGRADO DE ZONAS COSTERAS

La aplicación de los conceptos de Manejo Integrado de la Zona Costera (MIZC), sugeridos en las Normativas de Noordwijk, podrían ser relativamente fáciles de implementar en la Bahía debido a que está muy cerca del programa ya implementado. El MIZC es un proceso gubernamental y consiste en el marco legal e institucional necesario para asegurar que el desarrollo y los planes de manejo para las zonas costeras sean integradas con los objetivos del medio ambiente (incluyendo la parte social) y sean hechos con la participación de aquellos que son afectados (World Bank 1993). El objeto de la aplicación de los conceptos de MIZC es armonizar actividades sectoriales que afectan la zona costera y sus recursos, considerando los aspectos económicos, sociales y del medio ambiente de modo que todos ellos puedan ser consistentes con un amplio paquete de objetivos nacionales ya planteados para la zona, en este caso la aplicación de la Ley de Medio Ambiente y la Estrategia Nacional de Educación Ambiental.

Objetivos

1. Preparar un adecuado Plan de Manejo Integral de la Zona Costera en la Bahía.
2. Mejorar métodos de monitoreo y control del ecosistema y sus fuentes contaminantes.
3. Establecimiento de medidas y técnicas adecuadas para el uso sostenible de los recursos, el mejoramiento de la calidad del agua y la diversidad biológica. Recuperar los valores paisajísticos de la Bahía en función del uso turístico, recreativo y beneficio de la población.
4. Desarrollar la educación ambiental dirigida a la conservación del medio ambiente y el manejo sostenible de los recursos en la Bahía de Cienfuegos.

Resultados a alcanzar

- Preparación de un Plan de Manejo Integral de la Bahía de Cienfuegos que proponga los métodos más adecuados para recuperar y mejorar de la calidad del agua y la biodiversidad.
- Aplicar los conceptos de uso sostenible y conservación de los recursos marinos vivientes.
- Prevención, reducción y control de la degradación del medio ambiente marino debido a las actividades basadas en tierra y marítimas mediante soluciones tecnológicas apropiadas.
- Prevención y disminución del impacto entre los usuarios de la bahía.
- Sensibilización de la población, fundamentalmente niños y jovenes en el cuidado del medio ambiente y en particular el de la bahía.
- Capacitación de los funcionarios del gobierno y los usuarios, en cuanto al impacto ambiental que recibe la bahía y en general las zonas costeras, así como su protección.

Entidades que integran el proyecto

El Laboratorio Costero, Grupo Provincial de Gestión Ambiental, Centro de Investigaciones Pedagógicas, Laboratorio de Análisis Microbiológicos del Centro Provincial de Higiene y Epidemiología, Laboratorio de Análisis de Hidrocarburos de la Refinería de Petróleo, Museo Naval.

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El Proyecto del Ecosistema Sabana-Camagüey

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El proyecto (CUB/92/G31) "Protección de la biodiversidad y establecimiento de un desarrollo sostenible en el Ecosistema Sabana-Camagüey" de tres años de duración y formalmente recién concluido a fines de 1996 se ejecutó en una vasta región al norte de Cuba que incluye al Archipiélago Sabana-Camagüey (ASC) las cuencas hidrográficas aledañas a la Isla Principal, y la zona económica exclusiva del océano adyacente. Aparte del financiamiento del Gobierno Cubano, recibió fondos del FMAM (US$ 2 millones) que fueron administrados por el PNUD. Dicho Proyecto estuvo dirigido a establecer las bases científicas preliminares para la protección de la biodiversidad y el establecimiento de un desarrollo sostenible; conocer el estado biológico y socioeconómico actual (línea base) de la zona para la futura implementación de un programa de monitoreo ambiental con el equipamiento adecuado; establecer vínculos más fuertes entre la ciencia, el manejo y el desarrollo; producir un plan estratégico de desarrollo sostenible y proponer otras actividades en el contexto de un manejo acertado de este importante territorio donde la biodiversidad puede verse amenazada.

Resumen del desempeño del Proyecto

Mediante un proceso de obtención, análisis y síntesis de información, se incrementó considerablemente el conocimiento de la biodiversidad de la región y se identificaron las áreas ecológicamente sensibles, las oportunidades y problemas, y sus causas e interacciones. Con métodos participativos interdisciplinarios, intersectoriales e interterritoriales, mediante un enfoque de solución de problemas, se elaboró un plan estratégico dirigido a la protección de la biodiversidad y el avance hacia el desarrollo sostenible. La estrategia se basa fundamentalmente en el establecimiento del manejo integrado costero, un sistema de áreas protegidas, y una red de laboratorios de monitoreo ambiental, así como en la aplicación de enfoques sostenibles en el planeamiento, diseño y desarrollo económico. Además, incluye una fuerte componente de capacitación pertinente al manejo integrado costero. También se efectuó, sobre bases ambientales, el planeamiento estratégico del desarrollo turístico y de protección de la biodiversidad de los cayos Santa María, Guillermo, Coco y Sabinal. Los resultados se encuentran en un Sistema de Información Geográfica que constituye una poderosa herramienta para la investigación y la toma de decisiones para el manejo y desarrollo económico. El proyecto cumpletó la etapa 1 (identificación y evaluación de problemas y oportunidades) y en gran medida la etapa 2 (preparación de programas) del ciclo de manejo integrado costero del GESAMP (1996).

El proyecto ha tenido una fuerte componente de capacitación. Esta ha estado dirigida principalmente a aspectos relacionados con la evaluación de los recursos de biodiversidad, manejo ambiental integrado, planeamiento ambiental, análisis de oportunidades y problemas, diseño sostenible del desarrollo turístico, empleo de Sistemas de Información Geográfica como instrumentos de análisis y síntesis para la investigación, el manejo y la toma de decisiones. La capacitación se ha llevado a cabo involucrando a los territorios, sectores y disciplinas que tienen que ver con la protección de la biodiversidad y el desarrollo del ESC. Esta se ejecutó mediante consultorías internacionales, cursos, entrenamientos, becas, talleres y eventos internacionales.

El pánel evaluador internacional del FMAM ha considerado a este proyecto muy exitoso y por lo tanto apto como estudio de caso para la capacitación profesional de pregrado y postgrado en el campo del medio ambiente por su valor metodológico y docente, su enfoque holístico, y su carácter abarcador y ampliamente participativo. Este puede servir como herramienta para el entrenamiento en la ejecución de las etapas 1 y 2 del ciclo de Manejo Integrado Costero de GESAMP (1996).

El área del Proyectos y su biodiversidad

El Archipiélago Cubano por su área y extensión de la zona costera, así como por su posición geográfica, juega un papel muy relevante en los procesos que afectan a la biodiversidad regional del norte del Gran Caribe. Al Norte se expande una rica plataforma marina con cayos de variados tamaños, el Archipiélago Sabana-Camagüey. No por gusto se le conoce como "Archipiélago Jardines del Rey" desde los tiempos en que Cuba era una colonia española.

El Archipiélago Sabana-Camagüey (ASC) se extiende como una franja a lo largo de aproximadamente 465 km en el norte central de Cuba. Está formado por alrededor de 2,517 cayos que representan en número nada menos que el 60%, y en área el 93.8% de todos los cayos de Cuba. Por ello no cabe duda que en el contexto conservacionista, esta zona es muy importante y altamente representativa del ambiente típico de cayos a nivel nacional y caribeño.

Los manglares están profusamente distribuidos en los cayos, y a lo largo de numerosos tramos la costa de la Isla Principal. Los cayos mayores están poblados de variada vegetación que incluye además de los manglares, bosques semideciduos, bosques siempreverdes micrófilos, matorrales xeromorfos costeros, complejos de vegetación de costa arenosa y de costa rocosa, comunidades halófitas, etc.

En el ASC existen especies de gran importancia conservacionista global o regional como el manatí (en peligro de extinción), el flamenco (menor riesgo dependiente de la conservación), concha reina, aves migratorias, tortugas marinas, iguanas, caracoles cerion y ligus, cocodrilo antillano y delfines que pueden verse seriamente amenazadas por algunas actividades económicas y la caza o pesca furtiva. Estas especies requieren especial atención.

Se destacan por su calidad y belleza más de 100 km de playas de arenas blancas y transparentes aguas, así como hermosos arrecifes coralinos a manera de crestas, cabezos y pendientes externas con bellos escarpes y taludes. Todo el borde externo de la plataforma se encuentra festoneado más de 500 km de arrecifes frontales y más de 100 km de crestas arrecifales. Grandes extensiones de pastos marinos tanto en las zonas prearrecifales como en las numerosas bahías interconectadas contribuyen a una gran productividad biológica y pesquera del ASC. Toda esta variedad de hábitats terrestres y marinos encierra una gran diversidad de flora y fauna, y el medio terrestre alberga un alto nivel de endemismo que ubica a la zona entre las más ricas en biodiversidad de Cuba y del Gran Caribe.

El ASC, por sus grandes valores naturales y vulnerabilidad a la contaminación marina, ha sido declarada en principio Zona Marítima Especialmente Sensible por la Organización Marítima Internacional (OMI) en septiembre de 1997. En el mundo sólo habia sido aprobada como tal la Gran Barrera Coralina Australiana.

En la Isla Principal sobresalen valiosos recursos socioculturales, históricos, arqueológicos y arquitectónicos, muchos de ellos concentrados en ciudades y poblados costeros o cercanos a la costa de gran atractivo como Remedios, Caibarién, Morón e Isabela de Sagua.

Lo que operativamente, a los efectos del Manejo Integrado costero, hemos denominado Ecosistema Sabana-Camagüey (ESC) comprende un área de 75,000 km^2. Este incluye a los cayos del Archipiélago Sabana-Camagüey con su plataforma marina poco profunda, la vertiente norte central de la Isla Principal, desde Punta de Hicacos hasta la Bahía de Nuevitas, y la Zona Económica Exclusiva del océano adyacente.

Merece especial consideración que el Ecosistema Sabana-Camagüey, por su ubicación geográfica, sirve de destino y de corredor migratorio a gran cantidad de aves. Cerca del 48% de las especies son migratorias por lo cual el territorio se destaca como un interesante corredor entre las grandes masas continentales adyacentes.

No menos relevante es que la plataforma marina del ASC, debido al patrón de corrientes oceánicas del norte del Gran Caribe, ha de tener una significativa influencia en los procesos biogeográficos relacionados con la diversidad biológica del norte de la región y por lo tanto en las acciones de conservación y uso sustentable de los recursos naturales regionales. Se comparten con Estados Unidos y las Bahamas (y quizás Bermudas) especies migratorias marinas (tortugas, tiburones, peces de pico, túnidos) y metapoblaciones de especies de arrecifes y pastos marinos, incluyendo importantes especies comerciales (muy probablemente concha reina, langosta, pargos, meros, entre otros). Como dato que merece atención, entre 1991 y 1997 se han efectuado lanzamientos de tarjetas de deriva desde el norte del ASC (Canal de las Bahamas).

De la flora terrestre ya se han reportado hasta el presente 708 especies de las cuales 126 son endémicas, 12 de ellas con distribución restringida y 41 de las endémicas tienen algún tipo de significación especial. La fauna terrestre presenta una gran diversidad de especies y subespecies, además de una enorme cantidad de especies endémicas y migratorias que le confieren un extraordinario valor nacional y regional. De la fauna terrestre se reportaron 958 especies, de las cuales 542 corresponden a insectos (a pesar de ser un grupo muy poco estudiado) y 209 a las aves. De estas aves 48% migran entre Cuba, Norte y Sudamérica. Se han registrado 11 géneros, 107 especies y 47 subespecies endémicos, y 33 subespecies son exclusivas del ASC. El mayor endemismo corresponde a los moluscos gasterópodos y a los reptiles.

En los fondos blandos de la plataforma marina se identificaron 88 especies de macroalgas y yerbas marinas. En los arrecifes se encontraron 155 especies de algas. Cinco especies de algas constituyen nuevos registros para Cuba. La fauna marina del ESC es un máximo exponente de la biodiversidad del Gran Caribe. Hasta el presente se inventariaron 447 especies de invertebrados del macrobentos en los fondos blandos de la plataforma marina y 374 en los fondos arrecifales (en los arrecifes sólo se incluye información sobre los grupos focales seleccionados: esponjas, gorgonáceos, escleractinios, milepóridos y moluscos). En total, con el material procesado hasta el presente, se han producido en este proyecto 33 nuevos registros para la fauna marina de Cuba (11esponjas, 1 gorgonáceo, 13 crustáceos, 3 moluscos y 5 ofiuroideos). Además se encontraron dos nuevas especies para la ciencia, una de molusco gasterópodo (*Prunum enriquevidali* Espinosa y Ortea, 1995) y una de gorgonáceo (*Eunicea pallida* García y Alcolado, 1996). El estudio más detenido de parte del material colectado puede aportar nuevos registros para Cuba y especies nuevas para la ciencia. La diversidad de especies de peces es también muy elevada. La gran mayoría de las más de 900 especies de peces presentes en Cuba se hallan en el ASC. Se obtuvo un nuevo registro para la ictiofauna de Cuba.

Los índices de diversidad de especies calculados para las comunidades de corales pétreos y esponjas en arrecifes coralinos aportan los valores más elevados hallados en Cuba y el Gran Caribe para profundidades de 1 a 20 m en los corales, y para 5 y 10 metros en las esponjas. Los valores de diversidad de gorgonáceos y peces se equiparon con los más altos de Cuba y la región del Caribe. Tanto en los cayos como en la plataforma marina se observó en varios grupos taxonómicos una tendencia que aún persiste al incremento relativamente rápido del número de especies con el esfuerzo adicional de muestreo, lo que revela el alto potencial de descubrimiento de nuevos reportes y nuevas especies para el ESC. En los arrecifes esta tendencia es notoria, por ejemplo, en las algas, en las esponjas y los moluscos, además de que varios grupos taxonómicos aún no han sido inventariados (los que no fueron considerados como grupos focales en el Proyecto CUB/92/G31). En los cayos este incremento se percibe con mayor intensidad en los insectos. Hay que añadir que aún quedan cayos y fondos marinos importantes por su áreas y destino de desarrollo y conservación que no han sido estudiados.

Las interacciones dentre del ESC

El Ecosistema Sabana-Camagüey es un complejo con componentes bióticos y abióticos fuertemente interconectados. Las acciones en la Isla Principal han mostrado tener una fuerte influencia sobre el estado ecológico de los cuerpos de agua interiores (macrolagunas). Esta influencia se siente incluso a mucha mayor distancia causando afectaciones a algunos arrecifes coralinos al saturarse la capacidad amortiguadora de las bahías. Por otra parte, la alteración de las características del agua ha causado impacto al medio terrestre al provocar la mortalidad de manglares en algunos cayos y costas de la Isla Principal. Los cuerpos de agua interiores están formados a manera de bahías conectadas entre sí, de modo que los cambios en unas tienen influencia sobre las otras.

Muchas especies de aguas interiores migran a las zonas prearrecifales y arrecifales para desovar. Igualmente, numerosas especies de los arrecifes utilizan los hábitats de las macrolagonas como zonas de cría y de alimentación, de modo que se produce un constante intercambio de materia y energía entre esos sistemas.

Los manglares retienen los contaminantes y los sedimentos evitando que vayan a parar al mar afectando pastos marinos y arrecifes coralinos. Los pastos marinos, a su vez, retienen sedimentos que podrían afectar el desarrollo de esos arrecifes. Al mismo tiempo, estos últimos brindan protección a las costas (manglares y playas) y a los pastos marinos.

Entre la Isla Principal y los cayos se produce un constante pero limitado intercambio de algunas especies que pugnan por encontrar un espacio vital dentro de uno u otro lado donde la naturaleza decide el éxito de dichas especies. El hombre, con la construcción de carreteras, violenta ese proceso. Por otra parte, los fenómenos socioeconómicos que operan en la Isla Principal, de diversas formas, tienen su efecto en el destino ecológico de los cayos. En estos últimos se encuentra, a la vez, un potencial de desarrollo que influye notoriamente sobre la sociedad humana en la Isla Principal.

Estos breves ejemplos de vinculación muestran claramente que el manejo de este vasto territoro ha de ser obligatoriamente implementado de forma holística e integrada.

Política de desarrollo y conservación del ESC

Por sus valores naturales, arqueológicos, culturales y científicos, el ESC ha sido designado por el Ministerio de Ciencia, Tecnología y Medio Ambiente (entonces Academia de Ciencias de Cuba), desde mediados de los años ochenta, como área de gran prioridad nacional para la conservación de la biodiversidad. Una gran parte del centro de esta región ha sido propuesta por el Gobierno como Reserva de la Biosfera.

El ASC es objeto de un vasto programa de desarrollo turístico en los cayos, estimado en decenas de miles de habitaciones A la vez, es la segunda zona en importancia pesquera de Cuba (20% de la pesca nacional) después del Golfo de Batabanó, y hacia el extremo oeste del archipiélago se explora y extrae petróleo. En su vertiente se produce el 31 % del azúcar del país. Ante el desarrollo de estas actividades económicas urge tomar todas las medidas necesarias para evitar que estas deterioren significativamente la biodiversidad del ESC de ahí que en el Proyecto CUB/92/G31, que acaba de concluir exitosamente, se elaborara una estrategia dirigida a avanzar hacia el desarrollo sustentable de las actividades económicas del Ecosistema Sabana-Camagüey.

Impactos y amenazas

Un análisis de problemas (de forma interdisciplinaria, multisectorial y con participación de representantes de las provincia) realizado por el Proyecto CUB/92/G31 de los diferentes usos del territorio del ESC permitió obtener una primera valoración de los impactos ambientales más importantes de la actividad humana, lo que permite enfocar de forma más precisa la proyección-ejecución de un proyecto de manejo integrado costero para la protección de la biodiversidad.

La industria azucarera ha sido identificada como la amenaza más importante que causa degradación en la zona costera por contaminación orgánica. En la contaminación también están implicados otros tipos de industrias y contaminantes, y varios pueblos y ciudades costeros o cercanos a las costa y a ríos que drenan al mar. Entre estos asentamientos humanos están Santa Clara, capital de la provincia del mismo nombre, así como Cárdenas, La Isabela, Sagua la Grande, Remedios, Yaguajay, Caibarién, Morón y Nuevitas, entre otros. Otra fuente de contaminación es la actividad agrícola basada fundamentalmente en el uso de la tierra para caña de azúcar y pastos. Por su importancia como fuentes contaminantes potenciales pueden incluirse también algunas plantaciones arroceras. No deben dejar de mencionarse los estanques de cultivo de tilapia como las de Morón y la cercana al Río Máximo que aportan cantidades al parecer excesivas de nutrientes al mar. La contaminación marina ha degradado el 51% de los pastos marinos, y está haciendo sentir su efecto a distancia sobre las partes bajas de varios arrecifes coralinos donde se ha observado una significativa proliferación de algas oportunistas. Algunos manglares han sido localmente afectados.

No menos importantes como fuente de impacto son los embalses de agua dulce, de los cuales los mayores se encuentran en las subcuencas de los ríos Sagua la Grande, Sagua la Chica, Chambas, Caonao, Máximo, Saramaguacán, y las lagunas de la Leche y La Redonda. También existe el dique Estero-Socorro (norte de Morón). Estos retienen agua dulce de modo que alteran el régimen normal de salinidad del mar y los aportes naturales de nutrientes a éste. Todo esto se agrava con la construcción de carreteras sobre el mar (pedraplenes) que aumentan el tiempo de residencia del agua en las macrolagunas (incrementando su vulnerabilidad a la contaminación) y contribuyen a la elevación excesiva de la salinidad. Las bahías de Los Perros y Jigüey han sido afectadas por una fuerte elevación de la salinidad con la consecuente pérdida de manglares y pastos marinos, así como su fauna acompañante incluyendo recursos pesqueros. La Bahía de Buenavista está sufriendo un gradual proceso de hipersalinización

después de la construcción de una carretera sobre el mar, cuyos puentes proyectados no han sido construidos en su totalidad, que agrava los daños ya producidos por la contaminación. Renglones pesqueros importantes como cangrejo moro, machuelo, patao, esponjas, entre otros han sido afectados en parte por deterioro del hábitat.

Aunque existe un plan de desarrollo turístico en la región, los usos en los cayos han sido limitados hasta el presente y se encuentran concentrados principalmente en los cayos Coco y Guillermo, con unos pocos hoteles (4 funcionando y cuatro en construcción) y facilidades temporales para la construcción (oficinas, almacenes, albergues, etc.); un aeropuerto en el primer cayo; varios faros habitados y puestos de guarda-fronteras en diferentes puntos; una serie de canteras dispersas; "ranchones" gastronómicos en cayo Coco y cayo Sabinal; y unas pocas cabañas rústicas en el último cayo. En los cayos no existen asentamientos humanos permanentes, lo que facilita el manejo ambiental desde el punto de vista sociológico.

El turismo, si no se desarrolla de forma ecológicamente responsible, constituye una seria amenaza para la flora, la fauna y los paisajes de los cayos. Por el contrario, si se desarrolla sobre bases sostenibles, puede ser una contribución a la conservación de la biodiversidad al impedir otros tipos de actividades de desarrollo de mayor impacto y al crear interés y fuentes de financiamiento para la protección de dicha diversidad biológica.

Los sectores económicos marinos fundamentales son la pesca, la actividad de prospección y explotación petrolera, y la actividad marítimo-portuaria. Ahora se desarrolla el sector náutico turístico. En la Bahía de Cárdenas y en el extremo oeste de la Bahía de Santa Clara, se solapan la actividad pesquera y petrolera, y además se utilizan como áreas de actividades náuticas recreativas de los turistas de Varadero. En el resto de la plataforma marina se desarrolla en casi todas partes la actividad pesquera, existiendo áreas donde se pescan varias especies a la vez. Cierto número de especies se encuentran sobreexplotadas, por ejemplo: el cobo o concha reina, la cherna criolla, el cangrejo moro, los pargos, el machuelo, tiburones, etc. Algunos fondos pesqueros han sido deteriorados por actividades de arrastre y eliminación ilegal de corales.

La actividad turística marina se concentra principalmente en las cercanías de Varadero (norte de la provincia de Matanzas), zona norte entre Cayo Fragoso y Santa Maria, norte de los cayos Guillermo, Coco, Paredón Grande, Romano, Sabinal y Guajaba, por mencionar algunos de los más frecuentados.

A pesar de la gran extensión que tiene la plataforma marina y el gran riesgo a que está sometida su biota, en Cuba no existen áreas protegidas marinas formalizadas como tales, y el Archipiélago Sabana-Camagüey, con parte de la costa de la Isla Principal (según las evaluaciones del Proyecto CUB/92/G31), ha mostrado reunir condiciones que lo hacen idóneo para establecer un vasto sistema de áreas protegidas, a manera de una Región Especial de Desarrollo Sostenible constituida como un mosaico con diferentes categorías restrictivas de áreas protegidas. Este sistema ya ha sido propuesto por el proyecto.

Siguiendo un enfoque de implementación incremental sugerido por GESAMP (1996) y por el Grupo Evaluador del FMAM en ocasión de la evaluación del Proyecto CUB/92/G31, una estrategia de implementación de áreas protegidas marino-costeras en Cuba ha de abordarse paso a paso y no de forma que abarque de una vez todas las áreas aptas de la nación. En ese sentido, el Ecosistema Sabana-Camagüey es un buen candidato para comenzar. Además, en esta región se impone la necesidad de fuertes acciones de rehabilitación ecológica.

La estrategia propuesta por el proyecto va dirigida en gran parte a la solución de estos problemas, a la protección de la biodiversidad y al desarrollo sostenible mediante el manejo integrado costero, el planeamiento ambiental, la capacitación del personal involucrado, la implementación de un vasto sistema de áreas protegidas y de una red de pequeños laboratorios de monitoreo, y el fortalecimiento de la educación y concientización pública.

Some Observations on Management Capacity-building for Sustainable Coastal and Ocean Management in Trinidad and Tobago

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In December 1982, the United Nations Convention on the Law of the Sea established the Exclusive Economic Zone (EEZ), including the Republic of Trinidad and Tobago. In November 1986, an act was passed by parliament declaring the Republic of Trinidad and Tobago an archipelagic state. Subsequently, the country along with all other Caribbean governments, has conveyed a keen appreciation of the inextricable nexus between environment and development through various pronouncements and actions. This appreciation was reflected in the Conference on the Environment and Development held in Brazil in 1992 and the follow-up Conference on the Sustainable Development of Small Island States held in May 1994 in Barbados. In December 1996, the government of Trinidad and Tobago, along with other Caribbean governments, supported the Hemispheric Summit on Sustainable Development held in Bolivia and the Plan of Action for Sustainable Development agreed at this summit meeting.

Established in 1978, the Institute of Marine Affairs (IMA) of Trinidad and Tobago has the mandate

> *"to conduct fundamental and applied research in marine affairs to ensure the sustainable use of the natural resources of Trinidad and Tobago; to make the results of such research available to the Government for the formulation of coherent and consistent polices in the conservation and management of the country's marine and related resources; and to respond to general needs for information and collaboration with all sectors of Trinidad and Tobago as well as the Wider Caribbean".*

In response to the regional and international initiatives outlined above, the Institute has undertaken various measures in management capacity-building for sustainable coastal and ocean management. This presentation submits a brief account of selected activities. For the sake of convenience they have been grouped as follows:

Resource Assessment or Exploration: CARICOM Fisheries Resource Assessment and Management Programme; Caribbean Coastal Marine Productivity Programme (CARICOMP); Gulf of Paria Project.

*Environmental Monitoring or Conservation:*Caribbean Planning for Adaptation to Global Climate Change Programme (CPACC); Coastal Conservation Project for Trinidad and Tobago; Satellite Remote Sensing Capabilities.

Educational or Information Sector: Ocean '98

*Network Building or Human Resource Building:*Caribbean Sea Forum; M.Sc. Degree Programme in Marine Sciences; Fellowship Programme.

A brief account of each of these activities is presented below.

Resource Assessment or Exploration

CARICOM Fisheries Resource Assessment And Management Programme (CFRAMP)

The CFRAMP is a sustainable development initiative of twelve member states of CARICOM. Funded jointly by the Canadian International Development Agency (CIDA) and the participating CARICOM countries, its purpose is to enhance the basic information and institutional capacity necessary to manage and develop the fisheries in the CARICOM region.

CFRAMP's goal is to promote the management and conservation of the fishery resources of CARICOM countries to permit the exploitation of these resources on the basis of sustainable yield. As part of its programme, CFRAMP has funded the establishment of an Age and Growth Laboratory at the IMA.

The Laboratory provides age estimates for twenty-three (23) commercially important species from thirteen (13) CARICOM countries. These include pelagic [*Thunnus atlanticus* (blackfin tuna), *Acanthocybium solandri* (Wahoo), *Scomberomorus cavalla* (Kingfish) and *Caranx hippos* (Jack); and, reef Species [*Balistes vetula*

(triggerfish), *Acanthurus chirurgus* (doctorfish), *Lutjanus* spp. (snappers), *Holocentrus* spp. (squirrelfishes), *Epinephelus guttatus* and *Cephalopholis fulva* (groupers).

Hard parts, mainly otoliths, are used by the laboratory for age determinations. CARICOM countries use age and growth estimates derived from these age determinations to assess the status of their fishery stocks. Assessments are in turn used to develop policies on fisheries management.

Caribbean Coastal Marine Productivity Programme (CARICOMP)

CARICOMP is a regional scientific programme and network of marine laboratories, parks and reserves studying land-sea interaction processes in the wider Caribbean region. The programme focuses on understanding and comparing the structure and function of mangroves, sea grasses and coral reefs, the three main coastal ecosystems in the Caribbean. The goals of the programme are to determine the dominant influences on coastal productivity, to monitor for ecosystem change and ultimately to discriminate human disturbance from long-term natural variation in coastal systems over the range of their distribution.

This programme was started at Institute of Marine Affairs in 1992, and data has been collected regularly for Buccoo Reef and the Bon Accord lagoon located on the leeward coast of southwestern Tobago. This is one of the locations in Trinidad and Tobago characterized by contiguous reef, sea grass and mangrove ecosystems.

Gulf of Paria Project

Although this is an environmental monitoring project of comparatively short duration (18 months), it is expected to yield significant scientific results. The main objectives of this project are:

1. to determine the status of the marine and coastal environment in the Gulf of Paria,
2. to determine the extent of pollution in the Gulf waters and to assess its effects on the Gulf of Paria as a viable source of seafood,
3. to provide recommendations for the management of the Gulf of Paria and its coastal areas.

Environmental Monitoring or Conservation

Caribbean Planning for Adaptation to Global Climate Change Programme (CPACC)

This project involving eleven Caribbean countries, including Trinidad and Tobago, envisages collection of data by using tide gauges at various locations throughout these countries. It also monitors certain meteorological parameters. The project is funded by the Organisation of American States (OAS). It is supervised by the director stationed at the University of the West Indies campus in Barbados who is responsible for the implementation, co-ordination, management and sustainability of the project field activities.

The Institute of Marine Affairs is responsible for the following activities:

1. To serve as one of the regional archiving centers for information generated by project activities and collected during project implementation and assure the maintenance of this information. This will involve close co-ordination with other international, regional and national institutions as identified during the project.
2. To actively participate in the analysis and dissemination of data generated by the project, specifically to disseminate regionally the oceanographic data generated from the tidal gauges installed as a part of the project.
3. To provide training on oceanographic and related science to national agencies of participating countries and other regional institutions.

Coastal Conservation Project For Trinidad And Tobago

Under this project, approximately 81 beach stations in Trinidad are being monitored on a quarterly basis for coastal erosion, beach profiling and littoral processes data. This comprehensive data set forms part of the geological

database of the physical characteristics and the hydrodynamics of the Trinidad coastline. This data is being constantly accessed to advise government and private agencies with respect to erosion and accretion rates and trends. An attempt has also been made to understand the coastal dynamics by collecting information on the distribution of wave energy along the coast. This information will be used in planning coastal developments.

Satellite Remote Sensing Capabilities

In 1989, the board of governors of the IMA took the decision to establish a satellite remote sensing facility in order that the traditional environmental monitoring methods in use at the IMA would be complemented with the synoptic views which satellites offer. In 1990, CARICOM ministers responsible S & T designated the IMA as a center for remote sensing. With the support of the OAS and the AMOCO Trinidad Oil Company, the facility became operational in July of 1992 when acquisition and configuration of the image processing equipment were completed.

This facility allows IMA's researchers access to satellite-derived synoptic information on the country's coastal resources and marine processes. The facility will facilitate the mapping and monitoring of marine as well as terrestrial resources. The IMA has also developed expertise in the fields of data integration and GIS. This has made it possible to integrate processed satellite imagery with different data types.

Educational or Information Sector

OCEAN '98

As is well-known, 1998 has been declared International Year of the Ocean by the United Nations in recognition of the importance of the sea, the marine environment and its resources for life on earth and for sustainable development.

The IMA, in conjunction with the Trinidad and Tobago Coast Guard and UNESCO, is planning a multi-disciplinary exhibition focusing on Trinidad and Tobago's marine resources and their conservation. The three main themes will be the living ocean, the bountiful ocean and the fragile ocean. A number of activities are planned for this event, including a logo competition, a school quiz, an essay writing competition, and a series of articles in local newspapers.

Network Building or Human Resource Building

Caribbean Sea Forum

In June 1997, the then Standing Committee of Ministers responsible for Foreign Affairs of the Commonwealth Caribbean countries agreed to establish a Working Group. This committee also considered the issue of "Co-operation in Sustainable Oceans (Seas) "Management and Development - Commonwealth Caribbean".

Eventually, with the collaboration of the OAS, CIDA, the Commonwealth Science Council (CSC), the United Nations Environment Programme (UNEP/CAR/RCU), and the IMA, the CARICOM Secretariat convened a Caribbean Sea Forum on 3-6 June 1998 at Port of Spain, Trinidad and Tobago. The participants in the programme included representatives of regional governments, consultants from among CARICOM nationals and representatives from relevant regional organisations as well are selected donor agencies.

After the deliberations at the Caribbean Sea Forum, a "Plan of Action Agenda for the Sustainable Development of Caribbean Coastal and Oceanic Areas" was submitted for consideration to the Conference of Heads of Governments.

M.Sc. Degree Course in Marine Sciences

It has been observed that the University of the West Indies (UWI) does not have a specific course in marine science, although there are courses on related topics. This shortcoming has considerably affected human resource development programmes, especially for the IMA. In order to address this problem, it is proposed that a post-graduate degree course in marine sciences be initiated at UWI in collaboration with the IMA. The course will cover the topics such as chemical oceanography or marine chemistry, geology oceanography or marine geology, and

physical oceanography and biological oceanography. It is proposed that during the first two semesters every student will study the basics of these subjects and the remaining two semesters will be devoted to specialization. The last two semesters will also include a small research project. Thus, every student completing this course will have a basic understanding of the various disciplines of marine science and, at the same time, will have the choice of specializing in the field of one's choice. It is anticipated that the students completing this course will find suitable employment in various industries which are either expanding their activities or starting afresh in the region. This proposal should enable the Caribbean countries to develop their own human resources.

Fellowship Programme

The Institute, in order to meet its human resource development requirements, has initiated an aggressive programme of recruiting student interns, student trainees, research fellows, research associates, and visiting scientists.

Student Interns

The candidates for this assignment are second year degree students. During the vacation they are associated with the researchers of the Institute and assist them with their research projects. By doing so, they learn as well as earn. The duration of each assignment is up to three months.

Student Trainees

The graduate students in various disciplines are recruited for these assignments. They work for a duration of six months and, if found suitable, are employed on a contractual basis for technical advisory services work. As and when regular jobs become available at the Institute, these candidates are given priority for filling such vacancies.

Research Fellows

Students pursuing post-graduate studies can apply for junior (Master's students) and senior (PhD students) fellowships. Research Fellows are expected to carry out research on a full-time basis on a topic relevant to the research programme of the Institute. Normally the duration of these fellowships is two years, but they can be extended to a third year on the merits of the case.

Research Associates

Research Associates are individuals established in their respective fields. Although they do not receive funding for their research projects from IMA, they have full use of the facilities of the Institute to conduct already funded research and project activities.

Visiting Scientists

This category includes senior scientists who have retired but continue to carry out research in marine science. It also includes foreign scientific workers who come to IMA and carry out research projects of their choice against nominal payment of amount.

It is anticipated that these measures should enable the IMA to overcome its problem of shortage of trained manpower.

Capacity Creation in Jamaica

F. J. McDonald
Natural Resources Conservation Authority

This brief summarizes the Capacity Development for Environmental Management (CDE) initiatives pursued by Jamaica, with particular reference to coastal and ocean management issues. The sector fits within a wider framework related to our national efforts at getting on the path to sustainable social, economic and ecological development within the first decade of the 21st century, hence linkages to wider national sustainable development initiatives infuse the presentation. For the purpose of this brief, the term "capacity-building" is taken to mean:

> *The process and means through which national governments and local communities develop the necessary skills and expertise to manage their environment and natural resources in a sustainable manner within their daily activities.*[1]

Jamaica, with a land area of some 11,000 km^2, is located near the center of the wider Caribbean region. This region, with its intensive maritime activities and sensitive marine environment, has been designated as a "Special Area" under the *International Convention for the Prevention of Pollution from Ships and Related Protocols* (commonly referred to as MARPOL 73/78). Jamaica has maritime boundaries with six other states, namely Cuba, Colombia, Haiti, Honduras, Nicaragua and the United Kingdom (acting for the Cayman Islands). Jamaica's archipelagic waters include the Morant Bank and most of the Pedro Bank, and cover an area of approximately 12,000 km^2. The country's exclusive economic zone covers approximately 275,000 km^2. The coastline of Jamaica is 885 km long. Our coastal, marine and ocean space is very diverse including bays, beaches, rocky shores, estuaries, wetlands, cays, sea-grass beds, and coral reefs. These coastal and marine resources are the base for many of the island's present and future economic activities.

Both our marine and coastal areas have historically had complex use and ownership patterns. Typically there are also fragmented and overlapping mandates and responsibilities for conservation, regulation and management. Co-ordination of sustainable development and protection efforts to be successful must involve all stakeholders and requires considerable investment of human capital, time and resources including money. At present there is generally inadequate control over development activities in the coastal zone, and a lack of adequate capacities to manage and resolve incompatible and unsustainable uses.

With 65% of the total population of Jamaica living within five km of the coast, and the majority of development activities occurring in this area, the coastal areas of the country are under extreme pressure. The physical environment has been and continues to be altered to provide livelihoods and facilities for agriculture, commercial shipping, fishing, recreational, mining, tourism, settlements and other societal needs. As a consequence, a range of impacts (such as eutrophication, reef degradation, species and habitat loss, beach and coastal erosion) are measurable and are accelerating. The marine environment is therefore under stress from both marine (e.g., ship waste) and land-based (e.g., agriculture, urbanization and tourism related) pollution. Jamaica has joined with other states in promoting a range of responses including the 1982 United Nations Law of the Sea Convention and the Regional Seas Programmes of the United Nations Environment Programme (UNEP) (both of which have their headquarters in Jamaica).

The land-based sources of pollution (LBS) from local, regional and extra-regional sources are significantly impacting offshore resources and require significant adjustments to patterns of consumption and production. Rivers and coastal areas are at the receiving end of chemicals, sediment, sewage and garbage generated by land-based activities. In many instances, the integrity of coastal ecosystems are being irreversibly affected by chronic ongoing pollution, reclamation and dredging activities, as well as by occasional offshore and nearshore spills of oil and other materials. The local effects of global environmental problems include the prospect of sea level rise (SLR), continued coral bleaching due to global warming and increased damage from more powerful storms and hurricanes resulting from climate change.

In response to the global consensus at the state of reefs, Jamaica was an early proponent of the International Coral Reef Initiative (ICRI) and remains committed to the initiative.

Ongoing efforts at rationalizing coastal zone/marine/ocean management include policy, legal and institutional adjustments, institutional rationalization and capacity development, expanding civil society and stakeholder participation in these sectors, as well as the design and execution of appropriate strategies, programmes and projects. Of particular importance has been the recent establishment of the National Council on Ocean and Coastal Zone Management as the body responsible for policy, co-ordination and general oversight over the sector.

Overview of legal and institutional framework

Jamaica has signed a number of the international and regional treaties and agreements relating to the conservation or management of the coastal zone, and prevention of marine pollution, including:

United Nations Convention on the Law of the Sea (Date of Accession - 21 March 1983)

Convention on the Territorial Sea and Contiguous Zone (Date of Accession - 8 October 1965)

Convention on the Continental Shelf (Date of Accession - 7 November 1965), and *Convention on the High Seas* (Date of Accession - 30 September 1962)

Convention for the Protection of the Marine Environment of the Wider Caribbean Region (Cartagena Convention), including the *Protocol Concerning Co-operation in Combating Oil Spills in the Wider Caribbean Region,* and the *Protocol on Land-based Activities that Pollute the Marine Environment* (Date of Accession - 1 May 1987)

Convention on the Prevention of Marine Pollution by the Dumping of Wastes and Other Matter (London Dumping Convention) (Date of Accession - 22 March 1991)

International Convention for the Prevention of Pollution from Ships and Related Protocols (MARPOL 73/78), including the *Amendment to the Protocol to the International Convention for the Prevention of Pollution from Ships,* and the *Amendment to Annex II of the International Convention for the Prevention of Pollution from Ships* (Date of Accession - 13 June 1991)

Treaty Banning Nuclear Weapons Tests in the Atmosphere, in Outer Space and Underwater (Date of Accession - 22 November 1991)

Treaty on the Prohibition of the Emplacement of Nuclear Weapons and Other Weapons of Mass Destruction on the Sea Bed and the Ocean Floor and the Subsoil Thereof (Date of Accession - 30 July 1986)

In addition, an effort has been made to rationalize existing legal instruments, many of which predate the era of modern international law. Examples are given below of the new draft shipping and fisheries bills. In June 1998, a national workshop reviewed the extent to which "sustainable development law and international treaty obligations" were harmonized in Jamaica, and the discussion document and results of that workshop has informed the presentation of this brief. A draft regulatory framework document developed independent of that discussion paper has also been available to the compiler of this brief.

In accordance with the provisions of UNCLOS Jamaica's exclusive economic zone (EEZ) is established at a distance of two hundred nautical miles from the foreshore under the *Exclusive Economic Zone Act.* Within this area the state (i.e., government of Jamaica) is vested with all rights in respect of:

(i) the exploration, exploitation, conservation, protection and management of natural resources, whether living or non-living,

(ii) economic exploration and exploitation of the area,

(iii) the construction, operation and maintenance and use of artificial islands, installations and structures,

(iv) the authorization, regulation and control of scientific research and the recovery of archaeological or historical object,

(v) the preservation and protection of the marine environment, and the prevention and control of marine pollution.

The Jamaican EEZ Act requires the issue of a license for undertaking the exploration or exploitation of any living or non-living resources within this area. It grants powers to marine officers to carry-out inspections and to board vessels and seize vessels, gear or equipment to enforce the requirements of the Act. The operational arrangements to ensure that the duties and obligations related to the LOS Convention are currently being evaluated.

The *Territorial Seas Act* established a 12-mile territorial sea for Jamaica in accordance with the provisions of the 1958 *Geneva Convention on the Territorial Sea and Contiguous Zone*. However, this act was replaced by the *Maritime Areas Act of* 1996 which confirmed Jamaica's status as an archipelagic state by providing for the establishment of archipelagic baselines in the form of straight baselines joining the outermost points of the outermost islands and drying reefs of the archipelago of Jamaica. Subsequently, the breadth of the territorial sea was measured from the archipelagic baselines. The act also establishes a contiguous zone within which the state has vested interest and jurisdiction to take such measures as are necessary to prevent the infringement of any laws relating to customs, excise, immigration or sanitation.

Under the provisions of section 3 of the *Minerals (Vesting) Act,* all minerals being in, on, or under any land or water, whether territorial waters, river or inland sea, are vested in and subject to the control of the state. The *Town and Country Planning Act* influences the coastal zone as it was designed to establish controls over the development of urban and rural areas and to establish policies in respect of land use in such areas. A Town and Country Planning Authority is established under the act. The Authority is responsible for approving development orders containing broad-based land-use plans and regulations. In addition to plan preparation, the Town Planning Department advises local authorities on applications for subdivisions, changes of use and building activities, and also provides advice to the public, developers and other government agencies on matters relating to the use of land. The *Town and Country Planning Act* regulates any change in land use which takes place on, or in, under or over land, and written permission is required before any such changes are undertaken.

The *Natural Resources Conservation Authority Act (1991),* mandates the Authority to manage effectively the physical environment so as to ensure the conservation, protection and proper use of its natural resources. The Authority has also been given powers to develop, implement and monitor programmes relating to the management of the environment, and to formulate standards and codes of practice to be observed for the improvement and maintenance of the quality of the environment. Under the provisions of section 17 of the act, facilities involved with the disposal of solid wastes are required to submit regular reports to the Authority for the purpose of monitoring the performance of the facility and the quality and condition of substances that are discharged into the environment. Under the provisions of the *Natural Resources Conservation (Permits and Licenses) Regulations (1997),* a permit must be applied for and issued by the Natural Resources Conservation Authority (NRCA) to undertake any enterprise, construction or development which may result in pollution, waste or harm to the environment, and such permits may be suspended or revoked upon notice being given to the license holder.

The new permit and licensing system came into effect in January 1997. It requires the issue of permits for any enterprise in a prescribed area. On the 1st January 1997, the entire island was declared a prescribed area. During 1995-96, the NRCA prepared guidelines for dredging, marinas and small craft harbors, benthic structures, coastal protection and enhancement structures, and underwater pipelines and cables:

- *Mangrove and Coastal Wetland Protection: Draft Policy and Regulation*
- *Guidelines for the Planning and Execution of Coastal and Estuarine Dredging Works and Disposal of Dredged Materials*
- *Guidelines Pertaining to Marinas and Small Craft Harbors*
- *Guidelines for the Deployment of Benthic Structures*
- *Guidelines for the Planning and Execution of Coastal Protection and Enhancement*
- *Guidelines for Construction, Maintenance, and Monitoring of Underwater Pipelines and Cables in the Coastal Zone*

These, in combination with the new NRCA permit and license system, should help to reduce the negative impacts of coastal development. Additionally, the NRCA had developed the following documents:

- *Manual for Integrated Coastal Planning and Management in Jamaica*
- *Coral Reef Protection and Preservation Policy and Regulation* (draft)
- *Mariculture Policy and Regulations* (draft)
- *Beach Policy (Green Paper): A Policy for the Use of the Foreshore and the Floor of the Sea*

Rights in the foreshore and the floor of the sea are vested in the State under the provisions of the 1956 *Beach Control Act.* Section 4 of the Act permits the use of any foreshore area for private domestic purposes by the owner or occupier of adjoining land. The act empowers the NRCA to declare protected areas and public recreational beaches, and to restrict or prohibit activities such as fishing, waste disposal, dredging and the removal of coral in such areas. The act provides for the establishment of a national policy for the management of the island's beaches. The *Beach Control (Protected Area - Montego Bay) Order,* the *Beach Control (Protected Area - Port Royal) Order,* and the *Beach Control (Protected Area - Ocho Rios) Order* declare Montego Bay, Port Royal and Ocho Rios as protected areas. The *Beach Control (Black Coral) Order* (1976 and 1979) protects black coral.

The *Local Improvement Act* regulates building and other physical developments and is administered by local authorities. It also relates to the subdivision of all lands adjacent to or adjoining any part of the foreshore, thereby affording the respective parish councils, who generally act in consultation with the NRCA, an opportunity of imposing special conditions for the protection of coastal resources.

The *Morant and Pedro Cays Act* establishes licensing conditions in the Morant and Pedro Cays, and prohibits unauthorized fishing and the removal of birds and turtles. The act controls access to and exploitation of the cays and their resources, especially turtles and the eggs of booby terns. The act prohibits fishing, and the slaying and capture of birds and reptiles.

Capacity development and integrated coastal resource management

With the consolidation of the environmental management mandate under the NRCA as a consequence of the promulgation of the NRCA Act in 1991, the ministry responsible for the environment and the NRCA created a policy framework based on the experience gained in developing the Country Environmental Profile (CEP) and the National Conservation Strategy (NCS). The NCS process was undertaken between 1989-91 and was characterized by a high degree of participation from public, private and civil society. This process was informed and influenced by the preparatory process for United Nations Conference on Environment and Development (UNCED).

By 1994, the issue of capacity development was beginning to be supported by bilateral and multilateral technical assistance donors, including the United Nations agencies, the Inter-American Development Bank, and the governments of Sweden, the United States, and Canada. In Jamaica, the UNEP Regional Seas Programme had a significant influence on the growing awareness of the importance of the marine sector and regional seas to local livelihoods.

An annual inventory of marine and coastal resources and conditions has been undertaken by the NRCA since 1995 to provide baseline information for coastal zone management and development decisions. A *Coastal Zone Resource Atlas* has been developed as a part of a government of Japan/Swedish capacity development project. One product of the co-operation with Sweden has been a coastal zone management planning manual, as well as a working computerized geographic information system (GIS) database.

Additionally, marine protected areas (MPAs) are provided for by the NRCA Act. To date two marine parks have been declared (Montego Bay and Negril) and plans are advanced for declaring other areas (including Port Royal Cays/Palisadoes, St. Ann coast, Portland coast, Portland Bight, the Black River and Great Morass). An island-wide coral reef monitoring programme is being undertaken by the NRCA in partnership with hotels, water sports operators and selected non-government organizations (NGOs).

Commencing in 1995, the Ministry of Foreign Affairs convened a series of meetings of agencies and stakeholders concerned with the management of Jamaica's coastal zone, marine and ocean affairs. Following a period of consultation and a seminar held in March of 1997, it was proposed to the cabinet that an Interagency Council on Ocean and Coastal Zone Management be established. The Council was created and has now held three meetings.

The interagency group had pointed out that a legislative basis needed to be established to facilitate co-ordination and to empower appropriate agencies to undertake a range of activities including a comprehensive inventory of marine and coastal resources and conditions, baseline information on coastal and ocean processes, human resource and training needs for coastal zone management, upgrading of legal instruments, and implementation of management measures and decisions. Approval for marine sector activities must be co-ordinated, have clearly defined goals and standards, and all coastal development activities should be within the carrying capacity of the resource.

The integrated coastal zone and management plans developed by the Council will require a new legislative framework. An appropriate legal and institutional structure may include and provide for:

- protection and conservation of mangroves
- protection and conservation of coral reefs
- protection, conservation and use of sand and beaches
- control on development in coastal areas
- regulation of dredging and reclamation activities
- regulation of dumping and discharges in coastal areas
- control on underwater pipelines, cables and structures
- management of sectoral activities including shipping, fishing, tourism
- facilitating new economic activities (e.g., mariculture, ecotourism)

Guidelines and standards are being established for the siting, construction, development and operation of all facilities in the coastal area. Legal structures should be established to facilitate the creation, operation and administration of community-based coastal zone conservation projects and programmes which allow for income generation to ensure the sustainability of such initiatives.

Legislation in process

The *Shipping Bill,* now before parliament, makes provisions for the enactment of comprehensive legislation to regulate merchant shipping. Among the significant features of the bill are those relating to:

a) the establishment of an administrative structure for regulating the shipping industry which will be in the form of a statutory body to be called the Maritime Services Authority
b) the development of a clearly-defined framework for registration and licensing of ships, providing for a modified open registry and a small vessel registry
c) the expansion of categories of liens recognized as attaching to a ship
d) the establishment of a maritime tribunal to hear and determine matters relating to seaworthiness of ships and investigations into marine casualties
e) provision made for the inspection of ships and the creation of enforcement powers for inspectors

It should be noted that the bill did not originally provide for the implementation of a number of marine pollution conventions, nor did it contain provisions to adequately deal with maritime casualties which result in marine pollution.

Implementation and enforcement of the international environmental conventions requires the establishment of an effective legal and institutional regime to address risks of marine pollution from ship and land-based sources and adequately deal with maritime accidents which result in marine pollution. Such a regime should provide, among other matters, for:

- the establishment of an effective structure for "port state" control
- a prohibition on the dumping of ship-generated wastes
- a regulatory structure to control discharges into the marine environment from land-based sources

- structures for the management, transportation and disposal of ship-generated wastes, including the imposition of a user fee structure to pay for the costs of such activities
- measures to control the discharge of ballast water to prevent the introduction of foreign organisms into coastal waters
- comprehensive structures to deal with oil spills and pollution from ships, including the imposition of civil liability, and to provide for oil spill contingency planning and management
- the establishment of liability for ship owners and operators for environmental damage
- the creation of a requirement to reporting on environmental incidents and discharges from ships
- adequate mechanisms to provide for effective enforcement and monitoring, including the presentation of documentary evidence to support prosecutions for environmental offences
- the identification of the burden of proof in maritime pollution incidents, and the creation of "presumption clauses" to obviate the necessity of undertaking chemical fingerprinting for environmental prosecutions

A draft *Fisheries Bill* has been developed that would repeal the *Fishing Industry Act* and the *Morant and Pedro Cays Act.* It will establish a comprehensive legal framework to:

- establish a statutory framework for fisheries management through fishery-specific management plans developed in consultation with the users of the resource
- establish a statutory framework for licensing all fishery activities, including terms and conditions attached to licenses
- confer upon the minister for fisheries the necessary powers to establish conservation and management measures
- confer upon the minister for fisheries the necessary powers to regulate aquaculture and control or prohibit the import of live fish
- contain comprehensive provisions setting out the powers and duties of authorized enforcement officers and observers and permit the proof of certain matters by certificate evidence
- establish reasonable penalties for offences

The new *Fishing Industry Act* provides for the licensing of all fishers and fishing vessels operating in Jamaican waters. The Act also provides for the protection of the fishery by establishing closed seasons, the creation of fish sanctuaries, and penalties for the landing and sale of illegally caught fish. The Fisheries Division is responsible for the administration and enforcement of the Act, and continues to monitor and enforce activities within the industry. The Act has been revised, but changes have not yet been implemented. The *Fishing Industry (Fish Sanctuary) Order* (1979) declares certain areas as fish sanctuaries, and the *Fishing Industry Regulations* (1976) provides a regulatory framework for the fishing industry.

The Fisheries Division, working in collaboration with the NRCA and CITES Secretariat, established a quota system for the management of conch, an endangered species. A similar system is being prepared for the management of lobsters, turtles and crocodiles. Fisheries research to assess the status of fish stocks on the Alice Shoal and their potential for sustainable exploitation has been completed jointly by the Fisheries Division and Colombia in their shared EEZ.

Current initiatives

The National Council on Oceans and Coastal Zone Management

In 1995, an Interagency Marine Policy Committee was established under the chairmanship of the Minister of State in the Ministry of Foreign Affairs and Foreign Trade. The decision to establish the Committee arose out of the finding that there was an absence of a definitive policy concerning Jamaica's interest in respect of marine matters. There was a clear need for increased co-ordination and integration of administrative and operational functions between various agencies and departments involved in the conservation and management of the marine sector. In

addition, the need to raise the level of public awareness on the importance of marine affairs to the development of Jamaica was also recognized.

Following a seminar facilitated by the Oceans Institute of Canada in March 1997, the Cabinet accepted the recommendation to establish the Council with the following terms of reference:

1. To formulate a comprehensive coastal and ocean development management policy.
2. To become the advisory body for coastal/ocean use and development and monitor the implementation of policy.
3. To co-ordinate training and human resource development initiatives to enable Jamaica to make sustainable use if its living and non-living resources and fulfil its obligations under international conventions relating to the marine environment.
4. To make recommendations for co-operation with regional and global organizations dealing with marine/environmental issues.
5. To make recommendations for further capacity strengthening in the area of marine management including the development plan for an institutional focal point in the interim and an appropriate institution responsible for marine affairs.

The Council is chaired by a cabinet level minister (the Minister of Foreign Affairs) and the membership includes representatives from the agencies responsible for the environment, fisheries, minerals, ports, surveys, tourism, the attorney general, as well as the University of West Indies, the Jamaica Maritime Institute and the Jamaica Defense Force. The Council is already making plans for developing management arrangements and policy.

Coastal Water Quality Improvement Project (CWIP)

The Coastal Water Quality Improvement Project is a five-year bilateral initiative between the government of Jamaica 's Natural Resources Conservation Authority and the United States Agency for International Development. Five distinct but inter-related activities associated with coastal water improvement will be carried out to form a synergy of interventions contributing to the improved quality of key natural resources in selected areas that are both environmentally and economically significant.

Environmental Action (ENACT)

ENACT is a seven-year initiative supported by the Government of Jamaica and Canadian International Development Agency (CIDA). Its purpose is to build capacity for environmental management by interventions in five areas: public sector, private sector, community level, environmental education and direct assistance to the NRCA.

La Autoridad Marítima de Panamá; Metas y Desafíos para el Desarrollo Sostenible de la Zona Costera

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Introducción

El Istmo de Panamá desde sus comienzos ha servido, por su posición geográfica, como una zona importante de tránsito lo cual ha permitido el desarrollo marítimo y una alta diversidad cultural, así como de ecosistemas y especies. Desde los años 800 AC, el istmo fue usado como ruta de migración entre América del Norte y del Sur y hoy en día, el canal interoceánico le confiere una posición indiscutible en el transporte marítimo internacional. La República de Panamá contiene dentro de su jurisdicción aproximadamente 2,900 km de costa, en un territorio de 77,082 km^2, y una población estimada de 2.7 millones a julio de 1997.[1] Por su geografía angosta y alargada se puede decir que el país es una sola zona costera, por lo cual esfuerzos para la aplicación de un Manejo Integral de la Zona Costera (MIZC) es urgente y se vienen realizando en el país.

Actualmente Panamá tiene todos los elementos para desarrollarse como un país marítimo a grande escala. Panamá consta con el mayor registro de barcos del mundo, en número y en tonelaje. El tránsito por el Canal de Panamá promedia unas 13,000 naves en los últimos años, y desde su inauguración en 1914, ha movilizado más de 6 billones de toneladas de carga produciendo entradas de casi USD$9.5 billones de dólares[2]. La Comisión del Canal se encuentra ampliando su capacidad con varios proyectos entre los cuales se destaca el ensanchamiento del Corte Culebra y la construcción de otro juego de esclusas que entrará en operación antes del año 2020. Con referencia a los servicios de puertos, Panamá ha tenido y sigue teniendo una política agresiva habiendo concluido dos modernos puertos en el Atlántico, "Manzanillo Container Terminal" y "Colon Container Terminal." Otros puertos están en proceso de rehabilitación y modernización entre los cuales están Cristóbal en el Atlántico y Balboa en el Pacífico. Esto forma parte de los objetivos para crear un canal seco que proveerá servicio a los barcos que por su dimensión no pueden transitar por el Canal. Panamá ofrece una diversidad de servicios auxiliares complementarios a los ofrecidos por el Canal. Entre estos servicios se destacan los de astilleros y la Zona Libre de Colón siendo ésta la segunda más grande del mundo después de la de Hong Kong.

Todos estos sectores de servicio tienden a restarle importancia a los beneficios que la riqueza cultural y la diversidad marina de las costas panameñas proveen al país. El sector pesquero de Panamá se destaca por la exportación de sus productos los que promediaron USD$110 millones en el período 1993-97, en donde el camarón por si solo representó el segundo renglón de exportación después del banano, habiendo generado un promedio anual de USD$72 millones entre los años 1993-97 [3] . El sector pesquero artesanal, en especial, provee incontables beneficios sociales a miles de panameños. Según el último censo de pescadores, existen alrededor de 12,000 pescadores artesanales[4] y 129 comunidades pesqueras solo en el litoral Pacífico. Debido a su situación geográfica y factores históricos, la población es étnicamente diversa, integrada por indígenas-hispanos, afro-antillanos, indígenas (casi 10%), orientales e hindostanes.[5] El 50% de la población total del país reside en la costa.

Como era de esperarse, los ecosistemas son también producto de la convergencia de hemisferios y océanos. La diversidad de especies en Panamá es alta tanto en los hábitats marinos como terrestres. Los hábitats son variados, habiendo desde áreas boscosas de tierras bajas con alta pluviosidad, áreas boscosas a mayor altitud (llegando a 3,475 m de altitud), hasta vastos ecosistemas marinos incluyendo áreas coralinas con más de 200 km de corales de franja en el lado caribeño catalogados entre los más ricos del Mar Caribe, y cientos de parches coralinos en el Pacífico. En adición, Panamá cuenta con las áreas de manglares más extensas de Centroamérica.

Panamá se ha esforzado en preservar su patrimonio natural a través de la designación de áreas protegidas las cuales cubren una superficie del 10% del total del país, abarcando tanto áreas marinas así como áreas hacia el interior del país. Desgraciadamente, no existen los recursos humanos ni el equipo para la vigilancia y el cumplimiento de las diversas leyes que establecen las medidas de conservación, ni se ha implementado una estrategia apropiada.

Las presiones económicas y demográficas han hecho con que se hayan perdido un 20% de la cobertura boscosa en 30 años,[6] calculándose que la tasa anual de deforestación es de 75 km^2. La tala indiscriminada ha propiciado la erosión y la disminución de las reservas de agua poniendo en riesgo, inclusive, a las operaciones del canal y causando severos daños a los ecosistemas marinos. Grandes extensiones de áreas coralinas han sido severamente afectadas principalmente en lado caribeño por la construcción y operación del canal que actualmente incluye el dragado y la descarga de millones de litros de agua dulce hacia el océano, produciendo altas tasas de sedimentación. Además, derrames de petróleo, sobrepesca, problemas ambientales causados por la minería, deforestación (incluyendo las zonas de manglares), recolección de corales, el uso indiscriminado de pesticidas y herbicidas y la contaminación provocada por desechos humanos son los factores más sobresalientes que afectan a los ecosistemas marinos en Panamá. Algunos de estos problemas son, hasta cierta medida, consecuencia de las condiciones precarias, desempleo y bajo nivel educacional de las comunidades costeras.

Situación actual

Panamá está actualmente implementando una estrategia de expansión y desarrollo del sector marítimo del país. Para esto, en febrero de este año, la Autoridad Marítima de Panamá (AMP) fue creada mediante la ley No. 7, ajustándose a los principios de la *Convención de las Naciones Unidas sobre el Derecho del Mar* (CONVEMAR). La AMP concentra las entidades marítimas del estado y por primera vez se plasma y define en una ley nacional, la necesidad de crear, poner en práctica y hacer cumplir una estrategia para manejar sus costas y recursos con una visión integral y futurista la cual toma en consideración el potencial de Panamá como una nación marítima. Este fue un gran paso hacia el desarrollo sostenible del sector marítimo que incluye dentro de sus objetivos, un programa de MIZC, y cuenta con un Instituto de Investigación Marítima para promover la investigación aplicada a los problemas del desarrollo marítimo nacional.

La AMP está integrada por cuatro Direcciones Generales: Dirección General de Marina Mercante; Dirección General de Puertos e Industrias Marítimas Auxiliares; Dirección General de Recursos Marinos y Costeros; Dirección de Gente de Mar

La nueva ley ha definido a la zona costera como "el espacio de interface o transición entre dos ambientes predominantes: mar y tierra" traduciéndose ésto en una amplia cobertura espacial de manejo, cónsona con las tendencias mundiales. Así mismo, el programa de MIZC está determinado como:

> *el proceso que une a gobierno y comunidades, ciencia y manejo, e intereses públicos y privados en la preparación y aplicación de un plan integral para la conservación y desarrollo de los recursos y ecosistemas costeros.*

Bajo estos términos es importante enfatizar, en particular, la necesidad del trabajo de las agencias del gobierno junto con las comunidades lo que es mejor conocido como manejo compartido o colaborativo. De acuerdo a la Ley, "la meta del MIZC es promover la calidad de vida de las comunidades que dependen de los recursos costeros y sostener la productividad y biodiversidad de esos ecosistemas". Esto implica que la Dirección General de Recursos Marinos y Costeros tendrá entre sus responsabilidades el co-ordinar acciones con las demás Direcciones de la AMP, y con agencias del gobierno que también tienen ingerencia en la zona costera en particular sobre los recursos, los ecosistemas, los problemas sociales, la educación y las actividades económicas realizadas en las zonas litoráneas y marinas. En ese sentido, la Dirección General de Recursos Marinos y Costeros tendrá que destinar recursos para el fortalecimiento del personal en capacidad de coordinación, comunicación inter-institutional, y en metodologías de manejo compartido con base en las comunidades costeras. A la Dirección General de Recursos Marinos y Costeros se le ha atribuido este desafío. Mencionamos desafío, porque en un país como Panamá, el cual carece de los recursos económicos y humanos, es indispensable que esta Dirección sea apoyada y habilitada para así realizar la tarea asignada de forma efectiva. En este sentido es esencial que esta Dirección establezca prioridades a sus objetivos de modo a promover la educación resaltando la importancia de la conservación de los ecosistemas marino-costeros dentro de un plan de MIZC. Para esto, el entrenamiento inter-disciplinario es indispensable así como el entrenamiento especializado en diferentes áreas.

La justificación de la perspectiva inter-disciplinaria se basa en la naturaleza de los sistemas costeros, los cuales son complejos, formados por ecosistemas inter-conectados e influenciados por seres humanos. Muchos de los habitantes

de las zonas costeras son agricultures-pescadores que se mueven entre el espacio terrestre y marino. La investigación inter-disciplinaria es a su vez el fundamento de la planificación entre los sectores para el manejo integral costero. Un MIZC enfatiza la integración no solo entre los niveles de gobierno (regional-local con el nacional) pero también entre niveles comparables de agencias gubernamentales tales como de la agricultura, la pesca, puertos etc). Este abordamiento ha sido llamado de perspectiva paralela y vertical de coordinación y manejo en el cual un gran número de disciplinas tienen un aporte de conocimiento y puntos de vista válidos para el manejo de la zona costera. Las dificultades encontradas en la aplicación de la inter-disciplinaridad radica, en parte, en la limitación de acceso a la tecnología, entrenamiento apropiado y falta de sistemas de incentivo. Las herramientas para el manejo de gran cantidad de información y procesos complejos están ausentes en nuestro país. El sistema educativo en las universidades raramente provee los medios para la valorización del conocimiento que integre a varias disciplinas tales como las ciencias sociales, naturales y económicas dentro de sus programas de estudio. Como resultado tenemos que entre los profesionales panameños, un número amplio de investigadores y asesores ha sido formado lejos de la perspectiva inter-disciplinaria. El apoyo de organizaciones donantes será crítico para el fortalecimiento y capacitación de profesionales panameños en Panamá o en el exterior.

A continuación se presenta un listado de las necesidades de capacitación en las diversas agencias gubernamentales dentro de la AMP:

Dirección General de Recursos Marinos y Costeros

- Director y Personal con perspectiva inter-disciplinaria
- Comunicadores sociales con conciencia ambiental
- Sociólogos especializados en comunidades costeras incluyendo las indígenas
- Biólogos pesqueros con capacidad de asimilar el conocimiento tradicional de los usuarios locales y formular recomendaciones cónsonas con los conocimientos integrados
- Abogados con formación en leyes ambientales relacionadas al área marino-costera
- Economistas de recursos naturales con capacidad de cuantificar costos de reposición de los recurso renovables, así como de cuantificar recursos no renovables de los ecosistemas marino-costeros
- Oceanógrafos físicos y biológicos

Dirección General de Puertos e Industrias Marítimas Auxiliares

- Ingenieros capacitados en instalaciones de recepción de desechos contaminantes y en alternativas de mitigación de fuentes de polución de las operaciones portuarias (dragado, sonido, derrame de combustible)
- Personal con conocimiento de los tipos de fondos de la bahía para formular planes de anclaje
- Personal especializado en monitoreo de calidad de agua

Dirección General de Gente de Mar

- Capitanes de naves de bajo tonelaje formados de acuerdo al *Convenio Internacional sobre Normas de Formación, Titulación y Guardia para la Gente de Mar* (STCW 95), enfatizando la prevención del impacto de sus operaciones en el ambiente marino.
- Profesores de la Escuela Náutica capacitados para la enseñanza con un enfoque en la seguridad de la vida humana y en la preservación del ambiente.

Otras agencias fuera de la AMP con las cuales la Autoridad debe coordinar acciones y programas:

Autoridad del Canal de Panamá

- Ingenieros ambientales que puedan ocuparse en buscar alternativas para mitigar los efectos de las operaciones del canal para prevenir la sedimentación relacionada con las actividades de dragado y funcionamiento de las esclusas.

- Personal entrenado en meteorología e hidrología.

Autoridad de la Región Interoceánica (ARI)

- Planificadores del uso de las tierras que han sido revertidas al gobierno de Panamá tomando en cuenta el mejor uso social, económico y ambiental.

Autoridad Nacional del Ambiente (ANAM)

- Profesionales formados o especializados en la evaluación de los reportes de estudios de impacto ambiental.
- Ingenieros forestales y administradores de áreas boscosas y cuencas hidrográficas con perspectiva inter-disciplinaria y colaborativa.

Ministerio de Desarrollo Agropecuario (MIDA)

- Agrónomos especializados en agricultura alternativa y sostenible, preparados en conservación de suelos, con conocimiento en pesticidas, herbicidas y fertilizantes benignos para el ambiente.

Ministerio de Educación

- Maestros y profesores con un enfoque multi-cultural y ambiental con capacidad de incorporar esos conocimientos en los programas de estudio.

Universidades

- Profesores con un enfoque inter-disciplinario con el objetivo de integrar los conceptos de MIZC en un programa universitario.

Instituto de Acueductos y Alcantarillados Nacional (IDAAN)

- Especialistas en control de calidad de agua y en procesos de oxidación o procesamiento de los desechos de los alcantarillados de las comunidades.

Servicio Marítimo Nacional (SMN)

- Personal capacitado en las leyes ambientales del país.
- Oficiales preparados para la navegación en aguas alejadas de la costa.

Instituto Nacional de Turismo (IPAT)

- Comunicadores capacitados para la confección de guías para los turistas incluyendo material educativo sobre los ecosistemas y condiciones al ser visitados.
- Personal formado en diversidad cultural y étnica de Panamá para resaltar esa riqueza hacia el turismo.
- Personal capacitado en ecoturismo.

Otras Agencias Gubernamentales

- Personal capacitado en el uso de GIS o Sistemas de Información Geográficos y en interpretación de imágenes de sensores remotos para el mapamiento y monitoreo de la superficie terrestre y los fondos marinos, así como en modelos espaciales de la hidrología de las cuencas.

Conclusión

Panamá tiene un potencial marítimo que no ha explotado a su máxima capacidad, pero este desarrollo debe estar acompañado de un conjunto de medidas tendientes a la conservación de los ecosistemas naturales. Panamá ha tomado los pasos legislativos para crear el manejo integral de la zona costera (MIZC), cuya aplicación constituye un gran desafío. El país necesita como punto indispensable buscar una armonía entre las actividades realizadas por todos los sectores marítimos y las riquezas de nuestros ecosistemas que son la misma base del desarrollo económico de forma sostenible. Esta coyuntura equilibrada de: crecimiento marítimo - conservación de los recursos naturales

podrá definir a Panamá como una sociedad sostenible. Así el desarrollo marítimo del país debe enmarcarse dentro de un MIZC tomando en cuenta todos los sectores involucrados, como la pesca, la agricultura, el desarrollo urbano, la marina mercante (registro de barcos), transporte marítimo (Canal de Panamá), expansión de los puertos, la explotación minera y petrolífera, el sector turístico, la banca, y la zona libre entre otros. Este reto que se enfrenta al equilibrar y promover el desarrollo económico con la conservación ambiental es en gran parte responsabilidad de la Autoridad Marítima de Panamá y otras entidades involucradas.

La necesidad de la formación inter-disciplinaria para los funcionarios en todas las agencias gubernamentales que se relacionan al desarrollo marítimo de Panamá y la conservación de los recursos naturales es primordial. El enfoque social y participativo hacia las comunidades costeras es esencial para la incorporación de las mismas en el manejo de sus recursos. La evaluación de los recursos marinos y el cumplimiento a la Ley, no es hoy en día viable sin la participación de las comunidades las cuales también necesitan de capacitación. Para lograr una labor de MIZC es necesario que los programas se realicen con, para, y por las comunidades costeras por lo cual los aspectos sociales, económicos y culturales deben ser abordados por especialistas en esas áreas.

Cuando en Panamá se habla de la zona costera, todo el país debe ser abarcado ya que la zona de influencia o de transición cubre toda la extensión del país. Tomando esto en consideración, las necesidades de Panamá son diversas y múltiples. El fortalecimiento de las universidades en el campo de la administración marítima y de manejo marino es indispensable. El apoyo y orientación en la organización de un programa educativo ya implementado en otros países contribuiría enormemente a desarrollar exitosamente un MIZC. Es necesario que el desarrollo económico tenga como objetivo una sociedad panameña sostenible al servicio mundial. El punto crítico radica en la voluntad política y en la educación a todos los niveles gubernamentales en especial de aquellos en posiciones de manejo para quienes la formación inter-disciplinaria es fundamental. Todos los esfuerzos en el ámbito educativo serán preponderantes para el desarrollo de un Manejo Integral de la Zona Costera en Panamá.

Notas

1. Contraloría Nacional de la República. Boletín Panamá en Cifras, 1997.
2. Panamá Canal Traffic. Oceangoing Commercial. FY 1915 - FY 1997. Oficina de Planificación Ejecutiva. Comisión del Canal.
3. Contraloría Nacional de la República, Boletín Panamá en Cifras, 1997.
4. El censo de pescadores de 1995 señaló que existen 4,761 embarcaciones registradas menores de 10T, y estimando que en cada una de ellas faenan de 2 a 3 pescadores, el total de ellos debe aproximarse a 11,902. Información basada en la Encuesta de las Actividades Pesqueras en el Istmo Centroamericano con énfasis en la Pesca Artesanal, Rep. de Panamá, 1995. Programa Regional de Apoyo al Desarrollo del Sector Pesquero en el Istmo Americano (PRADEPESCA).
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SESIÓN PLENARIA 1/PLENARY SESSION 1

Capacity-building Needs of Education and Training Institutions for Human Resource Development Purposes

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Introduction

This paper examines the issues surrounding the needs of developing countries in human resources development (HRD). Although many of these issues are relevant to industrialized countries, there are specific situations that confront the smaller and less centralized states in their efforts to achieve effective and sustainable ocean management.

The focus of this paper is ocean and coastal management and the developments that have taken place since the late 1970s. Countries have sought to develop the human resources base necessary to carry out the new managerial mandates which resulted from the 1982 United Nations Convention on the Law of the Sea (UNCLOS) and the increases in national jurisdiction over the ocean and its resources. This has resulted in an unprecedented need for personnel trained in ocean management. Since few persons were available with appropriate skills, training became a priority and a number of organizations took up the challenge of meeting the new education and training needs. Since the late 1980s the emphasis has shifted to coastal management, especially integrated coastal zone management, with a resulting shift by the institutions to meet the demand for trained "coastal zone managers".

This paper will examine the historical development of ocean resources management training in the post-UNCLOS period. Several case studies will be used to illustrate the HRD cycle in this sector. This is a useful exercise for several reasons. First, especially from a developing country perspective, it illustrates the kind of training and education programmes which have evolved and how the programmes have been transformed in response to changing needs. Second, the exercise helps to identify some of the problems and weaknesses associated with the attempts by a large number of countries to achieve self-sufficiency in ocean management, problems which seem to be duplicated in the field of coastal zone management, environmental management and other emergent fields.

What is a "Manager"?

There are several generalizations and assumption on which this paper is based, that hopefully will not be too controversial, and that can provide a basis for further discussion.

Sustainable ocean and coastal management are carried out by managers. Managers are decision makers because management is a decision-making function. Good decision making requires access to the proper information, analysis of that information using the appropriate criteria, and the determination of a solution that is effective, efficient and appropriate to the situation. What makes a good manager is the ability to know when a decision has to be made, and then making it.

The human resources development issue is to be able to produce the managers necessary to meet a country's requirements. In examining the role of education and training institutions two questions must be answered: how is the need identified? and, how is the need met in the most effective and cost-efficient manner?

From a purely management perspective, education and training are a waste of time. In the ideal world, at least from the managers perspective, utilizing the "just in time" principle[1] the "system" would deliver the perfect candidate to the door, fully educated, trained and experienced as soon as a new position needed to be filled or a replacement was required. The candidate would not require any additional training as this would be extravagant, nor would they have been waiting for a vacancy too long in an inferior position as this would be wasteful.

Origins

To put things into a historical perspective, the developments in UNCLOS, coupled with the de-colonization and independence drives of the 1960s and 1970s placed a tremendous strain on the managerial resources of many countries, especially smaller states. UNCLOS and the associated political processes that surrounded the adoption of exclusive economic zones (EEZ) required countries to be able to manage their ocean territories and the associated resources. Few countries had the infrastructure or the trained personnel to deal with the newly acquired responsibilities. The result was that many states established new bureaucracies or expanded the mandates of existing departments to cover management of the ocean sector. Ministries of agriculture became ministries of agriculture and fisheries. Ministries of resources or mining found themselves responsible for ocean minerals as well.

The response was fairly typical, and the HRD issue was fairly common. Bureaucracies were given the responsibilities, and managers were appointed to functions for which they had little knowledge or training. Moreover, because the national responsibilities were assumed fairly quickly, bureaucrats were appointed or assumed positions of responsibility with no experience or qualifications in the areas of ocean management for which they were accountable. This situation was complicated by the fact that small staffs and ongoing responsibilities precluded sending personnel away for long-term training. As well, few, if any, suitable courses or programmes were available and those that existed were in the industrialized countries and dealt with the issues from a developed country perspective.

The HRD issue can be summarized as:

1. Managers were untrained.
2. Local courses were unavailable.
3. Personnel could not be spared from their desks to attend existing professional programmes.
4. There was no ready pool of educated candidates for future employment.

Short-, medium- and long-term solutions were needed to deal with the situation. In the short term, training was needed to provide a basic working knowledge of ocean management issues to those who were responsible for national management efforts, yet did not have an adequate background or familiarity with the issues. This was a largely Afirst aid" approach, not necessarily intended to provide answers, but to alert ocean managers to the questions they should be asking and to provide guidance on where to turn for advice or assistance.

The medium-term response represented a more comprehensive approach. Once ocean managers were managing, the next step was to allow selected individuals to go back to school and pursue higher education in related fields. Overseas programmes in marine management attracted many of the "next generation" of ocean managers, mid-level management personnel who then returned to senior positions.

The long-term response involved the development of local post-secondary and graduate programmes largely intended to provide a steady supply of suitable candidates at the entry level to fill future demands. Significantly, while the short- and medium-term responses targeted the present management structure, i.e., the experienced but unqualified, the long-term response was to provide future managers, i.e., the qualified but inexperienced.

A number of education and training options evolved, however they were not linked into a comprehensive HRD strategy. As a result, a number of independent but often associated initiatives were undertaken.

Programme initiatives

Four types of programmes can be identified in chronological order:

1. International short duration workshops (international short course)
2. National or regional short duration workshops (national short course)
3. Internationally focused university professional programme (international long course)
4. Regional or national university academic programme (national long course)

These initiatives were independent from each other and were developed without any co-ordination between the sponsoring institutions. In fact, they were often in direct competition with each other. Nonetheless the programmes borrowed heavily from each other in terms of ideas and curriculum, and often solicited funding from the same donor agencies.

International Short Courses and Training Programmes

Description: short workshop (5-10 weeks)
HRD Solution: short term
Typical Participant: existing management personnel on short leaves
Typical Course: 10-20 persons
Organizing Agency: international agencies or non-governmental organizations
Curriculum: Law of the Sea, Fisheries, Oil and Gas, Minerals, Environment, Shipping
Development Time: usually very rapid (weeks to months)

Strengths

- international participation
- international perspective enables a rapid identification of new issues
- development of new curriculum in response to demand
- access to international donor funding
- high profile

Weaknesses

- unable to focus on regional or local issues
- limited number of places available for each country
- superficial coverage of topics
- limited time to cover topics
- target market is limited[2]

The need for short-term training programmes, while not global, was definitely world-wide, with developing countries in all regions facing the same dilemmas. On of the earliest solutions came from the International Ocean Institute (IOI) and its founder Dr. Elisabeth Mann Borgese, who recognized that what was needed was a "first aid" approach. A programme was designed to give ocean managers a basic understanding of ocean management. The basic assumptions of the programme were that senior and middle management personnel could not leave their desks for more than ten weeks (and this was sometimes seen as excessive). Further, it was recognized that managers needed a background in ocean-related activities beyond the scope of their own sectional responsibilities. It was becoming increasingly obvious, at least to the IOI, that multiple ocean uses were leading to increased conflict between ocean users.

As a result, the IOI developed the ten-week IOI A and B courses. The first, held in Malta, dealt with ocean mining, while the second, held in Halifax, Canada, focussed on EEZ management. The courses were intended "for mid-career civil servants from developing countries who have responsibility for ocean management" and provided the participants with a comprehensive overview of ocean management issues with a specific reference to the then newly-emergent UNCLOS regime.

The initial courses were global in scope, with wide international representation on each programme. This exposed the participants to regional and national differences in problems and approaches, as well as highlighting their similarities. Generally, the participants represented a diversity of backgrounds. This distribution was intentional as it brought an assortment of skills and experiences to the programme. The duration of the course and the variety in the curriculum precluded in-depth discussion of any one topic, and the wide range of nationalities and expertise prevented anyone from dwelling on particular regional or sectoral issues. These characteristics are both a strength and a weakness of the international short course format. As a result, many regions requested that the IOI hold specific regional or sub-regional training programmes to address a curriculum directed at problems specific to the locality.

The IOI has continued to develop new programmes and to adapt existing programmes to reflect changing circumstances and emerging trends. For example, the ocean mining course is no longer offered, reflecting the lack of interest and development in this sector. Meanwhile a new programme has been developed on integrated ocean management. The success of the IOI programmes, especially in its early years, was reflected by the level of the participants that it attracted. Many were from the most senior levels of their government's ministries involved in ocean management. A number of participants have gone on to occupy senior posts as well. One of IOI's strengths has been its flexible approach to curriculum development and its access to donor agencies. This has allowed it to develop new initiatives and get them in place in a matter of months. Also, IOI's extensive network of contacts and its high-level annual international conference, *Pacem in Maribus*, allows it to stay abreast of the latest developments in marine sectors.

Regional Short Courses and Training Programmes

Description:	short workshop (2-10 weeks)
Typical Course:	10-20 persons
HRD Solution:	short term
Typical Participant:	national or regional management personnel presently employed
Organizing Agency:	regional agencies, local governments, local universities and training institutes
Curriculum:	law of the sea, regional resource issues, local laws and policies,
Development Time:	short, depending on available funding

Strengths

- greater numbers of participants from each country
- locally relevant curriculum dealing with specific issues
- builds national or regional contacts
- cheaper travel and expenses
- access to regional development funding

Weaknesses

- lack of local or regional funding
- difficulty in identifying international trends and requirements
- very limited life span, as successful programmes can quickly satisfy the demand

The regional short courses evolved to meet the need to train a greater number of participants than could be accommodated on international short courses. Often these courses were the direct result of participation on one of the international courses, as the value of the former courses was readily apparent when participants arrived back home with new skills and new-found confidence.

An example of this type of programme is the South Pacific Ocean Resources Management Programme (ORMP) based at the University of the South Pacific in Suva, Fiji. Partially as a result of an IOI training course held in the region in the mid-1980s, the South Pacific Forum Fisheries Agency (FFA) asked the Canadian government's International Center for Ocean Development to fund the establishment of a marine resources management initiative based at USP. This programme was to have two components: development of a university credit course on ocean management and development of a series of annual regional training programmes, based on the IOI model, for fisheries and other ocean management personnel of the South Pacific island states. The regional training programme was to be of three weeks duration since this was thought to be the maximum time personnel could be absent from their jobs. Small island states often have whole departments consisting of two or three persons, and losing half of a department's human resources is a major barrier to sending even one person on a training course.

The ORMP regional training programmes were quite successful but had a relatively short life cycle. Initially, the participants were senior members of the civil service. However, after several years, less senior participants attended the programme as virtually every potential candidate in the region had either taken the course, or an IOI or equivalent programme. At the evaluation session of the final workshop, participants almost unanimously agreed that the programme did not cover the topics in sufficient depth. They also agreed that the three-week course was

too long to be away from their desks. They also thought that some form of recognized certification should be offered at the end of the workshop. Nonetheless, they uniformly thought that the course had been of great benefit to them personally. It was concluded that the workshop was no longer required in the region, but that a new programme was needed. Such a programme would satisfy the conflicting demands of greater depth in content, less time away from the workplace, and providing a recognized credential.

International Long Courses

Description:	university graduate level degree (2 years)
HRD Solution:	medium to long term (unsustainable)
Typical Participants:	serving management personnel on leave from job
Organizing Agency:	internationally recognized university in developed country
Curriculum:	varied, may include remedial courses for deficiencies in backgrounds
Development Time:	several years to develop curriculum and obtain academic approvals

Strengths

- comprehensive and detailed courses available
- longer time to acquire information
- high profile and recognition
- good access to research and other facilities
- opportunity to develop international contacts
- scholarship funding often available from donor or foreign government sources
- may grant a professional qualification or academic degree

Weaknesses

- promotes "brain drain"
- one or two year absence from job
- limited ability to deal with specific regional or local issues
- competes for students and foreign aid funding for local programmes
- curriculum development is slowed by academic approval process (1+ years)
- good *curricula* will be used as models by local programmes, losing competitive advantage

The obvious higher level qualification of choice in the marine management field was the university graduate level masters or diploma programme. Many of these programmes evolved in the 1980s to meet the need for a comprehensive course of studies, especially for those already involved in the field. Though located primarily at universities in the developed countries, many of these programmes attracted students from developing countries.

This was due in part to the lack of comparable programmes at their regional or national universities, but also to the fact that many foreign aid donor programmes provided scholarships to students from developing countries to attend such programmes. This was seen as a worthwhile investment in the development of the recipient nation and thus could be categorized as foreign aid, even though the funds were largely spent, especially in the case of country donor programmes, within the donor nation itself.

One of the more unique international institutions to offer this type of programme is the United Nations' World Maritime University (WMU), located in Malmö, Sweden. Established by the International Maritime Organization (IMO) in 1984, WMU produced approximately 90 graduates annually. Almost all of these students came from developing countries; approximately 30% from Africa and the Middle East, 30% from Asia, and 30% from South America and Eastern Europe. Students generally came from the transportation administrations of national governments or national shipping companies, and almost all were fully funded by scholarship programmes from the United Nations Development Programme and various national donor programmes.[3] The success of these institutional programmes in born out by the fact that they often provide the model for similar courses at local universities in developing countries. This obliges these programmes to be innovative and to remain in the lead of curriculum development if they want to maintain their competitive advantage. What they teach today will be taught tomorrow by their graduates.

There are several factors that must be considered when evaluating the place of these programmes in the HRD strategy of developing countries. Reliance on these programmes as a source of trained personnel can be problematic. First, foreign aid scholarships may be discontinued, or enrollment places may be limited. Second, students often elect to stay overseas rather than to return home after completing their programme. The best and brightest are often induced to stay by job or research offers. This represents a double loss to the recipient state as they lose both the student and the value of the scholarship which has no doubt been credited by the donor countries as "foreign aid". This type of scholarship programme is often little more than a thinly disguised subsidy to the donor country's university.

National/Regional Long Courses

Description:	undergraduate/graduate degree programmes (4 year Bachelor, 2+ year Graduate)
HRD Solution:	long term (sustainable)
Typical Participant:	student seeking future employment opportunities
Curriculum:	commonly B.Sc. or B.A. with marine specialty
Development Time:	several years to develop curriculum and obtain academic approvals

Strengths

- ability to develop regional or nationally relevant curriculum to address specific HRD needs
- increases overall national expertise
- develops a large candidate pool to meet future employment needs

Weaknesses

- limited access to international expertise
- difficulty in identifying and developing new curriculum areas
- limited access to donor funding
- in competition with internationally recognized programmes for the best students

The development of the national and regional "long courses" tends to be the last stage in the programme development cycle. This is due to a number of factors, not the least of which is the time it takes to identify, develop and implement a programme which meets the future needs of largely developing countries. These programmes of study may well be the most important from the HRD perspective, since they are the most nationally dependable and sustainable.

The Marine Studies Programme and ORMP of USP are excellent examples and models for "giving the customer what they want". As previously mentioned, both the Marine Studies Programme and ORMP were originally conceived as aid-funded programmes. The former was to provide a B.Sc. and B.A. course of studies for undergraduate students. The latter was to provide a "marine affairs" course at USP and regional in-service workshops. The final objective of the aid programme was to oversee the integration of these programmes into full university control and funding (i.e., local sustainability).

The first step in integration was to establish a consultation mechanism with the other university departments and regional fisheries and non-living resources agencies, in the form of the Marine Studies Co-ordinating Committee. One of the committee's functions was to identify the types of courses and programmes that were needed for regional and national capacity-building in marine management.

As a result of these and other consultations, a number of needs were identified. First, something was required to replace the in-service workshops for regional professional staff who needed increased knowledge and skills in the field of marine management, but were unable to get away from their desks for the extended periods of time needed to pursue a full-time degree or other programme. Since USP has an extensive distance education capability with good facilities for extension programme and delivery, it was decided to offer a university certificate and diploma programme in ocean resources management. By using suitable courses from the universities existing degree courses available by extension such as basic economics, principles of management etc. and developing several new courses on ocean management, ORMP was able to offer a university-level qualification, available through university extension, for either full or part-time study. The courses could also be cross credited for either a B.A. or B.Sc.,

enabling students to start as part-time certificate students (five courses), gain a further diploma (an additional five courses) and then gain a full B.A. or B.Sc. with an additional two years of full time study. This option was seen as extremely attractive for "un-degreed" employees or professional staff who would be able to gain qualifications which would be recognized for purposes of promotion and job advancement and could be completed while they worked full time.

Capacity-building

From the point of view of capacity-building, what does this mean for training and educational institutions? First, one might recognize in the diversity of programmes which are available and the HRD development cycle, the need to carefully consider the niche or sector that the institute might fill. There are a number of practical issues that regularly arise which should be addressed in determining what programmes should be developed and the resources needed to implement them. From a development perspective, institutions should recognize that the demand for a short course is an indicator of deficiencies in a particular area. An institution may be able to capitalize on an opportunity to create and deliver a short course, and to use this opportunity to enhance and expand the programme into a long-term offering should the demand warrant. Being in a lead position may be an advantage in attracting both students and potential donors.

Recognition of Qualifications

One of the major issues in HRD is the recognition of the qualification. This may also be expressed in terms of the advantages (or sometimes disadvantages) which the qualification will bestow on the recipient. This may be considered at two levels: the advantage the programme has for those seeking to gain entry into a career path, be it public or private sector, and the recognition given in terms of career advancement for those with an established career path.

The first consideration is of greatest interest to the "traditional student" who is pursuing a degree or other programme as a first qualification for employment. One major interest, for most students, is the relative competitiveness and comparable study costs of similar programmes offered at different institution. This is one area where local or regional institutions can exploit an advantage of being generally cheaper and more accessible to local students. Opportunities exist for considerable co-operation with other programmes, especially with foreign institutions offering more developed "international courses". By localizing a successful programme, enhancing local curriculum content, and increasing the specific relevance to the local situation, institutions can offer a "local equivalent" that will allow better and more economical access to local students. Even without the active co-operation of other institutions, successful programmes and curricula are regularly "borrowed" in the development of a comparable local option. From the original institutions perspective, this places a heavy emphasis on innovation and initiative. A successful programme will be quickly copied, and any institution which remains passive will find itself surpassed.

A further complication faced by the local institution may be the reluctance of funding agencies, especially national government donors, to assist in programmes that are a direct competition to institutional programmes at home. Without naming specific countries or programmes, one extremely successful bilateral aid programme that provided both scholarships to overseas students and programme development assistance to regional institutions was terminated when the regional programme became too successful and began to compete with the original co-operating institution. While one of the original stated objectives of the donor programme was capacity-building and self-sufficiency in the recipient country, it was obviously not to be achieved by attracting students away from the donor countries institutions.

The second issue to be considered is the recognition that is to be accorded to qualifications by local authorities in terms of career advancement. It is usually desirable to ensure that programmes meet the appropriate standards or are granted equivalencies by the HRD authorities in the target market. This can be extremely important in attracting students, and in obtaining government approval so that the completion of a particular programme will be recognized for career advancement purposes. Institutions should consult with the appropriate authorities and obtain guidelines and career advancement policies so that they can design a programme with not only the necessary curriculum content to train a good marine manager, but also the recognized credentials that will see them promoted to that

position. For example, completion of the IOI ten-week training programme was recognized as a necessary qualification for promotion in the marine resources department of Sri Lanka. In another situation, completion of the IOI ten-week course was made a condition for the appointment of the regional co-ordinator of the ORMP.

Conclusion

The capacity-building needs of institutions will vary depending on the market that they seek to service. Successful programmes are likely to be those which anticipate the demand, provide a cost effective and relevant programme, and provide a qualification that will be recognized for purposes of career employment and advancement. The following table summarizes the ocean management needs and typical responses:

NEED	WHEN NEEDED	RESPONSE	EXAMPLES OF PROGRAMMES
Basic familiarity for untrained personnel already employed in ocean management	SHORT TERM Immediately	Short courses and training programmes (international)	International Ocean Institute ten-week training programmes
Basic familiarity in a regional context, for untrained personnel already employed in ocean management	SHORT TERM Immediately	Regional in-service workshops	South Pacific ORMP two-week training workshop
Comprehensive qualification for current personnel	MEDIUM TERM 2-5 years	International graduate-level programme	World Maritime University Dalhousie Marine Affairs Programme
Comprehensive qualification for future personnel	LONG TERM 5+ years and sustainable	Local and regional undergraduate and graduate programmes	University of the South Pacific * ORMP * Marine Studies Programme

Notes

1. "Just in time" is a practice that was perfected in Japanese automobile manufacturing. Rather than stockpiling parts, the necessary components are delivered to the assembly lines from de suppliers just as they are required to complete de assembly. In HRD terms, when a new position is required, or a replacement is needed, the suitable personnel arrive fully educated and trained.
2. Eventually all mid-level and senior-level management will either have taken the course or will hold post-secondary qualifications once there become available.
3. For example, Canada's International Centre for Ocean Development (ICOD) and CIDA, or private donor foundations (Germany's CDG and Japan's Sasakawa).

Las Iniciativas para un Grado de Maestría en Manejo Integral de la Zona Costera en Cuba

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Según los estimados de organismos internacionales, en el año 2000 un 75% de la población mundial (unos seis mil millones de personas) vivirán en franjas costeras estrechas, de unos 60 km de anchura. Este proceso de concentración ya está ocurriendo en estos momentos y la presión sobre esta región está alcanzando niveles muy críticos en algunas partes. En la zona costera se desarrollan actividades de muy diferente naturaleza que a menudo crean fuertes conflictos: pesquerías, acuicultura, extracción de petróleo, turismo, actividad portuaria, extracción de materiales de construcción, por sólo citar algunas de las más comunes. En Cuba, por ejemplo, se da la situación de que la región cercana a la playa de Varadero, nuestro polo turistico principal, es también una de las regiones con más perspectivas para el desarrollo de la industria de extracción de petróleo.

En 1995, el gobierno cubano emitió el "Programa Nacional para el Medio Ambiente y el Desarrollo," el cual constituye la implementación de la Agenda 21 en nuestro país. En ese documento se hace énfasis en la necesidad de fortalecer las capacidades institucionales cubanas y en particular, la educación ambiental en instituciones educacionales, agencias del gobierno y comunidades locales.

Se puede afirmar que en la década de los 90, en el ámbito de las zonas costeras a nivel mundial, se ha acelerado de forma significativa el proceso de integración vertical de la ciencia: cada vez es menos definido el límite entre ciencia básica, ciencia aplicada y administración de los recursos naturales. Simultáneamente, se ha hecho evidente la necesidad imperiosa de una integración horizontal del quehacer científico: de enfoques sectoriales se ha pasado a enfoques multidisciplinaries y ya es evidente la idoneidad de un análisis interdisciplinario. Han surgido nuevos conceptos y métodos de investigación, haciendo que la vieja división en disciplinas se haya hecho muy obsoleta. Como es lógico suponer, esto repercute de forma directa en el proceso de formación de las capacidades humanas necesarias para enfrentar el nuevo reto. Estamos ante el problema del cuadro científico y la evolución acelerada del estilo de pensamiento dominante en un período del desarrollo de la ciencia. Asistimos a una transformación de los paradigmas y marcos conceptuales dominantes.

El Manejo Integrado de la Zona Costera (MIZC) ha recibido gran atención a nivel internacional como vía idónea para el desarrollo sostenible en la región donde interactúan el océano y la tierra firme. La zona costera no es terrestre ni marina. Ella presenta propiedades y procesos que transcienden significativamente las diversas disciplinas clasificadas como marinas o terrestres. Desde el transporte de los sedimentos a lo largo de la costa hasta la evolución de las economías basadas en el mar de las comunidades costeras, se extiende una gama de situaciones que no pueden ser explicadas satisfactoriamente por una ciencia y una economía organizadas sobre bases fuertemente sectoriales. Es evidente que para tratar con estos problemas nuevos y altamente complejos se necesitan nuevos mecanismos, nuevas interacciones, nuevos enfoques.

El reconocimiento unánime, a nivel mundial, del rol del MIZC como via idónea para lograr el desarrollo sostenible en la zona costera plantea demandas inmediatas en el campo de la formación de las capacidades humanas necesaria para su instrumentación. Es evidente que el surgimiento de nuevos problemas y nuevos enfoques requerirá el surgimiento de nuevos profesionales y una reorientación profunda de los que ya existen y se vinculen a esta actividad. Otro aspecto íntimamente ligado al problema es el de la educación ambiental, una de las vías directas para lograr una conciencia social sobre el desarrollo sostenible y la forma de lograrlo. La educación ambiental es mucho más que grupos de niños en círculos de interés o grupos de voluntarios recogiendo basura en el mar. En relación con el tema que nos ocupa, cabe decir que una buena educación ambiental necesita de un profundo conocimiento de los procesos ecológicos, económicos y sociales, en este caso, de la zona costera.

Una cuestión básica es la necesidad de producir cursos y entrenamientos que tengan un enfoque nuevo utilizando personal calificado que se formó con enfoques viejos y que está organizado institucionalmente de una manera fuertemente sectorial, lo cual es obsoleto también a la luz del nuevo paradigma. La mayoría de los centros existentes que tratan con problemas ambientales "con independencia de cuál sea su nombre" estan en general dominados por especialistas de unas pocas disciplinas. En unos casos existen varias disciplinas de las ciencias naturales (biología, física, química) pero es notoria la ausencia de científicos sociales o de la economía. En otros casos son centros básicamente de ciencias sociales, con alguno que otro especialista vinculado a algunos tópicos de economía, y sin personal de las áreas de ciencias naturales. En otros casos el sesgo es muy fuerte hacia la disciplina del llamado derecho ambiental. En muchos de estos casos se trata de llenar el vacío existente mediante incursiones superficiales y muchas veces temerarias en campos ajenos a la especialidad que predomina, con la consecuente crítica de los sectores afectados.

Un problema importante es precisar con claridad el personal que debe ser objeto de la capacitación, con el objetivo de logra un impacto social lo más inmediato posible, pero a la vez un impacto que sea duradero. Se debe tener en cuenta la necesidad de incluir priorizadamente a personal externo a la universidad que ya tiene cierta experiencia de trabajo y que está ubicado en puestos claves dentro de los organismos de la administración central del estado o en instancias del gobierno (Poder Popular). Como regla general estas personas poseen gran poder de decisión, pero tienen un conocimiento limitado o sectorial de los problemas integrales de la zona costera. Simultáneamente con lo anterior, hay que tener, como otro objetivo con igual prioridad, la formación de cuadros jóvenes que sean portadores de un nuevo enfoque, una nueva metodología y una nueva mentalidad.

Las universidades nacionales son, generalmente, instituciones que presentan algunas características que las hacen potencialmente idóneas para centrar programas de capacitación en MIZC. Entre ellas se destacan su carácter naturalmente multidisciplinario, el alto nivel académico de sus profesores, la no existencia de compromisos específicos de carácter sectorial, entre otras. Por ejemplo, la Universidad de la Habana posee recursos humanos de alta calificación en las ciencias naturales, las ciencias sociales, las ciencias económicas y el derecho. En muchas áreas ya existen algunos profesores que tienen una fuerte orientación ambientalista en su actividad. Está claro que existen condiciones objetivas para tratar de crear una red dentro de la universidad para el desarrollo de actividades de postrado encaminadas al tema del manejo integral de la zona costera.

Si nos movemos un paso hacia arriba en la escala de organización institucional, verificamos que el Ministerio de Educación Superior reúne las mismas características que apuntamos para la universidad en particular, pero en una dimensión superior. En este nivel se pueden añadir otras especialidades claves, como por ejemplo, la ingeniería ambiental (Institutos Politécnicos Superiores) y la educación ambiental (Institutos Pedagógicos Superiores). Pero además se pueden sumar otras universidades del país que se encuentran cerca de áreas costeras con gran importancia.

La existencia del Centro de Investigaciones Marinas en la Universidad de la Habana facilitó, en 1995 los contactos con el Programa de Asuntos Marinos de la Universidad Dalhousie, de Halifax, Canadá. Estas dos instituciones vieron con claridad el enorme potencial que existía para el desarrollo, en Cuba, de un programa de Maestría en Manejo Integral de la Zona Costera. En consonancia con ello, se promovió la elaboración de un proyecto conjunto entre las Universidades de Dalhousie y Saint Mary's, en Canadá y las Universidades de la Habana, de Cienfuegos y de Oriente, en Cuba. En el planteamiento de la proposición del Proyecto se puede apreciar una aplicación de algunos de los conceptos que hemos comentado anteriormente. Estos se resumen brevemente a continuación.

- Involucra a tres universidades cubanas y dos canadienses con la participación de especialistas de varias facultades y/o departamentos centro de cada universidad. Se crean comités coordinadores institucionales del programa para garantizar el trabajo en equipo. Se propone que el diploma sea entregado por el Mimsterio de Educación Superior en conjunto con las tres universidades cubanas involucradas.
- Se prevee el mejoramiento cooperativo de los cursos ya existentes que tocan de forma parcial algunos aspectos relacionados con el ambiente costero (ecología marina, economía ambiental, derecho ambiental, sociología ambiental, etc.) y su inserción armónica dentro del nuevo programa.
- Se establece la conformación de un núcleo básico con cursos obligatorios de nuevos tipos, con el desarrollo de un enfoque interdisciplinario (no solo multidisciplinario) y el entrenamiento en metodologías y técnicas

de enseñanza modernas y acordes con el objeto principal del programa (estudios de caso en el campo orientado a problemas, estudios de caso en el aula, ejercicios de clase basados en trabajo de equipo, simulaciones que incluyen desempeño de roles, uso de la computación, multi-media, etc.)

- El Proyecto contempla la realización de dos talleres para entrenamiento y desarrollo curricular basados en la presentación de trabajos solicitados para discusión centrados en:

  a) Cursos del núcleo básico y módulos componentes, con materiales docentes y de lectura así como los requerimientos de la tesis.

  b) Cursos electivos en las tres universidades, incluyendo el perfeccionamiento de los programas de los ya existentes y otros nuevos que se propongan.

- Se propone la realización de un taller adicional de entrenamiento en metodologías de enseñanza interdisciplinaria y una reunión de seguimiento sobre validación curricular, para evaluar los programas de los cursos del núcleo básico.

- Se plantea el mejoramiento de la habilidad de las universidades cubanas para contribuir a la introducción del manejo de la zona costera y la educación marina ambiental en los niveles nacional y provincial, así como la facilitación de la participación de las comunidades en el MIZC. El proyecto contribuirá significativamente al desarrollo de un marco intelectual para el desarrollo de proyectos de investigación interdisciplinarios.

- El proyecto incluye apoyo material a través de:

  a) El fortalecimiento significativo de las bibliotecas especializadas para apoyar la educación y el aprendizaje en las tres universidades cubanas.

  b) Adquisición de tecnología y equipamiento para garantizar una enseñanza moderna y de calidad.

- Los estudiantes del programa se reclutarán principalmente de las fuentes siguientes:

  a) Organismos de la administración central del estado (a nivel nacional y provincial) que tienen que ver con el desarrollo y control de las actividades que inciden en la zona costera (Pesca, Turismo, Extracción de Petróleo, Minería, Medio Ambiente, Planificación Física, etc.).

  b) Universidades y otras instituciones relacionadas con la formación de profesionales.

  c) Jóvenes graduados que están ya vinculados laboralmente en áreas costeras o que tienen relación con las mismas.

  d) Personal de los gobiernos provinciales y municipales que representan a las comunidades locales y se ocupan de los problemas relativos al ambiente y el desarrollo.

- Para integrar de forma completa a los elementos no universitarios en este programa, se identificarán las agencias gubernamentales, las industrias, las comunidades costeras, otras instituciones educacionales y los proyectos de relevancia general, para vincularlos a prácticas docentes, proyectos de campo, estudios de caso, educación ambiental, etc.

- En el plano internacional, este programa de Maestría sería uno de los primeros dedicados a la educación de postgrado en MIZC que se ofrece en español y podría estar al acceso de administradores y estudiantes de América Latina.

- Una idea importante en torno a este Programa de Maestría es la inclusión de personal altamente calificado y con una gran experiencia práctica que no se encuentra vinculado de forma directa al Ministerio de Educación Superior. Llevando la idea de la integración a su expresión más elevada, se pretende vincular a la actividad docente a investigadores de otras instituciones dedicadas a las investigaciones marinas en nuestro país, así como personal de reconocido prestigio relacionado con problemas ambientales que se encuentren laborando en diversas entidades.

En resumen, el Programa de Maestría que se propone desarrollar consistirá de tres componentes esenciales:

a) Un número de cursos básicos, obligatorios, comunes e interdisciplinarios que serán impartidos en las tres universidades.

b) Cursos individuales electivos que serán identificados en cada universidad, de acuerdo a sus posibilidades y contextos regionales.

c) Una tesis basada en una investigación original relacionada con un problema específico en el área de manjeo de la zona costera.

El desarrollo de este Programa de Maestría en nuestro país constituye un reto, pero entraña una gran esperanza. No solo será muy útil para contribuir a lograr un desarrollo armónico y compatible con la conservación de la naturaleza en nuestro país, sino que en un futuro no muy lejano puede constituir una fragua donde se preparen decenas de profesionales de la cuenca del Gran Caribe y de América Latina en general. Cuba exhibe con orgullo un sistema educacional ejemplar que es el fruto de la unión fecunda de la voluntad política de sus autoridades más relevantes y del esfuerzo mancomunado de miles de trabajadores que con su abnegado trabajo cotidiano han logrado vencer obstáculos muy serios de todo tipo. En ese contexto, podemos garantizar la seriedad y calidad de este programa.

La Experiencia del Centro Operativo Regional para América Latina y el Caribe del Instituto Internacional del Océano (IOI-Costa Rica), 1995-97

Gabriel Coronado & Alejandro Gutiérrez
IOI-Costa Rica

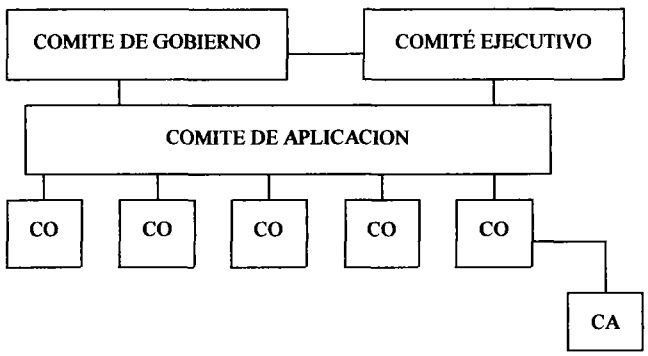
Como es sabido, el Instituto Internacional del Océano (IOI) es el resultado de la declaración de los Océanos Profundos como Patrimonio Común de la Humanidad, por parte de las Naciones Unidas en el año 1967. Consecuentemente, este organismo ha aprobado la creación de ese instituto en modo de instrumentalizar este visionario principio. Así, desde sus inicios, el IOI ha desarrollado un papel eminentemente extensivo, a favor de la capacitación de los actores sociales involucrados con la toma de decisiones en asuntos marinos y costeros, estableciendo un puente entre tomadores de decisiones de alto nivel político y el sector técnico-científico y las bases sociales que enfrentan día a día la problemática marino-costera.

Especial interés ha revestido para el IOI los grandes capítulos del quehacer académico y político mundial, cuales son el Derecho del Mar y el uso pacífico de los océanos, entre otros. Papel relevante ha jugado el IOI en la formulación, discusión y ratificación de la "Nueva Convención del Derecho del Mar", así como en la formulación del Capítulo 17 de la Agenda 21 referente a los océanos.

Organización del IOI

El organigrama 1 sintetiza la estructura funcional del IOI: con las directrices fundamentales que emergen del Comité de Gobierno, órgano de reflexión de las políticas generales del instituto; el Comité Ejecutivo, brazo ejecutor del anterior, es el encargado de velar porque éstas se ejecuten; mismas que son discutidas e implementadas, a la luz del quehacer del conjunto de centros operativos, por el Comité de Planificación que alberga a los miembros del Comité de Gobierno y a los directores de los centros operativos. Aquí se planifica el quehacer de todos y cada uno de los centros, en consecuencia con los principios filosóficos del instituto. Los centros operativos tienen la facultad de adaptar las políticas de operación, según las circunstancias regionales. Asimismo, éstos pueden- cual es el caso del IOI-Costa Rica con la Facultad de Derecho de la Universidad de Chile- afiliarse a otros centros académicos o técnicos de la región, con el fin de ejecutar apropiadamente su quehacer regional.

Para el funcionamiento de los centros, es práctica común el establecimiento de un convenio entre la sede del instituto y la instancia nacional que alberga al centro regional; lo que permite un co-financiamiento inicial del centro. Acto seguido, el centro regional, mediante propuestas a entidades locales e internacionales, asume el compromiso de procurarse fondos con el fin de dar carácter permanente a sus actividades.



CO: Centro Operativo
CA: Centro Afiliado

Organigrama 1: Esquema organizativo del IOI

El IOI-Costa Rica a través del tiempo

En consistencia con el fundamento operativo del IOI, el IOI-Costa Rica dio inicio a su quehacer operativo en el año 1995, y desde entonces ha capacitado personal de quince países del área correspondiente al Mar Intertropical Americano, a saber, México, Centroamérica, las Islas del Caribe de habla hispana, Venezuela, Colombia, Ecuador y Perú.

Ha sido política del IOI- Costa Rica, la descentralización de su quehacer, con el fin de conseguir un impacto mayor en otros estados del área. Así, se han desarrollado, hasta la hora, actividades de capacitación en Panamá, Cuba y Colombia. En los últimos tiempos de su primera etapa trienal de capacitación, el IOI-Costa Rica ha entendido que se vuelve primordial el establecer lazos con instancias de otras naciones de lengua oficial no hispana, en modo de atender apropiadamente los asuntos marino-costeros de áreas específicas, cual es el caso de la Isla de Santo Domingo, dividida en dos contextos culturales diferenciados, que sin embargo comparten un contexto ambiental marino-costero muy semejante. Así, el IOI-Costa Rica ha entrado últimamente en conversaciones con el Centro Regional del PNUMA, con sede en Jamaica, a fin de conjuntar esfuerzos en la dirección señalada.

El Gran Viraje

Luego de tres años de capacitación, gracias al aporte de cientos de participantes del área, para el IOI-Costa Rica resulta evidente que la sola capacitación, no obstante necesaria, es insuficiente y no garantiza el progreso hacia lo que pareciera haberse convertido en una verdadera urgencia en nuestra región: la formulación y efectiva ejecución de planes de manejo intregrado marino-costero; lo que significa no solo una apropiada formulación de ésos, sino, fundamentalmente, la consecusión de una estrategia de reorganización institucional para poder efectivamente llevarlos a cabo en un modo sostenido.

Este aserto es el objeto central de nuestra intervención durante este encuentro; convencidos como estamos, de que el ser humano, fin último de nuestra atención, reclama de parte nuestra planes concretos de acción, con resultados tangibles a corto, mediano y largo plazo. Solo así podremos dar un verdadero salto de calidad, de la retórica a la acción, a favor de la sustentabilidad del ambiente, de los recursos marinos y del mejoramiento de la calidad de vida de las comunidades más pobres del área.

La propuesta concreta que queremos someter a consideración de este plenario, se especifica a continuación.

HITOS FUNDAMENTALES EN EL DESARROLLO DE UN ENFOQUE ESTRATEGICO PARA EL MANEJO MARINO-COSTERO: HACIA UN PLAN INTEGRADO

La Dimensión Humana en el Manejo Marino Costero

En el IOI hemos comprendido que el problema esencial que enfrentamos todos los especialistas, instituciones, organizaciones y sectores preocupados por el manejo sostenible de las costas y oceános, tiene que ver directamente con la dimensión humana. Ello en un doble sentido: por una parte, el fin último de nuestras acciones debe ser el mejoramiento de la calidad de vida de las poblaciones humanas, particularmente las costeras; por el otro, reconocemos que cualquier esfuerzo orientado al cambio de la situación actual, pasa, necesariamente, por cambios en el ser humano: comunidades, líderes, organizaciones e instituciones deben sufrir transformaciones de diversa índole.

En efecto, la brecha que nos separa entre un escenario "ideal" de interacción entre la actividad humana y el océano, fundamentado en principios de desarrollo sostenible, y la amenazante realidad actual, es más un problema del factor humano involucrado, que de insuficiencia de conocimientos y tecnologías científicas, de las que, dichosamente, tenemos un rico acervo. Ese cambio en el "factor humano" implica, entre otras cosas, lo siguiente:

- necesidad de adoptar una forma de pensar y actuar, nueva y diferente frente al uso de los recursos marinos, sustentada en una visión de largo plazo
- necesidad de desarrollar un lenguaje común entre diferentes actores a nivel internacional, interdisciplinario, inter-institucional y local

- necesidad de concertar acciones entre diferentes actores e intereses, posibilitar la toma de decisiones y garantizar las condiciones organizacionales y políticas para su real implementación
-

Así, cuando nos referimos al "manejo marino-costero" quizás, deberíamos decir, más bien, la gestión marino-costera, aludiendo al carácter de proceso organizacional y humano que involucra. Ciertamente, cuando analizamos la complejidad del proceso de formulación e implementación de un Plan Integrado de Manejo Marino-Costero (PIM), nos damos cuenta que las mayores dificultades inherentes a esta empresa, tienen que ver de manera directa con todo el factor humano involucrado, básicamente las dimensiones arriba señaladas y que constituyen la esencia del proceso de gestión.

Expresamos estas consideraciones como antecedente importante para la presentación que deseamos compartir sobre el proceso de formulación e implementación de un PIM, en el cual, concebimos que la dimensión humana del mismo, es fundamental y constituye, de hecho, un eje que atraviesa todas sus etapas y momentos de desarrollo.[1]

Premisas sobre el Cambio Organizacional Necesarias para la Formulación e Implementación de un PIM

Una visión de futuro deseable del desarrollo costero y oceánico, como se quiera que la definamos, a partir de los valores y principios de la sostenibilidad, equidad y desarrollo, supone cambiar un "estado de cosas" que en la mayoría de los países, (si no en todos) ha sido caracterizado por :

- Políticas con objetivos en conflicto o no relacionados, responsabilidad de múltiples órganos y autoridades
- Procedimientos fragmentarios y superpuestos para la toma de decisiones
- Baja prioridad del componente marino y costero en los procesos de planeamiento y conformación de agenda nacionales
- Ausencia de una visión integrada trans-sectorial de la dimensión costero-oceánica
- Modelos de organización e intervención institucionales orientados de "arriba hacia abajo", sin adecuada incorporación de los diversos actores involucrados (Borgese 1995)

El proceso de cambio parte de un consenso básico sobre la visión o estado ideal que se quiere alcanzar; es este el elemento clave movilizador de toda la energía de la organización/comunidad, y de todo el esfuerzo de planeamiento, que debe originarse en su dirección o ente rector (a partir de un amplio y abierto proceso de reflexión, diálogo y concertación), pero que deberá también permear todos los niveles de ella.

En segundo lugar, el cambio requiere que los miembros de la organización o comunidad sujeto del cambio, desarrollen las destrezas necesarias, tanto técnicas, según sea su naturaleza, como destrezas propiamente de cambio (actitud favorable al cambio, proactividad, destrezas gerenciales, etc.). En tercer lugar, el proceso debe desarrollarse en forma coherente, consistente, siguiendo un plan que permita ir estableciendo las necesarias fases y su articulación en el tiempo y en los diferentes espacios de la organización. El proceso de cambio debe cuidar en todo momento la articulación de los tres vértices de un triángulo, sin permitir que alguno de ellos deje de desarrollarse o que lo haga en disonancia con el otro.

Con el fin de ilustrar lo anterior al problema del manejo costero, diremos lo siguiente: el proceso de formulación de los componentes esenciales de un Plan Integral de Manejo Costero y Oceánico debe involucrar en su formulación, representantes de alto nivel de los actores principales involucrados (instituciones del Estado, empresarios, pescadores, líderes comunales, científicos, etc.) quienes deberán concertar el conjunto de aspiraciones para alcanzar mediante el mismo e interiorizar dicha visión compartida. Una vez negociada y aprobada por la cúpula gerencial del PIM, representante real de los intereses de lo sectores involucrados, será socializada y apropiada por las instancias "intermedias y de base".

Visión sin acción es un sueño que no conduce a nada. Por ello, se requiere la formulación de una plan coherente de cambio que conduzca, en pasos sucesivos, al estado deseado o visión de futuro. Dicho plan de cambio se desenvuelve simultánea y paralelamente al desarrollo de la acción regular que los distintos actores realizan en el cumplimiento de sus responsabilidades e intereses - Misión - pero estando ello siempre subordinado y orientado

por su visión de futuro. La coherencia en las políticas y acciones orientadas a la sostenibilidad, como un proceso gradual, es fundamental para garantizar el éxito en la consecución de la meta más amplia.

Finalmente, el cambio propuesto supone que todas las personas que están objetivamente involucradas en el proceso deberán desarrollar - vía capacitación - las nuevas destrezas, conocimientos, que requiere la nueva visión de desarrollo, que , por supuesto, son diferentes y específicas para cada sector. Ciertamente, es este un componente clave de un PIM, sin cuya adecuada implementación se hacen inviables los propósitos.

Ahora bien: Cómo se desarrolla la motivación hacia el cambio?, Cómo arranca un proceso que cree la necesidad del cambio y que sea a su vez compartido? Ciertamente, si nos figuramos el punto de partida en un proceso de formulación que conduzca efectivamente a la implementación de un PIM, no resulta suficiente condición que garantice su eficaz desarrollo, la sola aprehensión "racional" de su necesidad. Si así fueran los procesos sociales, la ciencia y la tecnología solas bastarían como factores de transformación de la realidad.

La Fórmula del Cambio* : C ' (N+I+F+P) > COSTO (X)

* **C**ambio; **N**ecesidad percibida; **I**ncorformidad situación presente; Visión estado **F**uturo; **P**roceso planificado

Mayor a **X** (costo en recursos, energía, tiempo)

Observemos la sistematización que se ha hecho mediante una "fórmula del cambio". Como se observa, debe existir una necesidad percibida de cambiar, aunada a un sentimiento de inconformidad con la situación presente. Ello junto con una visión de un estado futuro deseado y un proceso planificado de inicio del cambio, puede promover el proceso, siempre y cuando todo ello sea mayor al costo que ese proceso de cambio puede tener, medido en tiempo y recursos. La fórmula habla de la imprescindibilidad de que estén presentes todos los factores para que el proceso de cambio sea exitoso.

Obsérvese que los cuatro factores de la fórmula son "construcciones" sociales que pueden (y deben) ser inducidas "desde afuera" , a partir de una intencionalidad expresa. En efecto, en el plano organizacional, la tendencia natural del ser humano apunta más a la inercia y por ende , la resistencia al cambio, por lo que dichos procesos son, no pueden jamás ser espontáneos.

Otro antecedente importante de carácter metodológico que debemos incorporar tiene que ver con la complejidad de carácter organizacional que está contenida en el PIM.

La problemática de manejo costero es, por su propia naturaleza, multisectorial, interdisciplinaria, de múltiples y diversos actores-clave, y en esa medida, desde la perspectiva de la organización y la gestión, debe ser inter-organizacional. Por ello, los conceptos-clave que hemos considerado hasta ahora adquieren un nuevo carácter y complejidad, pues no se trata ya de vectorizar estratégicamente una unidad funcional y jerárquica, sino de integrar una sola gestión bajo un vector estratégico. Para ello, deben adoptarse enfoques de gestión orientados al establecimiento de redes organizacionales que articulen los enfoques y esfuerzos de agencias gubernamentales, organizaciones científicas, empresarios, y comunidades. El esfuerzo de planeamiento y gestión debe convertirse en un proceso particicipativo de base, orientado en el nivel macro y superior por el órgano rector que establece las políticas y los planes generales. Para ello, debe visualizarse como central la capacidad de los organismos especializados, de poder conducir una "gerencia horizontal" de múltiples y variados actores institucionales. La articulación necesaria se produce en procesos de planeamiento participativo, elaborando consensos y no solo mediante leyes y estructuras.

Estrategia General para la Formulación e Implementación de un PIM

Con las premisas señaladas, estamos en capacidad de establecer una estrategia general para la formulación e implementación de un PIM. Por supuesto que el carácter general y "abstracto" de la propuesta obedece a la imposibilidad (y lo innecesario) de atender la especificidad nacional. Ciertamente la secuencia de cada uno de los hitos que a continuación se proponen (y la naturaleza misma de cada uno) puede variar de un país a otro; sin embargo, pensamos que la contribución de la propuesta estriba en identificar una cierta lógica de *método, más que de pasos concretos*, que el proceso general demanda.[2]

1. **Formulación de los principios y orientaciones que deben regir el desarrollo de las costas y océanos, por parte del ente rector del gobierno, avalado por su máxima autoridad, y apoyado técnicamente, por los diversos entes científicos especializados**

   El inicio en la formulación de un PIM, y la consecuente estrategia para su implementación, surge de la preocupación por el deterioro de áreas particulares de uso y explotación de los recursos del mar y las costas y/o por determinadas necesidades de desarrollo productivo (como puede suceder en los países de la región con la pobreza de las comunidades costeras). Este primer paso, con lo fundamental que es, es difícil que se produzca debido a la baja prioridad que en la agenda de prioridades de nuestros gobiernos, tiene la problemática marino-costera. Ciertamente, el apoyo (y la iniciativa de los agentes académico y científico) resulta de vital importancia.

2. **Se convoca a un FORO NACIONAL DE CONCERTACIÓN con la participación de todos los grupos de interés para establecer una VISIÓN COMPARTIDA DE FUTURO, tomando como insumo la plataforma de ideas anterior**

   Este momento resulta clave para establecer los necesarios consensos. La visión compartida no puede abarcar el detalle de los escenarios real o potencialmente conflictivos, que deberán ser abordados de manera específica en un momento posterior. Es un momento de diálogo permante y de involucramiento real en él, de todos los actores-clave que tienen intereses fundamentales en el uso y desarrollo futuro del océano y las costas.

3. **A partir de la VISIÓN COMPARTIDA DE FUTURO, se establecen los contenidos básicos de un PIM y un PLAN ESTRATÉGICO DE DESARROLLO (PE) conjunto de las instituciones y organizaciones involucradas en su implementación, priorizando las áreas más críticas de intervención y transformación**

   Este es propiamente el proceso de formulación del plan y la estrategia y, aunque tiene una evidente dimensión técnica, sigue constituyendo un espacio clave de diálogo y negociación. Es un proceso de "doble vía" que involucra la consulta a las bases constituyentes de cada uno de los actores-clave.

4. **Se aprueba el PIM y el PE con carácter de Ley y un Sistema de Capacitación y Asistencia de acompañamiento a la ejecución del Plan**

   Aquí se determina el carácter vinculante del plan y la estrategia, luego de un amplio proceso de concertación con actores diversos de la sociedad civil y gobiernos nacionales y locales.

5. **Divulgación del PIM y el PE en los espacios institucionales, comunitarios, empresariales y científicos a nivel local y regional, con el fin de que cada actor establezca sus metas de cambio y adecuación a las exigencias del plan nacional**

   Este momento es, por excelencia, el más claro momento del proceso "en cascada hacia abajo"; ya no tanto para ampliar la consulta (aunque nunca el proceso de implementación de un PIM debe desconocer la retroalimentación permanente) sino para orientar la acción y, sobre todo, el cambio y la adecuación institucional/organizacional/de práctica comunitaria y empresarial/etc., coherentemente con las metas y principios del plan y su estrategia. Hasta aquí corresponde a la fase de implementación.

6. **Constitución de Estructuras Organizacionales en Red para la ejecución, el seguimiento y la evaluación**

   Obsérvese que el proceso descrito implica el desarrollo de un sistema con varios componentes que participan de manera diversa en diferentes momentos. La idea de organizar redes ejecutoras del PIM obedece a su propia naturaleza, que, como dijimos en el apartado anterior, requiere la capacidad de integrar horizontalmente, un proceso de gestión de distintos actores, pero siguiendo un mismo vector estratégico que, aunque está interiorizado (deseablemente) por todos, es responsabilidad del FORO NACIONAL, conducir y evaluar. Dicho FORO NACIONAL, por su parte, debe tener un ente de carácter más ejecutivo y apoyado en forma directa por el ente técnico que, a su vez, constituye el Sistema Nacional de Capacitación.

Una Propuesta para el Plazo Imediato: Hacia un Plan Integrado de Manejo para la Región

Las ideas aquí expuestas (muchas de ellas ya aplicadas en otros contextos) evidencian, entre otros problemas, la dificultad de establecer modelos que puedan ser aplicables a diferentes países y situaciones concretas. Lo expuesto asume un escenario ideal donde se parte de un punto cero y se desarrolla todo un proceso integral que culmina con la implementación del PIM. Esa no es, sin embargo, la situación real y posible en los países del área: existen, de hecho, niveles desiguales de problemas y desarrollo de soluciones, las condiciones organizacionales, políticas, jurídicas, culturales, etc., de los países son diferentes. También, a nivel sectorial, algunas áreas pueden manifestar problemas más críticos y por lo tanto, el carácter integral del plan debe contemplar prioridades.

Esta realidad advierte sobre la importancia de desarrollar procesos de diálogo, construcción y aprendizajes conjuntos en los países de la región, en donde se establezcan los rasgos generalizables de cada modelo y se atienda, también, las especificidades locales. Este proceso de reflexión/construcción debe servir también para ir forjando la voluntad política de los diferentes actores clave involucrados. En efecto, la discusión sobre la naturaleza y los requerimientos de desarrollo de planes integrados puede ser el inicio de la necesaria sensibilización que, representantes de los actores, deben desarrollar para darle curso a un verdadero proceso de concertación nacional.

En el marco de lo expuesto, y dentro del espíritu cada vez más generalizado en nuestra comunidad científica que llama a pasar de la retórica a la acción, nos permitimos proponer que como continuación inmediata de esta actividad, se programe y desarrolle un taller regional de trabajo sobre la naturaleza y metodología para la formulación e implementación de planes integrados de manejo marino-costero, involucrando a representantes de los actores clave, y principalmente, en esta etapa, a representantes de alto rango de los gobiernos. La experiencia que podamos desarrollar servirá, no solamente para avanzar en el cumplimimiento de una tarea "tangible" (los contenidos del Plan) sino, más importante aún, permitirá un proceso de conocimiento mutuo entre actores regionales que permita ir creando los fundamentos humanos y políticos para la acción futura.

Notas

1. La naturaleza de esta contribución nos exige limitarnos a las premisas organizacionales y metodológicas del proceso del PIM, y no abordaremos su naturaleza, contenidos y componentes.

2. Para conocer una propuesta comprensiva y profunda sobre manejo integrado, en donde puede encontrarse una detallada explicación, entre otras cosas, de los pasos para el desarrollo de un PIM, véase Cicín-y Knetch, 1998.

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UWI Training Programmes in Coastal Resource Management

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Introduction

Yesterday, we heard that the University of Havana was founded in 1728. Another 220 years passed before a university was established in the English-speaking Caribbean. The University of the West Indies (UWI), 50 years old in 1998, serves the independent states and dependent territories of the Commonwealth Caribbean: more than a dozen countries[1] most of which are islands and in all of which social and economic activities are concentrated in their coastal zones. UWI has established campuses at Mona, Jamaica (1948), St. Augustine, Trinidad and Tobago (1960), and Cave Hill, Barbados (1963).

Since the University was opened, there has been an interest in the coastal zone: the first Head of the Department of Zoology at Mona was a marine biologist. He initiated a programme of research and graduate training in marine science which has continued and grown. Zoology is now united with Botany as Life Sciences and departments of Geology, Geography, Chemistry have been established. The multidisciplinary Centre for Marine Sciences was founded in 1990 to promote and co-ordinate interdisciplinary training and research in the coastal zone. Similarly, coastal and marine research has developed at the other two campuses.

The three important ecosystems, mangroves, seagrass beds and coral reefs, provide the basis of coastal fisheries and tourism. These ecosystems have been a major focus of our research, most recently in association with the Caribbean Coastal Marine Productivity Programme (CARICOMP). To carry out such work, UWI has established two marine laboratories in Jamaica: in Port Royal at the entrance to Kingston Harbour; and at Discovery Bay, in the centre of the north coast. In Trinidad, researchers from UWI St. Augustine have worked on the beaches and wetlands throughout the country and often collaborate with marine researchers at the Institute of Marine Affairs. In Barbados, UWI has an arrangement with McGill University, and is able to share in the use of its Bellairs Research Institute on the west coast. In all three countries, UWI researchers became aware of anthropogenic problems in the coastal zone and were drawn into discussion of management issues. These factors have influenced both their research and their teaching. Researchers have focussed on pollution, especially that emanating from Kingston, Jamaica, and on fisheries management. Mitigation of the pollution of Kingston Harbour was a component of the same United Nations Development Programme (UNDP) project that recently worked in Havana Bay. Work on fish and fisheries has ranged from stock assessment to outreach work with fisher communities.

Before describing UWI's academic programmes in capacity-building for ocean and coastal management, I will briefly refer to capacity-building initiatives with fisher communities. For the last ten years, the Fisheries Improvement Programme (funded successively by Canadian International Development Agency, International Development Research Centre and the Kaiser Jamaica Bauxite Company) has worked with fishers at Discovery Bay and in neighbouring communities. Assessment of the status of the fishery, from catch data and by fishery-independent survey, was accompanied by a programme of mutual education. Reef fish stocks had been severely over-exploited, and we discussed with the fishers management measures that had been used elsewhere. As a result they decided to create their own fishers' organization, to exchange their small mesh traps for enough large-mesh wire to build another two traps, and to establish their own marine protected area, a fishery reserve within Discovery Bay (Woodley 1994; Sary *et al.* 1997).

A College of London University until 1962, UWI inherited the British system where undergraduates specialise early and are taken to a relatively high level. After graduation, if they continue in an academic career, they go straight into research for higher degrees; there are no graduate courses. As early as 1972, there was an undergraduate course in Coastal Management at Mona. It was part of a final year Marine option in the Department of Zoology/Life Sciences, along with Marine Ecology, Fisheries and Aquaculture. The programme had the occasional use of "ships of opportunity" for open water experience and research. Many graduates from this programme have joined government natural resource agencies, or consulting companies. However, individuals usually found that they needed more extensive training.

All three UWI campuses offer M.Phil. and Ph.D. degrees by research. Each student receives personalized tuition from a supervisory committee that offers a reading programme and guidance in research methods. Of 15 students recently registered for higher degrees in the Centre for Marine Sciences at Mona, more than half are working on problems that are directly related to coastal management issues. These students are all in the natural sciences, but we hope soon to involve the social sciences.

Marine programmes at UWI

The first environmental postgraduate course was a diploma taught by CERMES (Centre for Ecological Resource Management and Environmental Studies) at Cave Hill in 1990. A Master's programme called MAREMP (Marine Resource and Environmental Management Programme) was introduced at the same campus in 1992. MAREMP aims to provide postgraduate training and to facilitate the development of applied research programmes in marine sciences and management. Training consists of a group of core courses; a smaller group of elective courses; two specialization streams in Coastal Zone Management or Fishery Management; all to be covered in three semesters, followed by a 6-month research project. This programme, limited to 15 participants, was enthusiastically received in the Eastern Caribbean, and was over-subscribed until last year. It will be replaced by a new programme described below.

In the last five years, UWI has changed its undergraduate programmes from the British to the American model, with more frequent examinations. The loss of time for study, reading and thought has made the need for postgraduate courses more acute. It is therefore opportune that support has been obtained from the European Community for UWI to launch a university-wide M.Sc. programme in Natural Resource Management, in collaboration with Universidad Nacional Pedro Henriques Urena (UNPHU) in Santo Domingo, Dominican Republic. So far, the Mona and Cave Hill campuses are participating. The plan is for a common core programme to be offered at all three sites, each of which will also offer one of (so far) three specializations, plus a number of electives. Mona will be responsible for Integrated Urban and Rural Environmental Management, and UNPHU for Terrestrial Resource Management. Cave Hill will offer Coastal and Marine Resource Management. This programme will begin in September 1998. Specializations that might be offered in the future include Community Participation in Rural Management (St. Augustine) and Coastal Oceanography (Mona).

The structure of the M.Sc., with specialization in Coastal and Marine Resource Management, will be as follows:

Core courses (2 credits each, 24 lectures, 12 hours practical)

1. Resource Systems and the Philosophy of Environmental Management
2. Monitoring and Measurements in Natural Resource Management
3. Data Handling and Analysis for Environmental Management
4. Environmental Impact Assessment
5. Resource Economics

Elective courses (Any three, 2 credits each)

1. Policies and Protocols in Environmental Management
2. Environmental Planning
3. Environmental Law and its Administration
4. Project Management
5. Parks and Protected Areas Management
6. Community-based Management
7. Geographic Information Systems

Specialization courses (3 credits, 36 lectures, 18 hrs practical)

1. Coastal Ecology and Management
2. Fisheries Biology and Management
3. Value and Conservation of Coastal and Marine Biodiversity
4. Coastal and Marine Ecotourism

Research Project (12 credits)

At the same time, St. Augustine is offering an M.Sc. in Environmental Science, that will include aspects of Coastal Management. All three campuses will continue research training in M.Phil. and Ph.D. programmes.

Thus, the University of the West Indies is engaged in capacity-building programmes in ocean and coastal management at several levels: with undergraduates, in graduate courses, in graduate research programmes, and with communities.

Notes

1. Antigua/Barbuda, Bahamas, Barbados, Belize, British Virgin Islands, Cayman Islands, Dominica, Grenada, Jamaica, Montserrat, St. Kitts/Nevis, St. Lucia, St. Vincent and the Grenadines, and Trinidad and Tobago.

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SESIÓN PLENARIA 3 / PLENARY SESSION 3

Planeación y Ordenamiento en Comunidades Costeras: Un Enfoque Analítico y Metodológico

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Introducción

Esta presentación tiene como objectivo principal de alimentar discusiones ulteriores sobre el tema del co-manejo en comunidades costeras. Por lo tanto se limitará en exponer algunas preocupaciones globales que podrían servir de guías para abordar de manera más detallada casos particulares. La tarea que los organizadores me han confiado no es fácil. El número creciente de proyectos de desarrollo que buscan mejorar la situación ecológica y socio-económica de poblaciones costeras en varias partes del mundo ha dado lugar a una literatura en expansión que constituye una base significativa de reflexión.(Hersoug 1996; Magsonoc *et al.* 1996; Laloe *et al.* 1995) Sin embargo, la diversidad de las situaciones concretas, la multiplicidad y el carácter a veces vago de los enfoques disciplinarios y el enredo de la investigación con la intervención, sin mencionar la presencia de la investigación participativa, no se prestan facilmente a la sistematización.

Es principalmente como antropólogo social, implicado en investigaciones en pueblos costeros desde varios años, que les propogo algunas reflexiones susceptibles de llamar la atención, a niveles analítico y metodológico, sobre puntos que me parecen importantes dentro de los objetivos de este encuentro. Quisiera, en la primera parte, discutir la noción de comunidad para subrayar como es, a menudo, una construcción social que da lugar a interpretaciones multiples, a veces lejos de la realidad. Después entraremos de manera más directa en las consecuencias metodológicas que presupone una visión dinámica de lo que es una comunidad y la definición de sus necesidades en términos de planeación y de ordenamiento.

Comunidades costeras y manejo sustentable: de falsas imágenes a una visión adecuada

Es un truismo ahora afirmar que las ciencias sociales se han desarrollado con la consolidación del capitalismo, este último provocando numerosas transformaciones que han llamado la atención de los investigadores. En este proceso, la dicotomia rural-urbano tuvo un lugar central, generando numerosos enfoques analíticos bipolares en los cuales la noción de comunidad quedó ligada al medio rural, el término de ciudad asociado al medio urbano.[1] Resultó de esta situación una cierta ambiguedad que no fue sin consecuecia en las maneras con las cuales tanto los científicos como los agentes de desarrollo han emprendido su trabajo en varias partes del mundo. Sin discutir aquíen detalles los numerosos estudios que han tratado de estos temas, basta mencionar que a menudo la noción de comunidad correspondió a un conjunto homogéneo, tradicional, caracterizado por una gran cohesión social y con una capacidad reducida de cambio. En otras palabras, y es una constatación bien visible en la definición de muchos programas de desarrollo en las últimas décadas, existía una vision idealizada de lo que era una comunidad y consecuentemente de las maneras con las cuales se debía intervenir para modificar sus características. Esta imagen era tan fuerte dentro de los proyectos de desarrollo que para muchos promotores ni siquiera era necesario emprender estudios sobre su funcionamiento interno antes de intervenir en ella, la mayoría pensando conocer *a priori* lo que era como objeto de estudio o de intervención.

Aunque esta visión estereotipada de las comunidades está paulatinamente desapareciendo debido a las interconexiones crecientes entre lo local y lo global (Crean y Symes 1996), prevalece todavía en ciertas agencias o centros de investigación, especialmente en los que no pueden contar con muchos especialistas en ciencias sociales. El punto que quiero subrayar aquí es que si el mantenimiento de esta visión es lástima para la intervención en comunidades agrarias, lo es aún más en el caso de comunidades pesqueras. Me limito aquí a mencionar algunos hechos:

1. En la fase de expansión del capitalismo mercantil en los siglos XVI y XVII, son las poblaciones costeras, a veces en lugares bien aislados, las que recibieron primero a agentes culturales del exterior. Resultó que el proceso de aculturación, al nivel de la tecnología, de la organización social, de la religión y del idioma, tiene raices profundas en muchas regiones litorales. En numerosas comunidades costeras, el mestizaje dió lugar a patrones culturales híbridos que constituyen ahora la base esencial de su organización social y política. Importa entonces no olvidar que el "desarrollo" en comunidades pesqueras no empezó después de la segunda guerra mundial. Fue un proceso más amplio en lo cual las intervenciones actuales se inscriben dentro de una cierta continuidad que es importante objetivar al nivel analítico.

2. Al contrario de lo que sucedió en comunidades agrarias en las cuales el capitalismo industrial intervino de manera precoz (hecho bien ilustrado por los conflictos sociales enormes que generó en varias partes del mundo), no fue antes de los años 50 y 60 que una verdadera industrialización tomó forma en la pesca. Esto quiere decir que cuando el capitalismo industrial se metió en el sector pesquero, ya era un modo de producción bien consolidado. Por lo tanto, generó transformaciones más rápidas y más drásticas que en muchas comunidades agrarias.[2]

3. Una de las características básicas de la producción pesquera reside en el hecho de que los productores deben desplazarse para explotar los recursos, a veces a grandes distancias. Además de presuponer una gran flexibilidad y maleabilidad en la organización del trabajo, esta exigencia del trabajo pesquero hace que muchas comunidades han experimentado varias formas de asentamiento y han mantenido de manera continua contactos interculturales. En muchas partes del mundo, este fenómeno de migración esta retomando fuerza sea por los grandes problemas en el sector agrario o por el poder de atracción del turismo.[3]

4. Por otra parte, muchos olvidan que la nacionalización de las zonas marinas fue un processo jurídico tan importante como las reformas agrarias en el siglo pasado. Hasta este momento, muchas comunidades pesqueras, especialmente las ubicadas en litorales aislados de los centros administrativos, tenian contactos esporádicos con la administración pública. Pero, la extensión de las burocracias, con sus exigencias de contabilidad nacional, hizo que en muchas comunidades aparecieron nuevos agentes decisionales cuya presencia transformó la organización política interna, vinculando más estas comunidades a centros económicos importantes de su pais.[4]

5. Menciono finalmente que dentro de los 20 millones de pescadores al nivel mundial, varios millares de ellos viven en medios urbanos, generalmente en la vecinidad de instalaciones portuarias. Es una constatación que contrasta con la imagen corriente que se destaca de muchos estudios sobre la pesca artesanal, generalmente asociada al medio rural.

Esta breve enumeración tenía como objetivo de llamar la atención, cuando se trata de emprender proyectos de co-manejo o de ordenamiento en comunidades pesqueras que buscan la partipación activa de los productores, sobre la necesidad de modificar nuestras imagenes de las situaciones que prevalecen en muchas de ellas. Si es verdad que ciertas comunidades pesqueras presentan todavía aspectos que podemos llamar tradicionales o se caracterizan por una resistencia a adoptar nuevos mecanismos de organización económica o social, lo que precede demuestra que, al nivel general, tal no es la situación. En muchas comunidades existen posibilidades y canales de cambio debido tanto a su trayectoria flexible anterior como a la llegada de factores exteriores que los vinculan más al contexto económico nacional o mundial. Esto no quiere decir que esas comunidades no tengan elementos básicos que les impedirían de apoyarse sobre una cierta forma de continuidad para reproducirse. Sino presupone que la investigación y la intervención, en vez de poner énfasis únicamente sobre elementos básicos, deben también dar atención a elementos que estan ubicados en el margen. A veces, son estos últimos que permiten comprender mejor una situación en la cual queremos introducir cambios o transformaciones. Esta constatación comporta muchas contrapartes a nivel metodológico. Es lo que vamos a discutir brevemente en las líneas que siguen.

El conocimiento de los actores sociales: estratégias de investigación y de intervención en comunidades pesqueras

Tal vez la mejor manera de convencerlos de lo que quiero proponer es empezar con un caso concreto, derivado de una experiencia que tuve en Costa Rica entre 1990 y 1993 (Roy, Breton y Lopez-Estrada 1992). Después de una breve descripción de esta experiencia, haré una lista de principios que me parecen indispensables hoy para actuar en una perspectiva de manejo en comunidades pesqueras.

En los años 80, Costa Rica atravezó, al igual que otros países de América Central, una grave crisis económica que fue acentuada por una sequía excepcional en sus regiones del Pacífico. El número de pescadores que apenas alcanzaba unos 3,000 al principio de esta década se duplicó rápidamente debido a los problemas en los sectores agrario y ganadero. A partir de la mitad de los 80, intervenieron varias agencias internacionales cuyo objetivo era de fortalecer el sector cooperativo en la pesca.[5] Sin hablar de la falta de coordinación y aún de la competencia que existía entre ellas, nos dimos cuenta que la mayoría de las agencias tenían prisa de establecerse en el área y de emprender proyectos que le permitirían utilizar de manera funcional el dinero a su disposición. En total fueron formadas más de 20 cooperativas, agrupadas en 2 federaciones. Sin embargo, al principio de los 90, sea después de la salida de los promotores exteriores, quedaban apenas algunas cooperativas. Es en este momento que hemos empezado un estudio de tres años buscando comprender mejor el porqué de esta situación.

Primero, nos dimos cuenta que la mayoría de los promotores tenían una visión demasiado homogenea de las 60 comunidades pesqueras presentes en el área, limitándose a lecturas aproximadas basadas principalmente en estadísticas incompletas disponibles en varias oficinas del gobierno. Casi no se sabía nada de la historia de estas comunidades, aún menos de su organización social interna. Sin embargo, al lado de comunidades que tenían más de 300 años, existían otras todavía en proceso de formación. En ciertas comunidades se praticaba principalmente una pesca de estero, en otras una pesca costera, en otras casi una pesca de alta mar. Mientras que algunas se caracterizaban por una población fuertemente ligada por el parentesco, otras estaban constituidas por habitantes provenientes de varias regiones del país sin contar con la presencia creciente de empresarios turísticos del exterior. Podría continuar con una lista de malas lecturas que hicieron los promotores y que sin duda explicaron en parte el fracaso de muchos de sus esfuerzos. Nuestro estudio consistió, después de establecer una tipología ponderada de estas comunidades, en profundizar con varios meses de trabajo de campo, la situación que prevalecía en cinco de ellas y cuyas características nos parecían dar una buena idea de la dinámica de la pesca artesanal en el área. Sin pretender que estos esfuerzos nos provieron con una imagen completa de los factores que tenían que ver con el potencial de desarrollo pesquero, nos llamaron mucho la atencíon sobre una prudencia metodológica elemental en la cual deben apoyarse intervenciones en una comunidad costera, sobre todo si se pretende aportar transformaciones organizacionales y de mentalidad. De este caso y de otros disponibles en la literatura (Fontenelle 1997; Chakalall *et al.* 1998) podemos destacar los elementos siguientes:

1. Importa, cuando se trata de intervenciones específicas en una comunidad, *reubicarla en su contexto regional y nacional más amplio* y no limitarse a un enfoque monográfico. Las características actuales de la mayoría de las comunidades pesqueras hacen que una parte de su dinámica interna no se puede comprender sin referencia a factores exteriores.

2. Importa también, aunque muchas intervenciones están orientadas hacia un sector económico o un campo preciso de transformaciones, no olvidar de tomar en cuenta *el conjunto de las actividades presentes* en las comunidades. A veces, una actividad económica que agrupa a un número reducido de personas puede tener una importancia más grande que las que practica la mayoría. Además, muchas de estas actividades minoritarias tienen un carácter novador cuyos representantes pueden jugar un papel importante en las relaciones que la comunidad mantiene o desarrolla con el exterior. La expansión de la pesca deportiva o del turismo en muchos sistemas costeros es un buen ejemplo de esta situación.[6]

3. Muchas intervenciones en paises extranjeros o en regiones rurales aisladas presuponen contactos con representantes de agencias gubernamentales que tienen un *conocimiento a distancia* de las comunidades en las cuales se quiere promover acciones de desarrollo. Si no todo el tiempo se averigua esta situación, estas personas quedan sin embargo a menudo influidas por modelos de intervención aplicados a sectores

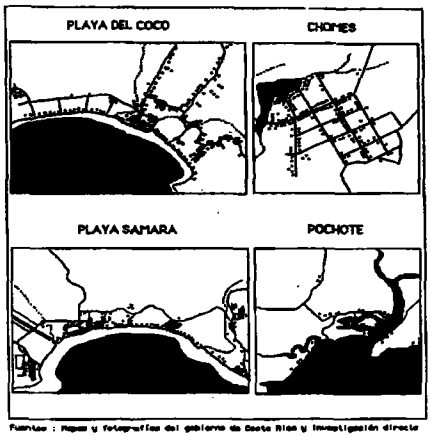
económicos fuera de la pesca. Muchos fracasos en proyectos de desarrollo pesquero tuvieron que ver con la existencia de modelos agrarios transferidos de manera acrítica en la pesca.

4. Una cuestión central en los proyectos de intervención reside en la comprensión del *liderazgo* que prevalece en las comunidades. Nunca es fácil, si presuponemos, como lo hemos afirmado anteriormente, que no existen comunidades en las cuales prevalece una cohesión social perfecta, conseguir una imagen funcional de los varios grupos de interés que co-actuan en una comunidad. Es, sin embargo, una variable importante para la implantación y el seguimiento de un proyecto. Muchas intervenciones dirigidas hacia la promoción de una equilibrio económico y social más fuerte dieron lugar a resultados inversos por haber confundido el poder aparente de un líder en una comunidad con el apoyo mitigado de sus ciudadanos.

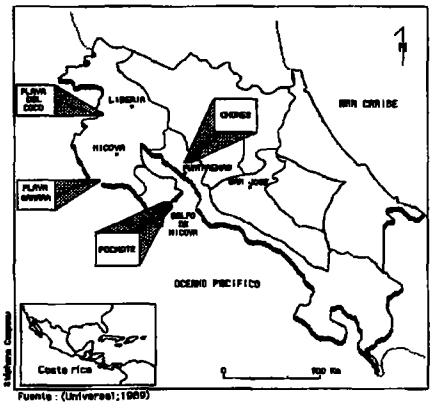
5. En muchos proyectos que ponen énfasis ahora sobre la participación de las poblaciones locales a sus proyectos de desarrollo, se da más y más importancia a lo que llamamos estudios del *saber ecológico local*. Estos esfuerzos son ciertamente bienvenidos, sobre todo si los proyectos tocan al manejo del medio ambiente. Quiero sin embargo mencionar que si estos estudios se limitan a reconstituir taxonomías de plantas, pescados o de otros recursos naturales, sin interesarse en un conocimiento más amplio que tienen los productores al nivel de sus relaciones sociales de producción y de interacción con agentes del exterior, se puede perder mucho al nivel explicativo (Dyer y McGoodwin 1994). En otras palabras, dadas las características actuales de la mayoría de las comunidades pesqueras, más y más influidas por su inserción en un mundo global, y la historicidad de las intervenciones de desarrollo en muchas partes del mundo, numerosos productores ya tienen un conocimiento de situaciones que prevalecen en el exterior y que les permiten posicionarse frente a transformaciones promovidas desde fuera.[7]

6. Cuando se habla de desarrollo o de participación comunitaria importan concebir los actores sociales dentro de esquemas que privilegian tanto a los hombres como a *las mujeres*. Aunque esfuerzos han sido promovidos en la mayoría de las agencias internacionales en este sentido (en ciertas aún un porcentaje preciso de los fondos debe ser reservado a acciones que tocan a las mujeres), tengo la impresión que en el sector pesquero, por razones ligadas a la naturaleza misma del trabajo pesquero y también a los estereotipos que prevalecen todavía en estudios científicos, que la visibilidad de la mujer queda reducida. Pero cuando hablamos de manejo y no únicamente de desarrollo pesquero, tenemos que regresar a una visión más amplia de los elementos constituyentes de lo que es una comunidad y privilegiar unidades de observación centradas en los grupos domésticos, en vez de limitarse a puros individuos.

7. Lo que acabamos de afirmar sobre los vínculos individuos-grupos domésticos vale también por las coaliciones sociales más amplias que existen dentro de una comunidad o entre comunidades. Sea que se limiten al sector pesquero o lo rebasen, constituyen canales de comunicación y de sensibilización que importa identificar en una perspectiva de manejo de un medio ambiente. En un artículo reciente, Chakalall, Mahon y McConney (1998) insisten sobre esta dimensión que nos parece sumamente importante, subrayando la necesidad de fortalecer las interacciones entre la administración pesquera y los grupos de pescadores. Esto supone que, para definir estrategias adecuadas de intervención en una área, se necesita un conocimiento básico del conjunto de agentes sociales que actuan directamente o indirectamente en su porvenir. Esto quiere decir que a la necesidad de abordar de manera científica los elementos físicos componentes de un medio ambiente corresponde la necesidad de objetivar mejor la dinámica que existe entre varios grupos de actores sociales que lo utilizan.[8] El desafío reside a la vez en la búsqueda de un mejor equilibrio entre ciencias naturales y sociales, y de consensos entre grupos de utilizadores que se diferencían de manera creciente. Una concertación más fuerte entre científicos y agentes de desarrollo proveniendo de horizontes disciplinarios varios nos parece indispensable para compensar esta diferencia social y económica creciente en la base.



Mapa 1: Costa Rica: Las comunidades selecionadas



Mapa 2: Morfologia espacial de comunidades costeras

Cuadro 1: La diversidad social de las comunidades y las intervenciones en la pesca

VARIABLES	Pochote	Chomes	Samara	Playa del Coco	Chacarita*
1- COMUNIDADES					
Grado de antiguedad					
Demografía					
Diversidad ocupacional					
2 - UNIDADES DE PRODUCCION					
Diversidad recursos					
Dimensión zona de pesca					
Diversidad tecnológica					
Número productores					
Nivel del saber técnico					
3 - COALICIONES SOCIALES					
Cooperativas					
Asociaciones de Pescadores					
Colopes					
Asociaciones de Desarrollo					

Referencias:
- Muy fuerte o muy grande
- Fuerte o grande
- Mediano
- Debil o pequeño

* Chacarita es un barrio de la ciudad de Puntarenas a donde viven 3000 pescadores.

Conclusión

Lo que precede trató a un nivel general de destacar algunas pistas de reflexión susceptibles de enriquecer las discusiones que siguen. Hemos insistido sobre la necesidad, al nivel analítico, de reducir las imagenes inadecuadas

que están todavía utilizadas para caracterizar a comunidades pesqueras, poniendo énfasis sobre la anterioridad de cambios y transformaciones que han tomado lugar en muchas de ellas. En contraparte, si logramos dinamizar nuestras imágenes, seremos capaces al nivel metodológico, de emprender estudios que se apoyarán en nuevas interrogantes y maneras de actuar con los actores sociales, sin limitarnos a los conocimientos cumulativos de lo que llamamos la ciencia. Total que antes de promover cambios en ciertas comunidades costeras, tal vez valdría la pena hacernos preguntas sobre las transformaciones que deberían tener nuestros enfoques y métodos. Debe ser el punto de partida de todo proyecto que tiene que ver con el desarrollo sustentable en un lugar dado, sea de cuestionar la "capacity-building" de los investigadores, administradores y promotores. Ojalá que las discusiones que siguen amplíen el debate en este sentido.

Notas

1. Un buen ejemplo se encuentra en la socio-antropología culturalista norte-americana. El continuo folk-urbano establecido por Redfield en su estudio de los Mayas de Yucatán en los años 30 tuvo una influencia enorme, especialmente en la investigación en comunidades agrarias. Cuando se desarrolló la socio-antropología marítima en los 60 y 70, prevaleció una situación similar en la cual fue idealizada la pequeña comunidad pesquera. Para más información (Breton 1981).

2. Este proceso fue netamente visible en comunidades que fueron sometidas a programas de mecanización y en las cuales proliferaron numerosos intermediarios para la venta del producto.

3. Podemos aquí referir a la migración costera significativa que tomó lugar en el litoral yucateco en los últimos 15 años. Una situación idéntica prevalece en Madagascar y en Mauritania en donde el número de pescadores artesanales se duplicó en los últimos 5 años. Ver Delfín Quezada y Breton, 1996 y Breton *et al.* 1998.

4. El caso de Canadá es un buen ejemplo en este sentido, especialmente en su costa atlántica. Hace algunos años, la Secretaría encargada del manejo pesquero contaba con más de 6000 empleados con un presupuesto de 800 millones de dólares. La nacionalización de las zonas marinas dió lugar a una expansión significativa de la burocracia con todo tipo de control en las comunidades mismas.

5. Vale la pena mencionar que además de la juventud del sector pesquero en Costa Rica, situación que justificaba el interés de las agencias internacionales para intervenir en el área, muchas personas subrayaron la belleza del país y su paz social relativa como factores importantes que influyeron en la decisión de emprender proyectos de desarrollo.

6. Hemos podido ver en el litoral sur de São Paulo, al principio de los años 90, comunidades que tenían en promedio una población de 2000 personas durante la semana, recibían de manera regular hasta 50,000 veranistas los fines de semana. Además de los problemas entre los pescadores deportistas y productores locales, los veranistas habían adquirido mucha influencia en la vida pólitica local.

7. Importa mencionar en este sentido un congreso reciente (mayo 1998) en Memorial University, Newfoundland, sobre "Bringing Fisher's Knowledge into Fisheries Science and Management". Este evento tuvo como objetivo examinar protocolos de investigación para colectar y interpretar mejor datos provenientes tanto de pescadores como de científicos.

8. Hemos desarrollo más en detalle esta afirmación en Breton 1997.

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Coastal Area Monitoring Project (CAMP-LAB): Assistance to Self-sustainable Human Development in Pearl Lagoon Basin, Southern Autonomous Atlantic Region, Nicaragua

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CIDCA

Introduction

Communities located in Pearl Lagoon and surrounding areas of Nicaragua have Miskitu, Gariluna and Creole ethnic origins. The traditional methods used in fishing, agricultural and wood utilization satisfied self-consumption needs for generations.

In recent years, the accelerated expansion of agricultural borders, shifts in resource exploitation patterns, the changed economic situation, and the irrational exploitation of certain species creates an urgent need to involve inhabitants in the process of natural resource management planning and decision making. In addition, local populations need to be provided with suitable techniques, data and tools to take part actively in all stages of this work. It is critical that an integrated, sustainable management plan for the resources and environment of Pearl Lagoon and surrounding areas is developed with the active participation of local populations, the beneficiaries of the project described below.

In the 1990s, the increased rate of unemployment has changed resource utilization patterns, shifting exploitation from an emphasis on self-consumption to commercial development in order to increase family incomes. This has lead to adoption of practices that have a significant impact on natural resources and the environment, especially lagoons, agricultural lands and timberlands.

The Coastal Area Monitoring Project (CAMP-LAB) will utilize research activities in conjunction with community participation to accomplish the self-sustainable management of natural resources in Pearl Lagoon and surrounding areas of Nicaragua. Studies and full-participation ecological research will be emphasized. In addition, self-sustainable human development will be encouraged through local organizations and institutional interaction and team work in the research zone.

CAMP-LAB's goals are:

i) to collaborate in the development of a Pearl Lagoon and surrounding ecosystems management plan,

ii) to encourage participation of community groups and local organizations in the natural resources management decision-making process and to contribute proposals aimed at improving the communities standard of living of their communities,

iii) to develop participants attitudes and awareness of options for the evaluation, preservation and long-term use of their natural resources.

Project description

CAMP-LAB will involve women and students from the beneficiary communities in all stages of research, planning, management and monitoring in order to develop a sustained management plan for natural resources and the environment. The four stages of the project are set out below.

1. **Infrastructure and personnel management**: Empowerment through hiring local technicians, acquisition of materials and equipment and training in management of projects related to natural resources and environment.

2. **Community participation building**: Develop training capacity and encourage community participation and co-operation in the project influence as well as to promote participation of women and students participation in the environmental arrangements.

3. **Environmental monitoring of water, fish and forest resources**: Artisanal fishing evaluations using such criteria as: yield (CPEU, Capture per Effort Unit), skills and tools, fish species diversity, and distribution of fishers; sampling and analysis of physical and chemical properties of the water from Pearl Lagoon and its main tributaries to determine changes in the water quality, correlation with fish presence, etc.; and identification of the human activity that has impact on the lagoon and its resources. Regarding forests, monitoring pine savannahs, and promotion of an on-going campaign on the causes and effects of forest fires and organization of forest guard groups will be the main project activities.

4. **Environmental management of Pearl Lagoon and surrounding ecosystem**: Establishment of the organizational and institutional processes and procedures to involve local stakeholders in the development and implementation of the natural resources management plan for Pearl Lagoon and surrounding ecosystems with an emphasis on coastal zones. In workshops and meetings, local residents and organizations will be asked to identify problems, causes and potential solutions in use and management of resources.

Preliminary outputs

Community and institutional organization appointed to the management plan

In 1996, the project aimed to work in ten of seventeen communities located in the Pearl Lagoon basin. A number of these communities have established a Natural Resources Committee and support the idea of drawing up a management plan. The roles of the community committees are to inform and to support the project, to educate and encourage the participation of local residents in project activities, to suggest how project outputs can be improved, to oversee project activities, to participate in monitoring of the lagoon and surrounding areas, and to participate in the development of the management plan. A member of each community committee is elected to be part of the inter-community committee. Each committee includes young people, adults and women, religious leaders, artisanal fishermen, and farmers.

On 5 March 1998, through the Natural Resources Department, the regional government convened a meeting with each stakeholder (community leaders, non-governmental organizations, Nicaraguan Caribbean universities, governmental institutions, the national, regional and local governments) involved in Pearl Lagoon basin project. Participants exchanged ideas and constituted a Committee in charge of natural resources that would have its own functions as agreed to by every stakeholder and as legalized by the Regional Council. Community leaders and local authorities had the opportunity to discuss their rights as principal beneficiaries in the preservation, management and sustainable exploitation of natural resources. These activities were carried out with the technical and financial support of DIPAL (Nicaraguan-Holland Artisanal Fishery Project) and CAMP-LAB.

Natural resources problems identified

The Integrated Management of Coastal Zones Project (MAIZCO) of the Ministry of Natural Resources has received support from CAMP-LAB. To date it has convened two workshops for community leaders. These workshops were intended to identify and to describe the natural resources agenda, as well as to foster community participation in addressing the problems identified.

The main problem identified was the misuse of the natural resources. Other difficulties identified were:

- limited participation of local communities in natural resources research
- lack of information about the environmental impact of exploitation levels and techniques
- lack of a comprehensive data base on natural resources
- communication failures between the regional government and the communities
- lack of funding
- the need for communal land demarcation
- unregulated municipal legal autonomy

Participants at the workshop agreed:

- to develop a strategy to manage and preserve the coastal ecosystem in order to improve living conditions
- to promote and facilitate the demarcation of community land
- to determine the limits to the use of natural resources

Conception of the demarcation and coastal zonification

The second seminar, "The Demarcation and Zonification of the Coastal Zone" sought to obtain agreement on the integrated management of coastal resources. Taking into account the municipals demarcations and administrative aims, the communities agreed to demarcate the coastal zone using terrestrial boundaries, tidal and wetlands limits, and the 200 nautical mile maritime limit. The economic potential of the natural resources in the management areas (eight areas were identified) were all detailed. CAMP-LAB was able to ensure that the local perspectives were integrated into the process of developing the management plan for the natural resources at the workshop.

Projects technicians and community member training

The aim of this project is to train community investigators. It is anticipated that these investigators will in turn carry out environmental educational campaigns in elementary schools in the Haulover and Kakabila communities and elementary school and high school in Pearl Lagoon and Orinoco, and host workshops/seminars with community members. In 1996, twenty-eight lectures on several environmental topics were delivered in schools located in four communities. These lectures sought to promote valuation, preservation and sustainable use of the natural resources of the local communities.

A further goal of the training initiatives is to provide knowledge to the teachers and to empower people to improve their capacity and skills. This will encourage them to dialogue and to demand their rights to exploit the natural resources in their communities while at the same time improving their living and environmental conditions.

Currently, technical staff is being trained in computer skills and participatory research methodologies. They also participate in field courses on rainforest dynamics and research methods.

Participatory research

Forest Monitoring

The students and people living next to the pine forests take part in monitoring and analysis of data obtained in the three pine savannahs known as Pine Ridge, Pinal and Fine Pine. The following data are taken in an transect of 100 m x 10 m (1,000 m^2): circumference of trees, identification of species, height, and regeneration rates. In other areas, density of trees, cover, slope, soil type, fauna and human disturbance levels data are also collected.

Artisanal fishing monitoring

Twenty-five fishermen from five communities (five each) participate in the monitoring of artisanal fishing. Voluntarily the fishermen fill out a form provided by a community investigator with the following data: type of implements used, type of boat, time of immersion of the gill net, fishing place, species captured, species with eggs, atmospheric conditions, total capture weight, production for self-consumption and for marketing, and price per pound. In addition, the fishers periodically participate in the analysis of the data at workshops.

Hydrological monitoring in the lagoon and tributary rivers

Students and members of the CAMP-LAB committee in Haulover and Pearl Lagoon actively participate in the monitoring of the lagoon. Data is collected weekly at twelve different sites. Data includes turbidity, temperature, depth, salinity, dissolved oxygen, and pH levels.

The tributary rivers of the lagoon are also monitored and the same data is also collected at the Wawashang and Patch Rivers and in other smaller streams such as Tuba and Isik. In 1998, we expect to collect microbiological data

in Mus Mus River. Water from this river is being used to make ice to preserve the fish in storing centres and for other domestic uses.

Conclusion

Demarcation of community lands has been a historical demand of the people. Upon the request of the Nicaraguan Agrarian Reform Institute, CAMP-LAMP has accepted the task to undertake an ethnographic study of Pearl Lagoon basin, including the whole Caribbean coast. This will be a significant contribution to the process of natural resources management plan in Pearl Lagoon.

Conflict Resolution and Participatory Planning: The Case of the Soufriere Marine Management Area, St. Lucia

Kai Wulf
Soufriere Marine Management Area

BACKGROUND

Soufriere is a picturesque rural town, located on the southwest coast of the island of St. Lucia. This area is remarkable for the richness and diversity of its landscapes and natural resources, including mountains, rainforest, rivers, active volcanism and coral reefs. The area of coastline hereinafter described extends over 12 km and presents a succession of beaches and cliffs, with the Soufriere Bay at the center. The town of Soufriere lies within that bay.

Because of its topography and relative isolation, the Soufriere region has not been part of the main transformations which have affected the rural economy of St. Lucia over the past few decades. Its agriculture remains characterized by mixed crops produced on small to medium size estates. In the more recent past, Soufriere has witnessed radical changes provoked by the growth of tourism in the coastal zone.

The coast plays a central part in the life and economy of Soufriere. The main settlements and infrastructures are located near the shore and the beaches are extensively used for recreation. There are approximately 150 registered fishers of which two-thirds fish on a full-time basis. The main gears utilized are nets, lines and pots.

Over the past two decades, tourism has increased significantly. Two large resorts, four smaller hotels, and a number of guesthouses and restaurants, many of them focussing on the diving and the yachting sectors have been constructed in the bay area. Maritime transportation remains an important livelihood. An increasing number of day charter boats and water taxis bring large numbers of visitors from the northern, better-developed part of the island to Soufriere.

In the late 1980s and early 1990s, the multiplicity of uses and growing demand for scarce and fragile resources generated critical impacts and conflicts. The main environmental problems prior to the establishment of the Soufriere Marine Management Area (SMMA) can be summarized as follows:

- degradation of coastal water quality, with direct implications for human health and for the protection of the coral reef ecosystem
- depletion of near-shore fisheries resources
- loss of the economic, scientific and recreational potential of coral reefs, particularly in the context of diving tourism
- degradation of landscapes and general environment quality, notably on or near beaches
- pollution generated by solid waste disposal in ravines or directly in the sea

Problems of resource management in turn manifested themselves in conflicts between users of the resources, in particular:

- conflicts between commercial dive operators and fishermen over the use of, and the perception of impact on, the coral reefs
- conflicts between yachts and fishermen because of anchoring in fishing areas
- conflicts between the local community and hoteliers over the access to beaches
- conflicts between fishermen and authorities at both the local and national levels over the location of a jetty in a fishing priority area
- conflicts between fishermen and hoteliers over the use of the beaches for commercial fishing or recreational- or tourism-oriented activities

Over the past decade, relevant institutions, notably the Department of Fisheries in the Ministry of Agriculture, have been aware of these issues, and have initiated a number of programmes and measures to address them. These efforts included the legal establishment of marine reserves and fishing priority areas, provision of support to the local fishermen's co-operative, the delivery of training and extension services, and enforcement of national regulations following the adoption of the new *Fisheries Act* in 1984. Due to a lack of funds for demarcation and proper enforcement, and the fact that delimitation of reserves was based on resource distribution with too little consideration given to the socio-economic consequences for the fishers, the number of conflicts has continued to increase.

CREATION OF THE SOUFRIERE MARINE MANAGEMENT AREA (SMMA)

It is against this background that a conflict resolution process was initiated in July 1992 in an attempt to address the many issues affecting users of marine and coastal resources in Soufriere. Resolution of these issues was considered critical because the conflicts had resulted in a rapid degradation of the natural resource base and because they had affected resource users in several ways.

The decision to engage in such a process was taken at a meeting convened by the St. Lucia National Trust as part of its national consultation on the formulation of a plan for a system of protected areas for St. Lucia. The participants recommended that a process of consultation be started in Soufriere. The need for consultation was reinforced by the USAID-funded ENCORE project which, in considering a proposal for demarcation of the existing marine reserves and fishing priority areas submitted by the Department of Fisheries, recognized that delimitation could not be undertaken in the present climate of conflict and resource degradation.

In late 1992, the Soufriere Regional Development Foundation (a community-based non-governmental organization involved in facilitating development activities in Soufriere), having identified all involved parties, initiated a planning workshop stipulating the following objectives:

- to elaborate a detailed marine resource use map and plan that would complement the land use plan prepared by the Ministry of Planning
- to resolve major marine resource use conflicts and to arrive at a consensus on use locations and priorities

It was agreed that the process should be fully independent and participatory. The experimental nature of the exercise and its potential usefulness to other parts of the country and the Caribbean region was also recognized.

A series of consultations were conducted, jointly facilitated by the Department of Fisheries and the Caribbean Natural Resources Institute (CANARI). The first meeting, which brought together over sixty persons representing twenty-five different sectors or institutions, was convened

- to establish a consensus on the need for resolution of marine resource use conflicts in the Soufriere region
- to create the conditions for negotiation and settlement of any dispute
- to define issues affecting marine and coastal resource management
- to locate areas of potential and existing conflict and to define the boundaries of the various resource uses

It was made clear to the participants that all previous decisions and all management arrangements were subject to discussion and review.

During a boat trip, the participants had the task of mapping the resources, their uses and the location of conflicts as they traveled along the coast. The discussions on the boat trip led to the agreement within the group that zoning was not the only management instrument available to resolve the conflicts. It was agreed the plan produced as a result of this exercise should be much broader in its identification of measures and solutions.

An architect compiled the information gathered during the boat trip into a large colored map. At a second meeting the participants were asked to confirm the information on resources, current uses and location of conflicts which had been established during the previous session and to reach agreement on all areas and issues for which agreement appeared relatively easy to reach.

Issues and options that had been identified earlier, namely the control and development of yachting, the establishment and management of marine reserves, the development of the fishing sector, and the management of the land-based sources of pollution, were explored in greater depth. The most critical and severe conflicts which required additional negotiation and could not be resolved with the information and resources available, were identified with the understanding that they would be addressed at subsequent meetings.

Time between the meetings was also used to hold individual discussions with some groups and persons involved, particularly as it related to the sites of major conflict. The Department of Fisheries held discussions with major hotels and with the dive operators to explore possible solutions to competing uses of reef resources. Anbaglo, St. Lucia's diving association, which was particularly active during that period, held consultations with its members to enhance their understanding of the position of fishermen, to confirm their willingness to participate in a management scheme, and to help them articulate their position on the introduction of a user fee structure. The Soufriere Foundation held informal discussions with key players in the community, including some business interests that had major stakes in the eventual outcome of the negotiation process.

In a March 1993 meeting, the Department of Fisheries presented draft recommendations on zoning and regulations. These recommendations were discussed, modified and approved, save for the issues that had been set aside for later consideration. A number of issues were discussed in much greater detail, with options presented. Decisions were arrived at on all but two recommendations.

In conclusion, the meeting mandated a small working group to examine in greater detail the outstanding matters, to conduct negotiation with all concerned parties and to formulate recommendations. It was further agreed that all recommendations would be contained in an agreement that would be drafted by one of the facilitators and submitted to all participants for final review.

Negotiations on the critical issues were carried out and a draft agreement was prepared and circulated. Several institutions provided written comments that were integrated into the subsequent versions of the document. The Soufriere Foundation convened a meeting with a small number of institutions to examine in greater detail the legal and institutional arrangements for the implementation of that agreement. On the basis of the recommendations of that meeting, a final section of the agreement was drafted.

The agreement contained details of a proposed Zoning Agreement (and included maps showing the extent of proposed marine reserves, fishing priority areas, multiple use areas, recreational areas, and yacht mooring sites), legal provisions needed to manage individual activities such as fishing, diving, yachting, and marine transportation, demarcation requirements, materials for user information, and training needs. Details of the proposed implementation process were also outlined (including institutional arrangements, legal instruments, infrastructure, financing, staffing, and avenues for community participation).

The proposed area was called the Soufriere Marine Management Area (SMMA). The SMMA was to be managed by the Soufriere Foundation with technical support from the Department of Fisheries under the guidance of a Technical Advisory Committee (TAC). The TAC was to be comprised of key management authorities and user groups. The Soufriere Foundation was selected to serve as secretary to the TAC and the Department of Fisheries was appointed as the Chair. Throughout the process, efforts were made to inform the public about the purpose of the exercise and to create interest in the expected outcomes.

In November and December 1993, the agreement was presented to both the Ministers of Agriculture and Tourism, as well as the District Representative for the Soufriere area. In consultation with all parties, it was agreed that the Minister of Tourism would submit the agreement to the Cabinet of Ministers for endorsement. This was done in February 1994.

On the basis of Cabinet's decision, the Soufriere Foundation and the Department of Fisheries took the lead in ensuring the implementation of the agreement, with work focusing on three main directions:

- establishment of appropriate institutional arrangements centred around the creation and operation of the Technical Advisory Committee
- preparation of a management plan

- the search for financial and technical support, notably through the French Mission for Technical Co-operation and the ENCORE project of the Ministry of Planning of the Government of St. Lucia

The Agreement was presented to the Soufriere community, to governmental institutions, and to other interested parties, in the presence of the Minister of Tourism and the District Representative, at an outdoor public forum held on the Soufriere waterfront on 11 June 1994.

IMPLEMENTATION OF THE AGREEMENT

Overview

The first meeting of the TAC recognized that detailed operational mechanisms for the Agreement (including budgetary matters) were now required to ensure effective implementation and operation of the SMMA. The TAC created a Technical Working group (TWG) comprising the SMMA Manager, the Department of Fisheries, a technical officer from CANARI, with other technical experts co-opted as necessary. This small group provided the impetus for implementation of the Agreement, generating workplans and budgetary information for approval of the TAC, and evaluating the implementation process.

Following the general consultation, the Department of Fisheries (with some assistance from local dive operators) undertook a descriptive assessment of the entire SMMA up to a depth of 70 feet. Through this exercise the exact limits for delimitation of the marine reserves and fishing priority areas specified by the Agreement were identified, given the distribution and condition of underwater substrates.

The TWG recommended that a workshop be held to generate a management plan for the SMMA. This event took place over a three-day period in September 1994. TAC members, along with other local experts and a small number of regional experts actively involved in marine park management, participated in the event. Funding agencies already involved in supporting the SMMA were also present.

The management plan produced clearly defines the institutional arrangements and responsibilities, revenue sources (including specific fees to be charged for various categories of users, systems of fee payment and collection), job responsibilities and skills required for four area wardens and the SMMA manager, specifics of infrastructure needed (demarcation and mooring buoys, demarcation signs), systems for monitoring the resource base and levels of resource use, surveillance, maintenance, and public awareness needs.

In addition to the funding provided by the USAID ENCORE Project for demarcation of all marine reserves within the SMMA, the French government through the French Mission for Co-operation provided funds for moorings, a patrol boat and communications equipment for the SMMA office, and salaries for the manager and wardens for an initial three month period. The French Mission also provided the services of a national service volunteer for a period of sixteen months. The Caribbean Conservation Association, through a regional marine park development programme, contributed to marine resource monitoring and public awareness literature. All three agencies and the local government contributed to the SMMA brochure, moorings flyer, and video. It was envisaged that this initial inflow of external funding would allow the SMMA to establish a firm foundation upon which user fees, purchase of souvenirs, and other donations would make it self-sustaining.

The TAC has met regularly each quarter and indeed has grown from its original 13 members (Department of Fisheries, Soufriere Foundation, Air and Sea Ports Authority, fishermen's representatives, Ministries of Planning and Tourism, Parks and Beaches Commission, St. Lucia Tourist Board, Marine Police Unit, yachting representative, Customs Department, dive association, and water taxi association) to 19, and now includes two large hotel operations, two small hoteliers/restaurateur representatives, the Charter Boat Association, and the Hotels and Tourism Association representatives. The TWG initially liaised on a daily basis in order to keep pace with developments of the SMMA.

In terms of infrastructure and staffing, 42 mooring buoys and 22 demarcation and local dive buoys were installed in December of 1994. The signs were put in place in February of 1995. The Management Agreement was published and a color brochure describing the purpose and rules for use of the SMMA was printed in early 1995. In addition, a brochure detailing the mooring buoy system was produced.

Coral reef monitoring activities which were already being undertaken by CANARI (with assistance from Soufriere based dive operators) were gradually expanded to take into account the need to commence monitoring in all marine reserves and multiple use areas.

The SMMA was ready for official launching in June of 1995. The event took place in Soufriere and highlighted the objectives and operations within the SMMA.

Resource Monitoring

The following monitoring activities are currently undertaken in the SMMA:

- *sedimentation rates*: biweekly by CANARI and the SMMA rangers
- *water clarity*: daily Secchi disk measurements by the SMMA rangers
- *water salinity*: daily refractometre measurements by the SMMA rangers
- analysis of photo quadrates by CANARI monitoring the *coral growth/mortality* on a semi-annual basis
- *fish landings* in Soufriere by the Department of Fisheries on a permanent basis

With the financial support of the Fond Français pour l'Environnement Mondial (FFEM) project and the United Nations Environment Programme, a more sophisticated monitoring programme will be implemented in the near future. This programme will be linked with related marine protected areas in the region. In addition, two major studies are currently underway by scientific teams led by Dr. Callum Roberts from the University of York, England, and Dr. Bruce Hatcher from CFRAMP/Dalhousie University, Nova Scotia, Canada. Both studies are investigating the ability of marine reserves to restore fish stocks.

Dr. Roberts has been monitoring fish stocks in reserves and fishing areas annually since 1994. After the third annual census of the status of coral reefs within the SMMA, overall findings showed increases in stocks of commercially important species across the board. There were especially large increases in marine reserves, suggesting that management efforts are beginning to pay off (Roberts *et al.* 1997). Additionally, Dr. Roberts' team is looking at the impact of sediment pollution from the Soufriere River on both coral and reef fish communities, as well as the recent spread of coral diseases at the Anse Chastanet and Grand Caille reefs (Nugues 1998).

As part of the Soufriere Experiment in Reef Fisheries Sustainability (SERFS), Dr. Hatcher's team has undertaken studies to test mechanisms by which marine protected areas export fish to adjacent habitats, e.g., using tagging of selected species (Hatcher *et al.* 1996).

Development of the Fishing Sector

As was agreed, five fishing priority areas have been established and demarcated by land-based signs. These areas include the northern two thirds of the Anse Chastanet Bay, the northern end of the Soufriere Bay (from Hummingbird Beach Resort to the Soufriere River), south Soufriere Bay (from the southern jetty to the end of the rubble beach), Malgretoute (north and south of a central yacht mooring area), Anse des Pitons (Jalousie Bay), and the entire Anse L'Ivrogne Bay. Implementation of the Agreement involved major changes for both the yachting and fisheries user groups.

Due to the serious animosity which had developed between these two groups (prior to the consultation), particularly over the placement of a yachting jetty centrally in Soufriere Bay and lost catches due to yachts moored in the Hummingbird area, the negotiation process yielded a compromise - physical separation of seining and yacht mooring areas. Thus yachts were relocated from traditional anchorage (such as the Hummingbird Resort area) to alternative mooring sites provided in places such as Malgretoute and north of Anse Chastanet. This arrangement was based on the SMMA ensuring that adequate security and support facilities were provided in the new mooring sites. Thus yachts and other boats were no longer a hindrance to the fishers operating in the fishing priority areas. The changes have, however, proven detrimental to the yachting community and the local tourism businesses which depend on the presence of this user group.

During the later part of 1995, pot and bottom net fishers operating within the new management system started to complain of severe declines in their catches as they could effectively only set these gears in multiple use areas. The multiple use areas mainly comprised sand, reef patch, and boulder substrates with very little concentrated reef habitat. As a result, the fishers were encroaching further into marine reserve areas. The steep slope of Soufriere's submarine shelf severely limits the distance from shore for installation of demarcation buoys. The buoys, due to decompression limits facing the divers undertaking installation, could only be placed in water depths up to 80 feet. There was an "understanding" that the buoys merely marked the extent of the reserve along the coast, not their seaward limit (which was the outermost extent of the reef habitat). Fishers had been instructed by SMMA officers that they could fish up to 300 feet from the buoyed boundaries. However, this proved to be an extremely arbitrary limit that posed serious problems for both fishers and enforcement agencies.

An attempt to mitigate the situation by allowing a select number of fishers (who are heavily dependent on this type of fishing for food or income generation) access to specific parts of two of the reserves, and the use of a limited number of their gears, failed.

In December 1997, however, the Cabinet of Ministers decided to open part of the Grand Caille Marine Reserve for pot fishing only. At the same time, a monthly stipend of EC$ 400.00 was granted to a group of 20 pot and gillnet fishers for a period of one year.

With funding from the French Mission for Technical Co-operation, a fish landing site was constructed jointly by the Soufriere Foundation and the Government of St. Lucia. Even though it was not fully operational, the facility was inaugurated in September 1996. A long process, including better involvement of the fishers in the planning process and continued improvements to the facility, finally led to its acceptance by the fishers in May 1998.

Further strengthening of the fishermen's co-operative is intended with the construction of a jetty adjacent to the fish landing site and the provision of an adequate ice-machine funded through the FFEM project.

Recognizing the disadvantage to the Soufriere fishers, being furthest away from migratory routes of coastal pelagics, two fish aggregating devices (FADs) were also installed under the FFEM scheme a few miles off Grand Caille Point and Gros Piton Point in depths between 1,000 and 1,500 m. Only a couple of days later the devices were lost. It is suspected that the devices were cut by suspicious individuals because too little effort was undertaken to educate the fishers about FADs. Replacement of the FADs is planned for later this year, and signs and flyers have been produced by the SMMA to sensitize the fishers to the benefits of FADs.

Under the same FFEM scheme, funds are being made available to the SMMA for the purchase of all gillnets in the Soufriere area. Gillnets are presumed to be destructive to the coral reef habitat and are intended to be phased out in the medium to long term. To initiate a progressive shift from near-shore to deep-sea fishing, arrangements are also being finalized to provide accessible loans to Soufriere fishermen for the purchase of appropriate vessels, outboard engines and deep-sea fishing gear.

Mitigation of Impacts

The SMMA is also engaged in ongoing management activities related to the control and mitigation of impacts from land-based activities. For example, a Soufriere-based copra factory recently released harmful waste substances into the river just 500 m upstream from Soufriere Bay. The substance is suspected to have caused a high mortality rate of selapia (a local freshwater fish) and crabs in the immediate area. The media was informed as it has been in many other similar cases. The factory is expected to be held liable for the damages.

In late 1996, an unnamed storm caused flooding and severe sedimentation threatening the reef at Rachette Point. After tropical storm Debbie, when the town of Soufriere also was flooded, the government attempted to prevent future flooding by straightening the river and constructing retaining walls on both sides. Unfortunately, the natural river bends which had functioned as natural sediment traps were removed. As a result, sedimentation in Soufriere Bay during the 1996 flooding was much more intense.

The large barrel sponges especially suffered because of the lack of mechanisms to remove the heavy load of sedimentation. With assistance from CANARI and a dive-operator, simple airlifts were converted into "underwater vacuum cleaners" to clean sponges and coral. The cleaning efforts were continued by the SMMA rangers over a period of three weeks. It is believed that because of these efforts, parts of the reef habitat were saved from suffocation through sedimentation.

Increasingly, the SMMA is being asked to review relevant environmental and developmental programmes/projects of affiliated government and non-government institutions.

THE FUTURE

New Institutional Arrangements

Rationale

Over the past year, the SMMA has gone through a period of relative instability. Some provisions of the original agreement were being questioned and conflicting needs and demands were being expressed by the parties involved. To a large extent, these problems have confirmed that the institutional arrangements were not fully adequate. Clearly, there was need for a systematic review to identify options and solutions to these conflicts. In response, the TAC asked CANARI to facilitate an institutional review. The findings and recommendations of the review are summarized below. The review was funded under the FFEM project.

Analysis of Issues And Problems

The review concluded that the following issues have contributed to the problems that the SMMA is currently facing:

- Neither the original "Agreement" nor the management plan prepared in 1994 indicated the purpose and goals of the SMMA, and it appears that there has never been a consensus on the matter. This lack of common understanding and vision is likely to have contributed substantially to the disagreements and misunderstandings that have occurred among the different stakeholders.
- The *Fisheries Act* and Cabinet conclusions do not provide an adequate legislative basis for management and regulation.
- The Agreement was meant to address conflicts through the zoning of uses. However, the Agreement is not a formal contract and therefore not binding upon the parties involved. Furthermore, the lack of established structures for its review and revisions have invited *ad hoc* proposals and adjustments. As a result of the deficiencies in the policy framework, the stakeholder groups have turned increasingly to the political directorate for assistance in resolving conflicts.
- The management plan of the SMMA, although approved in principle by Cabinet in November 1995, was never used regularly as a management tool. Furthermore, not all members of the TAC were fully familiar with its contents.
- The TAC has evolved over time into a body that is too large to function effectively in the role as originally defined. It has also proven to be an ineffective forum to provide equitable stakeholder representation, as demonstrated by the negotiations that have taken place between various parties outside of it.
- The internal changes of the Soufriere Foundation have upset the balance between government and the community in the management of the SMMA. There is some uncertainty about roles of both the Department of Fisheries and the Soufriere Foundation in the SMMA.
- The SMMA has affected a number of user groups, both negatively and positively, to differing extents. However, there is no process to weigh and balance these against environmental impacts in order to encourage creative management decisions.

At a meeting on 20 January 1998, the participants developed the following consensus on how the SMMA should be structured and should operate:

- It should be guided by a clear mission that includes management of marine and coastal resources in the Soufriere area for sustainable use and equitable distribution of benefits, encourages participation of stakeholders, and provides ongoing management of conflicts.
- Its legal base should be clear and strong, and should cover all its management functions.
- Its management structure should be transparent and politically, institutionally and financially autonomous.
- Management objectives and programmes should be oriented towards development and promotion.
- Government agencies should retain their statutory authority and responsibilities when operating within or providing support to the SMMA.
- There should be active collaboration with relevant institutions and provisions for ongoing stakeholder consultation in decision making.
- Day-to-day management and enforcement should be locally based.

Mission Statement

The SMMA has adopted a new mission statement:

> The mission of the Soufriere Marine Management Area is to contribute to national and local development, particularly in the fisheries and tourism sectors, through management of the Soufriere coastal zone based on the principles of sustainable use, co-operation among resource users, institutional collaboration, active and enlightened participation, and equitable sharing of benefits and responsibilities among stakeholders.

Legal Basis and Instruments

The legal basis of the SMMA needs to be clarified and appropriate regulatory instruments established. A study is currently under way to identify and design the necessary instruments. In addition, a national process of legal review and consultation aimed at development of an overarching legislative basis for the management of the country's coastal zone appears to be required. Such an exercise could include the development of a framework for the establishment and management of all marine management areas.

Institutional Structure

It was recommended that the current institutional basis of the SMMA, which is described in the management plan, be replaced by a contractual agreement among all agencies and institutions participating in the management of the SMMA. The agreement should clearly spell out the roles and functions of each of the participating institutions. The implementation of the agreement should be co-ordinated by a non-profit company established under the *Companies Act* and referred to in the legislative instruments to be drawn up by the Attorney General's Chambers. The Board of Directors of the company should be compromised of representatives of the institutions that have signed the contractual agreement.

Enforcement

Unclear and inefficient structures for the enforcement of regulations within the SMMA are an important concern to users of the Area and institutions involved in its management. There is general agreement that local response to incidents must be improved. The problem stems from the current manpower and equipment constraints of the Marine Police and the Soufriere police. There is a lack of consensus over the role that the wardens can and should play in enforcement: one view is that their role should largely be preventive, while others see the need for the rangers to have greater enforcement authority, including powers of arrest.

It was recommended that more detailed discussions on this issue be held between the major parties involved (Attorney General's Chambers, Marine Police, Soufriere police, SMMA, Water Taxi Association, Department of Fisheries) to determine a structure for law enforcement that addresses the current problems, specifies respective roles and lines of authority, and identifies additional resources that may be required to implement the plan.

Communications Plan

A September 1995 assessment of communication within the SMMA and a July 1996 survey of perceptions of the SMMA revealed that poor information flows contribute to a lack of compliance with the Area's regulations and to mistrust of authorities and their motives by members of the wider Soufriere and St. Lucia communities.

Six issues were identified as the main communication problems facing the SMMA:

1. Lack of understanding of the SMMA and its purpose and goals by members of the various user groups, including dive operators, hoteliers, the yachting sector (local and foreign), law enforcement agencies and officers (marine police, police force, immigration), and the general public, particularly the residents of the greater Soufriere area.
2. Lack of understanding of the need for and significance of boundaries within the SMMA by commercial and recreational users, including fishers, especially pot fishers and local recreational fishers, including spear fishers, local recreational boaters, yachting and diving sectors, water taxi operators, and beach boys.
3. Poor information flow between the management of the SMMA and the surrounding communities, including the town of Soufriere, partly because representatives of the various sectors on the TAC do not function as such.
4. Lack of understanding by the Soufriere community and the general public in St. Lucia of the ecological and economic benefits of coastal resources and the marine environment.
5. Insufficient flow of scientific and research data to the Soufriere community, the schools, the management of the SMMA, and the general public in St. Lucia.
6. Soufriere, and St. Lucia as a whole, are receiving bad publicity internationally, notably in the yachting sector, because of harassment and crime.

A communications plan was developed for the SMMA to address specific communication deficiencies that were identified during the September 1995 assessment. The plan outlines steps and approaches (target audiences, messages, media and/or actions) to address these issues.

While a number of communication activities have taken place over the past three years, financial constraints have prevented the full implementation of the SMMA communications plan. Key sectors remain insufficiently mobilized to support the objectives of the SMMA and comply with its rules and regulations. These include representatives of user groups (fishermen, yacht charter and dive operators), relevant government agencies (customs, immigration, district -and marine- police) and the general public.

Results and Lessons Learned

Institutional Strengthening

The initial three years of operations have demonstrated that the SMMA works as long as the principles of participatory planning are followed. Political circumstances threatening the survival of the institution could be dealt with because of the strong commitment to the SMMA among the various stakeholders. Since the existence of the SMMA is only based on a series of Cabinet resolutions, the institution is vulnerable to outside interference, thus the institutional arrangements urgently need to be legally formalized.

Initially, the SMMA was designed too much around certain leadership personalities and thus failed to clearly define the management responsibilities of the relevant institutions. This resulted in a "responsibility vacuum".

The high level of transparency and a focused agenda are believed to be the reasons that most of the stakeholder meetings are very well attended, although continuity by some members is missing, causing misrepresentation of relevant sectors at times.

The Technical Working Group has evolved into *ad hoc* committees of relevant parties dependent on the nature of the topic rather than being consistent fixed member group. The creation of a number of subcommittees to ease the workload of the SMMA staff has proved to be unworkable. The complexity of their setup makes it difficult to convene regular meetings.

The implementation of the recommendations from the institutional review and the communications plan has to be a priority of all stakeholders to continue the progress made and to stabilize and strengthen the SMMA.

Conflict Management

The creation of *ad hoc* committees facilitated by the SMMA administration has become more frequent. Conflicts could often be resolved shortly after their identification and analysis, and the committee recommendations would simply be forwarded to the TAC for consideration and final approval. Again, the key to the success of the approach is the close contact with the user groups and the role the SMMA has played in facilitating links between the user groups rather than serving as an enforcement agency. For of a variety of reasons, it sometimes becomes necessary for the SMMA to assist one group in formalizing or vocalizing its concerns. However, it is essential for the SMMA to remain fair and to be perceived as being fair in its relations with all stakeholders.

The SMMA has demonstrated that two essential conditions for conflict management are:

1. Direct participation of resource users because community institutions do not always provide adequate representation and because stakes/interests often vary from individual to individual.
2. Direct communication among stakeholder groups, for example, by allowing fishers to directly address conflicting interests to others such as divers, or yachts people.

Communication and Public Sensitization

Although considerable progress has been made (e.g., establishing a balance between enforcement of rules and regulations and public relations, publishing a newsletter, setting up an Internet website), effective communication between stakeholders, community groups and other involved parties remains critical to the continued success of the SMMA. Therefore it is essential that the enforcement staff continues sensitization efforts for the various user groups. The implementation of the communications plan remains a high priority of the SMMA.

Involvement/Support of Self-regulating User Groups/Institutions

Additional support must be provided to strengthen local self-regulating institutions, namely the Fishermen's Co-operative, St. Lucia's dive association, Anbaglo, and the Water Taxi Association. The latter association is particularly dependent on better recognition from government authorities. The role of true representation of their sectors can not always be fulfilled.

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Manejo de los Recursos Costeros por las Comunidades: Perspectivas para su uso en Cuba

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INTRODUCCION

El manejo adecuado de los recursos costeros es para Cuba una prioridad absoluta, determinada por varios factores: la condición de archipiélago, poseer varios miles de kilómetros de costas, los altos porcentajes de actividad socioeconómica y de población vinculados a la costa, el predominio de las playas como recurso natural asociado al turismo, sector más dinámico y principal aportador de la economía. Todo ello indica que Cuba debe adoptar y desarrollar los más eficientes enfoques para el manejo de sus recursos costeros.

Desde hace unos 15 años, internacionalmente el enfoque del manejo de los recursos costeros por las comunidades ha ido perfilándose como una alternativa superior al manejo centralizado. Esta opción fue convirtiéndose en necesidad a medida que se hacía evidente el agotamiento de los recursos pesqueros y costeros en general, así como la diversidad de factores que en ello influyen y su interrelación (Christie y White 1997). Gradualmente, se ha hecho evidente que el control de los recursos costeros por las propias comunidades es más eficiente y menos costoso que el control centralizado basado en normativas cuyo cumplimiento debe ser controlado por agentes externos a la comunidad.

Hasta el presente en nuestro país este enfoque no ha tenido un desarrollo apreciable, por lo que el objetivo de esta ponencia es hacer una estimación de las posibilidades y perspectivas para su utilización.

BREVE CARACTERIZACION DEL ENFOQUE

La mayor parte de las experiencias relacionadas con el manejo de los recursos costeros por las comunidades se han llevado a cabo en asentamientos poblacionales relativamente pequeños, con altos índices de pobreza y donde la pesca constituye una actividad económica principal.

En Filipinas, donde este enfoque surgió y ha tenido el mayor desarrollo, dichas experiencias han sido conducidas por organizaciones no gobernamentales (ONG) nacionales con importante participación de universidades, generalmente con financiamiento externo procedente de ONGs y otras instituciones de países desarrollados.

El objetivo principal en una mayoría de estas experiencias consiste en lograr que las comunidades se organicen; esto es, hacer surgir o fortalecer organizaciones que representen los intereses de los pobladores, de modo que estos adquieran mayor control sobre los recursos naturales costeros de los cuales dependen sus vidas y sobre estas mismas (Magsanoc Ferrer *et al.* 1996).

El enfoque de trabajo con las comunidades costeras es participativo, interdisciplinario, de abajo-arriba. Aunque muchas de las experiencias incluyen la capacitación de los pobladores, el conocimiento local es altamente valorado. En síntesis, se utilizan las concepciones y metodologías del enfoque participativo en ciencias sociales, tal como este ha sido desarrollado por la Educación Popular y la Investigación Rural Participativa (Díaz 1998), también se enfatiza la importancia de la equidad y de un enfoque sensible al género.

Posible aplicación en Cuba: apreciables deferencias

Al valorar la posible aplicación en Cuba del manejo de recursos costeros por las comunidades, en primer lugar debe señalarse una importante diferencia: la pesca en Cuba constituye esencialmente una actividad comercial fuertemente estructurada, cuyos principales actores no se ubican en pequeñas comunidades costeras. Esto no significa que en Cuba no existan pequeñas comunidades costeras, pero ellas no predominan en el sector pesquero ni en el conjunto de las comunidades costeras.

El carácter socialista de la economía y de la organización social es otra diferencia destacada. Aunque se concibe como propiedad de todo el pueblo, predomina la administración estatal y centralizada de la actividad económica. Existen marcada equidad social e indicadores de desarrollo social semejantes a los de países industrializados. También hay una compleja trama de organizaciones sociales actuantes en la comunidad y un enfoque participativo de la vida social.

En el actual decenio hay tendencias que merecen ser destacadas, principalmente hacia la *descentralización de la actividad económica* (autonomía empresarial, creación de empresas mixtas con capital externo, predominio de las cooperativas en el sector agropecuario, aumento del sector privado o trabajo por cuenta propia), *creación y fortalecimiento de los consejos populares*, gobierno local basado en la elección directa de los delegados de circunscripción que lo integran. También en esta década alcanza un notable desarrollo el empleo de métodos participativos para el trabajo social y comunitario, basado principalmente en las concepciones de la Educación Popular y llevado a cabo por iglesias y otras ONG, así como por organizaciones gubernamentales.

Estas diferencias sugieren que para su uso en Cuba el enfoque que nos ocupa debe ser ampliado desde los puntos de vista de los tipos de comunidades costeras a considerar, las actividades económicas que en ellas se desarrollan y los recursos naturales costeros a tener en cuenta. También se revelan los principales obstáculos y ventajas para el manejo de los recursos costeros por las comunidades en Cuba.

Los obstáculos

A mi juicio, las principales dificultades y obstáculos a vencer para implementar de este enfoque en Cuba son tres:

- Es un enfoque poco conocido; existe escasa información acerca de su desarrollo y utilización en otros países, así como de sus posibles ventajas.
- El manejo de los recursos costeros está vinculado a la actividad de diferentes organismos estatales, principalmente el Ministerio de la Pesca y el Ministerio de Ciencia, Tecnología y Medio Ambiente. Aunque ambos tienen representación territorial en todo el país, un gran esfuerzo requerirá la coordinación y conciliación de esfuerzos e intereses, sobre todo a escala local.
- No existe suficiente experiencia ni tradición de trabajo interdisciplinario que permita integrar enfoques y conocimientos de las ciencias naturales y sociales.

Las ventajas

Las ventajas y oportunidades principales para el manejo de los recursos costeros para las comunidades en Cuba son, a mi juicio:

- El alto nivel educacional promedio (9 años de estudios) y la calificación de la población.
- Ya existe una distribución equitativa de la riqueza; no hay intereses de propiedad que obstaculicen el desarrollo de este enfoque.
- No es necesario crear organizaciones sociales que representen los intereses de los pobladores (puesto que ellas ya existen) sino, partir de estas organizaciones y lograr que incluyan el manejo y conservación de los recursos costeros en su ámbito de intereses y su agenda de actividad. Los consejos populares podrían ser un escenario privilegiado para el logro de tal objetivo, por su alta representatividad y por incluir a otras organizaciones sociales que actúan localmente.
- Existen actualmente diferentes proyectos de trabajo comunitario y de educación ambiental con enfoque participativo que pueden constituir la base para un trabajo enfocado al manejo de los recursos costeros.
- Se ha desarrollado un enfoque y sensibilización de género. La Federación de Mujeres Cubanas tiene "Casas de la mujer y la familia" con amplia representación territorial.

- La ventaja principal, quizás la suma o integración de las anteriores, consiste en una mayor sostenibilidad potencial, menos dependiente de agentes y fondos externos. Parecería que en Cuba, una vez iniciado, el uso y desarrollo de este enfoque para la producción y utilización de conocimientos podría tener vida propia.

Las prioridades

Teniendo en cuenta las ventajas y obstáculos señalados, la implementación en Cuba del enfoque que nos interesa tendría las siguientes prioridades:

1. *Creación de consenso* entre los más importantes actores sociales: representantes de ministerios, gobiernos locales, académicos y agentes de comunicación social. Se buscaría la comprensión acerca del carácter democrático y mayor eficacia de este enfoque, así como de las amplias potencialidades de su uso en Cuba. Requiere la realización de talleres y seminarios así como la publicación y divulgación de información significativa.
2. *Determinación de una agenda* de prioridades para el manejo de los recursos costeros, basada en el análisis de los principales problemas existentes. Requiere la consulta a especialistas de diverso perfil, lo cual puede ser logrado mediante diferentes procedimientos.
3. Creación de *capacidades para el trabajo interdisciplinario* con enfoque participativo, integrando equipos de especialistas para su aprendizaje en la acción y en contacto directo con los pobladores. Requiere la organización de experiencias piloto de monto financiero limitado más que megaproyectos.
4. *Desarrollo de capacidades* en el manejo integrado de zonas costeras y específicamente en el *manejo de los recursos costeros por las comunidades*. Requiere la organización de actividades formativas de diferente tipo, principalmente *estudios de posgrado* (diplomado, maestría) para profesionales universitarios así como talleres comunitarios destinados a los pobladores, productores y otros actores de la comunidad.

CONCLUSIONES

El conjunto de ventajas para la implementación en Cuba del manejo de recursos costeros por las comunidades indican que la inversión en las prioridades señaladas podría conducir a una favorable relación costo-beneficio. Parece probable una alta sostenibilidad si se logra encauzar la compleja estructura social existente en la dirección deseada.

NOTA

1 Agradezco al Lester Pearson Institute, de la Universidad Dalhousie, Canadá, la invitación para tomar parte en el Instituto de Verano "Sustainable Livelihoods for Coastal Communities", celebrado en junio 9-27, 1997. Muchas de las ideas en esta ponencia tuvieron su origen en esos días.

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Integrating Fisheries Into Coastal Management in Barbados

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INTRODUCTION

This brief outlines the community-level integration of fisheries into coastal management in Barbados. The Code of Conduct for Responsible Fisheries is its point of reference. The Code sets out desirable guiding principles to be followed and actions to be taken by governments, fisheries authorities and other fishery stakeholders. Article 10 of the Code addresses the integration of fisheries into coastal management. Needs and current efforts at building capacity for community-based co-management are highlighted. Four cases of community coastal co-management in which fisheries feature prominently are examined.

- Co-management with fishers to revive and sustain the sea urchin fishery.
- A project by divers and fishers to install mooring buoys on reefs for mixed use.
- Initiatives by a fisherfolk organization to reduce fish trap tampering.
- Folkestone marine reserve and the issue of allowing cast-net fishing.

These cases also involve the Fisheries Division and the Coastal Zone Management Unit (CZMU), two government agencies responsible for coastal resources.

SITUATION PROFILE

Geography

Barbados has a land area of approximately 430 km^2. Its 90 km coastline is bordered by shallow reefs along much of its length. The reefs, beaches and associated features sustain human activity along the south and west coasts with considerable interaction between fishing and tourism-related activities.

Coastal Activities

The south and west coasts are prime areas for coastal fishing and watersports related to tourism (boat cruises, SCUBA and submarine dive tours, jet skis, etc.). The CZMU is responsible for coastal management, largely in co-operation with other government agencies with overlapping jurisdictions and the private sector. Jurisdiction is authorized through the *Coastal Zone Management Act* and the *Marine Pollution Control Act*, both in draft form at this time.

Fishing Industry

The fishing industry in Barbados could be characterized as small-scale, with about 500 vessels between 5 and 15 m in length landing up to 5,000 metric tons of fish each year and contributing about 1% to GDP. About 90% of the catch consists of small (flying fish) and large (dolphin fish, tunas, billfish) pelagic species. The fisheries for sea urchins, reef fish and small coastal pelagics dealt with in this brief are not large in terms of landings, but they employ fishers in the months outside of the main pelagic fishing season (December to June) and are the least capital intensive. Of the eight fisheries described in the fisheries management plan formulated in accordance with the 1993 *Fisheries Act*, these are the ones emphasized for co-management.

Communities and Stakeholders

There are nearly 6,000 people employed in the fishing industry, with about 2,000 of these being fishers. But fisherfolk are generally not located in fishing villages. People from many areas share the same landing site and some move between landing sites during the fishing season. This sharing and mobility results in fishing communities often being defined more on interest and role in the industry than on geographic and spatial criteria. The spatial context is still relevant, however, since fisherfolk organizations are currently linked mainly to landing sites. Other

stakeholders, such as the Professional Association of Dive Operators (PADO), are defined by interest and tend to be better organized and financed than fisherfolk organizations.

COMMUNITY COASTAL MANAGEMENT CASE STUDIES

1. Sea Urchin Co-management

The sea urchin fishery was first regulated in the late 1800's due to periods of low urchin abundance in which over-fishing, particularly of immature animals, was suspected as the main cause. A closed season was instituted, but it remained an open access fishery. The fishery closure was difficult to monitor and enforce and voluntary compliance was minimal. A moratorium between 1987 and 1989 resulted in some recovery of the stock, but populations were soon over-fished using more efficient SCUBA technology and indiscriminate harvest methods. The fishery collapsed in the 1990s.

At public meetings on fisheries management planning held in 1996, sea urchin fishers recommended that the fishery again be closed, gear restricted and that a different approach to management was required. It was suggested that they needed to assume greater responsibility for management of the fishery. Legislation has been drafted to prohibit use of SCUBA and close the fishery for three years. During this period, co-management is to be introduced through a coastal management demonstration project executed by a local firm using participatory methods. It is expected that a harvest organization will be formed, and fishery managers will collaborate to set up monitoring and harvest plans. The fishers will then play a major role in determining when and where fishing is allowed through a license system that they will control.

2. Mooring Buoy Project

PADO has been working with the CZMU over the past three years to establish a mooring system on the reefs of the south and west coasts to reduce the incidence of anchor damage from recreational vessels, fishing boats and dive operators. Approximately 15 sites were identified as priority locations for mooring buoys. Initially, this project did not involve the fishers who are less organized than the dive operators. In 1997 this situation changed with the inclusion of the Fisheries Division and reef fishers in the process of dialogue leading to implementation.

Inclusion of all these parties was deemed necessary due to competition between fishers and dive operators for space on reefs to carry out their respective trades. The issue of where to situate the buoys to be of use to both divers and fishers could also only be solved through dialogue. It is necessary to formulate temporal and spatial use rights to overcome the inevitable problem of sharing the buoys. Together the two government and two private sector stakeholders have held meetings and formulated a programme to jointly identify sites and rules of use with the intention of having the system operated and managed by the divers and fishers themselves.

3. Fish Trap Tampering

The Weston Fisherfolk Association was recently formed with assistance from the Fisheries Division's organization development programme. One of its first tasks, on behalf of its members, was to address the problem of divers releasing fish and damaging fish traps when they were presumed, often erroneously, to be ghost fishing. At other times the release or damage is motivated by dive operators wanting to reduce fishing effort on their preferred dive sites.

Using the services of a visiting student and a local environmental firm, the Association researched the topic and produced an educational poster explaining trap fishing, depicting the problem and asserting their right to fish within the law. On the latter point the Association has advocated that the legal minimum mesh size for traps be increased for the benefit of both themselves and the dive operators. The Association has invited several government authorities and other private sector stakeholders to discuss the problems that fishers face due to coastal competition and resulting incidences of conflict of use.

4. Folkestone Marine Reserve

Folkestone was established in the early 1980's as a no-take marine reserve on the west coast of Barbados. The area was used for cast-net fishing prior to its establishment, and fishers continued to harvest small schooling pelagics after the reserve was opened. The fishers did not participate in planning or managing the reserve. When enforcement authorities attempted to uphold the legislation and prevented fishing, the fishers took community action and formed the West Coast Fishermen's Association. By making it a political issue the fishers won recognition that cast-net fishing should be allowed in the reserve. However, the legislation was never amended to permit fishing, and restrictions on fishing persisted. Recently the CZMU and Fisheries Division have been working closely with the fishers to determine times and locations for fishing to take place without interfering with the other uses of the reserve. This will lead to changes in the legislation. The collaboration is also expected to extend to monitoring catches and to efforts to generate information on this largely undocumented fishery. Reporting will be one of the conditions of acquiring a permit to fish by cast-net in the reserve. Other types of fishing will still be prohibited, and fishers with permits are to assist with surveillance and compliance through the fisherfolk association.

CAPACITY-BUILDING

These case studies illustrate shared needs for building the capacities of stakeholders to participate meaningfully and effectively in coastal and fisheries management. At a recent local workshop, fisherfolk and other stakeholders in the fishing industry articulated some expectations of, and perceived barriers to, co-management (Table 1). The workshop participants also identified capacity-building and training needs (Table 2).

Table 1: Expectations of and barriers to co-management

FISHERFOLK EXPECTATIONS OF CO-MANAGEMENT	PERCEIVED BARRIERS TO CO-MANAGEMENT
Increased resource yield and fishery profitability	Government red tape and administrative delays
Enhanced conflict resolution and fisherfolk unity	Disrespect for and prejudices against fisherfolk
Improved infrastructure	Insufficient stimuli for fisherfolk participation
Development of a forum for discussion of new ideas and improved training opportunities	Low level of education and communication skills
Better decision-making and co-operation	Lack of information on fishery co-management

Table 2: Fisheries training needs

KNOWLEDGE EMPOWERMENT	SPECIALIZED TRAINING
Integrated coastal zone management	Organization management and financing
Fisheries science and co-management	Strategic planning and marketing
Government structure and procedures	Fisherfolk leadership and mobilization
Basic formal school education for adults	Communication and public meetings
Social structure, processes and mobility	Conflict resolution, mediation and facilitation

As important as correctly identifying what needs to be done is how these needs should be met. Fisherfolk requested that fishery officers be easy to reach and that they listen and respond to the industry participants. The process of building capacity provides numerous opportunities for establishing positive relationships between stakeholders and government, and among stakeholders. Successful co-management requires the Fisheries Division to encourage joint learning and information exchange opportunities. Joint capacity-building strengthens the bonds of mutual understanding and collaboration that will be needed for the implementation of co-management. The Fisheries Division and CZMU will also require capacity-building in order to provide the types of information and training identified. How best to achieve these goals is one of the major challenges now faced by these agencies. It is hoped that mechanisms can be found both within the region and from external sources to support these capacity-building requirements.

SESIÓN PLENARIA 4 / PLENARY SESSION 4

Practices and Experiences of International Development Agencies in Supporting Capacity-building

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INTRODUCTION[1]

This presentation is the outcome of a joint study that was funded by the Commonwealth Fund for Technical Co-operation (CFTC) and the Canadian International Development Agency (CIDA).[2] The study reviewed the effects of donor-funded capacity-building interventions in the oceans, marine affairs and fisheries sub-sectors in selected Commonwealth countries. It was first presented at a World Bank donor consultation on the fisheries sector in 1996.

PROJECT OVERVIEW

Two experts[3] with considerable experience in oceans and fisheries development assistance conducted the study. Four months of field work in 1995 included visits to Southern Africa, the Caribbean, the South Pacific, and West Africa. Meetings were held with Southern African Development Community (SADC) and visits were made to Caribbean Community (CARICOM), South Pacific Forum (SPF) member states and the United Nations Food and Agricultural Organization's Regional Office for West Africa in Ghana. Representatives from 14 national government bureaucracies, 14 regional organizations and eight international donor agencies were interviewed. A total of 153 interviews were conducted during these visits.

Methodology

The interview format was developed by the experts who carried out the study. Both host country personnel and the field representatives of several donor agencies were interviewed, usually separately. For the most part, meetings were arranged before the consultants arrived in a country. In order to foster frank and detailed discussions, the scope and focus of the study was made available to those with whom interviews were arranged, usually prior to the meeting. The assurance of anonymity given to those interviewed elicited very personal and potentially controversial comments from both host country personnel and donor agency representatives.

Constraints Affecting the Study

Since Ghana was the only West African country visited, it was not possible to have the same kind of inter- and intra- regional comparative assessment that was carried out in other regions.

FINDINGS

To start with the most general finding of all, the survey showed that donors and recipients alike agree that the *status quo* is unsatisfactory-the way we are doing things is not working. Predictably, donors and recipients diverged on the nature of the impediments and how to deal with them. However, within each group there was a remarkable degree of agreement concerning the need for change. Recipients all identified the same general problem areas an indication that the study was not merely uncovering difficulties peculiar to specific countries or regions. For the most part, representatives of donor agencies also perceived problems the same way, and had similar recommendations for improving performance.

The study found that project/programme sustainability and local capacity-building potential varied among the individual countries and among the three regions. Performance variations during and following completion of externally-financed programmes or projects were related the quality and volume of local capacity; post-colonial, political and economic histories of specific states; and the effectiveness of national and indigenous regional institutions.

Accordingly, the South Pacific Forum exhibited a strong regional identity and pursued sectoral initiatives through its regional technical agencies (Forum Fisheries Agency (FFA), South Pacific Applied Geoscience Commission (SOPAC), South Pacific Regional Environmental Programme (SPREP), the University of the South Pacific (USP), Pacific Islands Development Programme (PIDP-East-West Center), South Pacific Commission (SPC), and Tourism Council of the South Pacific (TCSP) in the Southern African region, although there is some success with programming via SADC, regional institutional structures are at an early stage of development; thus, capacity was below minimum requirements.

CARICOM has a high regional profile on the international scene. However, within the CARICOM area there is also a sub-regional entity, the Organisation of Eastern Caribbean States (OECS), a component of the Caribbean ocean institutional architecture. Regional initiatives in the Caribbean seem less successful than those in the South Pacific, while bilateral initiatives in CARICOM member states seem to achieve a higher success rate than similar initiatives in individual SPF and SADC countries. Generally, the larger Caribbean islands reap the most benefit from regional efforts.

DONOR'S PERSPECTIVE

In general, donors identified problems in three main areas:
The first area is a weaknesses in the public sector agencies of host country governments that deal with fisheries and ocean issues. Donors did not criticize the dedication or the perseverance of people working in these organizations. Rather they criticized the systemic obstacles and disincentives that impede these people's performance. These obstacles and disincentives include:

- low pay and poor working conditions leading to a host of problems, not least of which is a constant exodus of trained personnel;
- an absence in the system of rewards and penalties related to efficiency;
- aspects of human resource development policy that have the effect of focusing training effort in inappropriate directions.

Ideally, the system should engage and fulfil the interest of people who want to improve the quality of their work in the field. In other words, the system should encourage training to enhance an individual's performance. In actuality, the system encourages training for promotion.

There are always exceptions, but generally speaking, people train in order to quality for positions that allow them to supplement their incomes with financial allowances of one kind or another. Often the allowances are given for work outside the country.

The study pointed to a related problem. The senior personnel assigned to donor-assisted projects commonly win these positions on the basis of academic qualifications rather than field experience. These qualifications bring them many invitations to workshops, international conferences and other events for which the sponsors pay relatively generous allowances. This tends to keep them in perpetual travel status for awkwardly long periods. While they are away, there is often no one left to mind the store or to learn how to do so. This is the so-called "*per diem* syndrome." The study's findings show that this is a major obstacle to the sustainability and efficiency of development projects and programmes in many developing countries.

The second problem area identified was donors dissatisfaction with many aspects of recipient countries' performance in initiating projects and project maintenance. Problems mentioned included:

- The starting date for projects often arrives without essential host country components in place, in some cases without such basics as counterparts or leased land;
- There are problems that stem from differing approaches to the budgeting of time. Donor agencies like to start and end projects within a specified time-frame. Recipient governments tend to take the position that the duration of a project should reflect the time it takes to do the job right. Obviously there are arguments

to be made on both sides of this issue and perhaps a midway meeting point on this issue would serve both parties well.

- Donors also complain that proponents often come forward with unrealistic objectives and time-frames and that they do this to market the project to the funding agency.

The final point was donors criticism of themselves as a community. For example, donor agencies are aware of the absorptive capacity of developing countries. However, they are compelled by global, regional and national obligations to fast-track programming in areas such as marine environmental protection, land-based pollution, integrated coastal zone management, law of the sea issues, sea-level rise, and biodiversity. This contributes to less than satisfactory outcomes in many programmes and projects. Governments that lack the necessary numbers of technical personnel or the project management capacity, or both, often say "yes" to a project anyway. They do not think they can afford to turn down any offer of external assistance or follow a long-term theoretical programming methodology.

Donors also believe -and in this case they agreed with recipient countries- that many problems can be traced back to the appointment of consultants who lack cultural sensitivity and/or practical experience in the countries or regions concerned.

The donor countries proposed specific measures to counter these problems:

1. Increase donor support to regional projects and programmes.
2. Adopt as a recruiting specification for consultants and field representatives that these experts have practical experience in major elements of the project cycle, including project implementation.
3. Insist that programmes and projects mesh with sectoral development plans of the host countries; and
4. Undertake a concerted joint effort to deal with the "*per diem* syndrome".

RECIPIENT'S PERSPECTIVE

The recipients identified a different set of issues. The most common and the most vehemently-expressed complaints were about being on the outside of the process looking in. Recipient countries think many problems stem from this situation, and they believe that the problem could be solved if two conditions are met. First, donor agencies must involve them in the project identification and formulation phases more completely than they are now. Second, they must have a greater say in the hiring and, where necessary, the firing of consultants. I will elaborate on this last point.

Representatives of the recipient countries indicated that the consultants donor agencies assigned to projects were frequently inappropriate for the job. A common shortcoming is a lack of relevant background, both in terms of technical skills and cultural sensitivity. Significantly, donors do not disagree with this point. Host governments and recipient countries alike think that these problems originate in donor selection procedures that exclude local and regional experts from consideration as consultants. Recipient countries also find it detrimental to efficiency that once they have accepted a consultant, they are stuck with him or her, regardless of performance.

The recipients also criticized donor approaches to capacity-building. For example, they found the programmes of some training institutions in donor countries to be irrelevant to their needs and, in some cases, found that they were inadequate in terms of quality and level of training. Exacerbating these problems is what they consider to be the inflexibility of training and scholarship programmes. Often there is seldom if ever, any provision for changing from one area of study to another even if experience at the institution suggests that this should happen.

On the issue of exclusion from project decision-making, the problems start at the front end of the process. Recipients indicated that donor countries do not normally involve host countries adequately during project identification and formulation processes; nor do they involve host-country technical personnel sufficiently in project implementation, monitoring and evaluation.

Recipient countries also complained about assistance policy and implementation procedures. They believe that "tied-aid" policies distort choices of personnel, equipment, supplies, and training institutions.

At the operational level, a common problem identified was that donor agencies do not provide sufficient time for completion of different components of projects. The recipients' recommendations include these specific measures:

1. To ensure a smooth transition to post-project sustainability, donors and recipients should switch roles at some point probably-midway through the implementation cycle. In other words, the recipient should become the manager and the donor the advisor.
2. The local counterpart to the expatriate project manager should share financial responsibility for the project.

Let me note, parenthetically, that CIDA has had some favorable experience in this regard. One of our most successful undertakings has been in Guyana with an artisanal fisheries infrastructure project. Throughout the identification and implementation phases our partner was in complete control of the processes.

With regard to the issue of consultants, three suggestions to donor agencies recurred throughout the study:

1. Seek advice early on in the selection of consultants.
2. Allow recruiting mistakes to be corrected; build a field probationary period into consultancies.
3. Improve the level of consultant know-how by selecting qualified local/regional consultants whenever that is possible.

A personal observation at this point: comparing the observations and recommendations of recipients and donors in the study, it is possible to identify a single source of many of the difficulties. By this I mean the cultural divide that differentiates the donor and recipient environments. What the study seems to be telling us is that you cannot transplant project designs and concepts that work in developed countries to developing countries and expect them to succeed without modifications. The fact that this is happening is a further argument for closer and earlier co-operation between donor agencies and host governments.

RECOMMENDATIONS

Five main recommendations can be drawn from the study that are directed to the international donor community:

1. Lack of co-ordination is costing the international donor community time and money that it cannot afford. Donor agencies should work together to identify common problems, share experiences and establish priorities.
2. Shift the focus of human resource development policies from scholarships in donor countries and attendance at workshops and conferences to capacity-building through national and regional institutions.
3. Increase the emphasis on capacity-building in the specific areas of policy analysis and formulation.
4. Favour small projects with longer time-frames than the other way around, i.e., large projects with short time-frames.

There is a fifth recommendation, and I would like to close with some personal observations about it.

The study recommends that in the area of human resource development, donor agencies and recipient countries target specific groups for educational upgrading. They mention, specifically, children from disadvantaged minority groups and from poor families. The study recommends that official development assistance (ODA) be used to help these people to complete their secondary education to at least the undergraduate or technical level.

Under present arrangements, the typical beneficiaries of educational assistance are well-to-do or middle-income class children, most of whom do not need the help. The recipients countries argue that capacity-building programmes should be geared to help children who would not otherwise have an opportunity to attain a secondary education. Such policies can have a positive influence on family units and collectively on the country as a whole.

The obvious argument in favour of such an approach is, of course, that it supports equity. But it goes considerably beyond that. In my view, some of the instability of the present system, particularly the low rate of retention of personnel in developing countries, is related to unequal educational opportunities. My own impression is that if, through ODA, we can bring more people into the system we would, over the years, develop a more stable and dedicated corps of expertise to reside and work in the recipient countries.

CONCLUSION

A systematic channelling of official development assistance to the education of disadvantaged groups would be good for governance and social equity. It would also strengthen the capacity-building of developing countries. The work of development is the pursuit of all of these goals.

NOTES

1. The views expressed in this paper are those of the author and do not necessarily reflect official CIDA policy.
2. CIDA and the Commonwealth Secretariat, *A Study of International Development Activities Supportive of Capacity-Building in the Fisheries and Oceans Sectors of Selected Commonwealth Countries in Four Geographical Regions: The Southern Africa Development Community, Caribbean, South Pacific and West Africa* (November 1995).
3. Mr. Semisi T. Fakahau, Commonwealth Secretariat Fisheries Specialist, and Ms. Zaleena K. Ramnath, Tropican Marine Affairs Consultants, Nova Scotia, Canada.

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CIDA's Caribbean Programmes for Coasts, Oceans and the Environment

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INTRODUCTION

The Canadian International Development Agency's (CIDA) programmes for the oceans in the Caribbean hark back to the 1970s when there was an emphasis on fisheries development. That emphasis predominated until the 1980s, but since then CIDA has broadened its interests to cover coasts, oceans and the environment. This expansion is a reflection of changes in the international arena since the Third United Nations Conference on the Law of the Sea. The United Nations Conference on Environment and Development's (UNCED) Agenda 21, Chapter 17 of which deals with sustainable ocean development, together with the Bio-diversity and Climate Change Conventions, accentuate the importance of protecting and sustaining the environment. At the 1994 UN Conference on the Sustainable Development of Small Island Developing States (SIDS), Caribbean countries endorsed a SIDS Plan of Action (POA) which pays particular attention to the environment and oceans.

These conventions and the SIDS Plan of Action impose on Caribbean states extensive management responsibilities for their coastal and ocean environments. CIDA has responded to the needs of Caribbean states by means of bilateral and regional programmes for coasts, oceans and the environment in accordance with CIDA objectives to strengthen the capacity for environmental management and to support sustainable management of natural resources. This paper will examine these programmes within the context of CIDA's strategy and policy, its response to the needs and requirements of Caribbean states as they are perceived by these states, and future directions and prospects for the oceans sector in the Caribbean. To do so, the paper will cover the following areas:

- a short history of CIDA's involvement in fisheries and oceans in the Caribbean from the 1960s to the 1980s and early 1990s;
- CIDA's current programmes in the Caribbean for coasts, oceans and the environment; and
- new directions and future prospects for CIDA's involvement in the Caribbean.

CIDA's INVOLVEMENT IN FISHERIES AND OCEANS IN THE CARIBBEAN, 1970s-1990s

A short historical sketch of CIDA's involvement in fisheries and oceans in the Caribbean exemplifies the evolution of CIDA's approach in this region. CIDA has exerted a significant influence on current policy and will doubtless influence future directions in fisheries and oceans. Two significant features characterize this evolution. The first is a decreasing emphasis on fisheries development and an increasing emphasis on fisheries management and on wider environmental and oceans management. The second characteristic is the move away from bilateral agreements and programmes toward regional programmes. This progression reflects CIDA's experiences with bilateral programmes in fisheries, in particular problems with counterpart capacity and the inadequacies of programmes in situations where fisheries resources are shared by a number of states.

Since the 1960s, CIDA's assistance in fisheries and oceans has totaled roughly $600 million, 18 per cent of which, or over $100 million, was expended on Caribbean programmes. CIDA's bilateral programmes in the Caribbean were predominantly associated with fisheries development and management. Fisheries development plans were drawn up for St. Lucia, St. Vincent and the Grenadines, Barbados, and Guyana. CIDA's most notable and long-lasting involvement in fisheries development was in Guyana. Successive programmes from the late 1970s up to the present have dealt with improved infrastructure, equipment, support for local co-operatives and fisheries management. These programmes have had a significant impact on fisheries development in that country. During the 1980s, fisheries was one of the few sectors of the Guyanan economy that experienced growth.

During the late 1980s, Caribbean states became increasingly concerned with the establishment of Exclusive Economic Zones (EEZs) as a result of the United Nations Convention on the Law of the Sea (LOS Convention). The LOS Convention was being ratified by many countries, and raised further interest in the management and the development of the EEZs. These concerns were the basis for a Caribbean Community (CARICOM) request to

Canada for a project that would provide a resource assessment of the fisheries resources within the jurisdiction of CARICOM member states. CIDA responded by supporting the Caribbean Fisheries Resource Assessment and Management Programme (CFRAMP). CFRAMP involved considerable interaction and dialogue during its planning phase and constituted the most extensive regional fisheries resource management programme in the region.

CIDA'S CURRENT PROGRAMMES FOR COASTS, OCEANS AND THE ENVIRONMENT

The experiences of international donor agencies has revealed that fisheries development leads inexorably to over-exploitation of fisheries resources. It is clear that sustainable fisheries development is not possible without effective management. Concomitant with this realization was increased attention to the environment and to oceans, and to coastal, ocean and environmental management by international donor agencies. Consequently, during the 1990s, CIDA's interest in fisheries development expanded into the wider areas of coasts, oceans and the environment.

The Caribbean states, particularly the SIDS with their environmentally vulnerable economies, provided fertile ground for attention by CIDA and other donor agencies. These countries, though relying on environmentally sensitive natural resources such as agriculture, fisheries, oil and gas (in the case of Trinidad and Tobago), and tourism for their economic growth and development, had not paid much attention to environmental issues.

During the 1990s, CIDA launched a number of programmes in the Caribbean. Three examples will be highlighted that demonstrate the magnitude, scope and changing interests of CIDA. These programmes are:

- the CARICOM Fisheries Resource Assessment and Management Programme (CFRAMP);
- the OECS Environmental Capacity Development Project (ENCAPD); and
- the Jamaica Environmental Action Programme (ENACT).

The CARICOM Fisheries Resource Assessment and Management Programme

CFRAMP was the result of the identification of specific needs by CARICOM countries to exploit and manage the resources within their EEZs. Their relatively small EEZs meant that these countries shared resources, mainly highly migratory pelagics and straddling stocks. However, they lacked the basic information and institutional capacity necessary for fisheries management and development. CARICOM therefore requested from CIDA a programme to remedy these deficiencies. The programme that was finally approved, and which was developed in close collaboration and co-operation with CARICOM member states, initially covered the period 1991-1998 and had a total budget of $20.9 million. CIDA contributed $17.6 million (84 per cent) and the CARICOM states' contributed $3.3 million (16 per cent) to the programme. The project's goal is to promote the management and conservation of CARICOM countries' fisheries resources for the purpose of providing the CARICOM region with the basic information and institutional capacity necessary to manage and develop those resources. Specifically, the objectives of CFRAMP are to strengthen fisheries management structures and improve management capabilities and technical expertise through training and advisory assistance, to provide information on fishing resource abundance for management purposes, and to identify and establish a suitable regional fisheries management advisory mechanism.

CFRAMP encountered a number of implementation problems, and some programmes fell behind schedule. Consequently, a mid-programme review recommended that CFRAMP be extended because it was attaining its major objectives: it increased management capacity and capability for fisheries by means of institutional support and training of key personnel; it provided resource information and management plans for fisheries; and it contributed to fisheries community development. However, one of its major objectives was to establish a Regional Fisheries Management Mechanism (RFM) to provide indigenous institutional capacity for fisheries management. In order to attain this objective, CFRAMP commissioned a study in 1997 on a regional fisheries management mechanism. This study recommended the establishment of a CARICOM RFM and indicated how the extension of the programme could facilitate its implementation. In 1998, CIDA is considering extending CFRAMP for a 3 2-year period from 1998/99 to 2001, at a cost of $6.2 million, $4.5 million of which would be contributed by CIDA and $1.7 million, or 27 per cent, by the CARICOM states. It is hoped that the CARICOM RFM would be established during this period so that it will be in place at the termination of CFRAMP. This would ensure the longer-term sustainability of CFRAMP's objectives.

Prior to the study on the RFM, CIDA co-financed with the Commonwealth Secretariat a study entitled, *A Strategy for Co-operation in Sustainable Oceans Development for CARICOM* that was presented at a CIDA Oceans Initiatives Workshop at the Summit of the Sea in St. John's, Newfoundland in 1997. This study provided a strategy for CARICOM to follow in meeting the requirements of UNCED Agenda 21 for sustainable development and the SIDS Programme of Action. One of its major recommendations is that a CARICOM Regional Centre for Oceans Management (RCOM) be established. The RCOM does not compete or conflict with the RFM in that the RFM will be an integral part of the wider oceans mechanism. This study has been endorsed and approved at the level of the Standing Committee of Ministers, and recommendations based on it are to be presented to the CARICOM Council. If approved by the Council, it will have far reaching implications for oceans management and development in the Caribbean and will demonstrate the seriousness of the region's commitment to sustainable oceans management.

The OECS Environmental Capacity Development Project (ENCAPD)

The Organization of Eastern Caribbean States (OECS) Environmental Capacity Development Project (ENCAPD) is a recently approved project designed to assist OECS countries in improving their capacity for environmental management. The Caribbean is prone to a variety of natural disasters such as hurricanes, volcanoes and earthquakes that cause loss of life and extensive environmental damage. A number of global issues also affect the OECS region, including global warming and sea-level rise, trans-shipment of toxic wastes through the region, and over-exploitation of ocean resources. These phenomena result in loss of coastal habitats, maritime pollution, degradation of natural resources, and fish stock depletion. Specifically, there is widespread deforestation due to poor agricultural practices, contamination of the land and sea environment and coastal and beach erosion.

The Natural Resources Management Unit (NRMU) of the OECS has been playing a leading role in sustainable development programmes of the OECS, following the SIDS Plan of Action. Although numerous environmental projects are being implemented or are being planned by the international donor community, there was a need for further complementary support for the NRMU. The ENCAPD was designed to meet this need.

The ENCAPD project is a bilateral agreement between the OECS member states and the Government of Canada, and it is estimated to cost $4.0 million over the period 1998-2003. Its goal is to assist OECS states to develop and to utilize their coastal and marine resources in an environmentally sustainable way by strengthening the capacity for environmental management in institutions and organizations in the OECS states. The project's structure consists of two major components: (i) strengthening of environmental institutions, and (ii) environmental information technology transfer.

The priority issues that may be addressed by ENCAPD include shoreline erosion and sand mining, river sedimentation, uncontrolled marina development, improper beach replenishment, resource use conflict, construction in high-risk areas, inadequate planning for natural disasters, and marine habitat degradation. The project will tackle these environmental issues by:

- strengthening the management, legislative and technical capacities and systems in OECS national and sub-regional public institutions;
- strengthening coastal and marine resource management capacity of non-governmental organizations, community-based organizations and private sector organizations;
- accessing and designing environmental information systems; and increasing public awareness of coastal and marine resource management issues.

The Jamaica Environmental Action Programme (ENACT)

The Jamaica Environmental Action Programme (ENACT) is an environmental project designed to promote sustainable development in Jamaica by supporting capacity development of key Jamaican organizations involved in the decision-making, management and use of Jamaica's natural resources. Jamaica's economy is inextricably linked to the sustainable use of the island's natural resources. Mining (bauxite), agriculture, fisheries, and tourism sectors heavily dependent on primary resource use-account for the largest percentage of Jamaica's foreign exchange earnings. In 1991, the Government of Jamaica passed legislation to set up the Natural Resources Conservation

Authority (NRCA). The NRCA was mandated to establish and maintain an effective regime for the protection and conservation of Jamaica's natural resources. With the passing of the Act, the Government of Jamaica requested CIDA's support to strengthen the institutional management capacity of the Authority and this led to the formulation of ENACT.

The purpose of ENACT is to improve the capability of key strategic players at the government policy, private sector, community and general public levels to identify and solve their environmental problems in a sustainable way. A further goal is the enhancement of these improvements by linking and co-ordinating the capacity development activities of the various levels and players involved. The key players in ENACT are:

Government of Jamaica - The focus is on Government of Jamaica agencies that are involved with the development of natural resources, in particular the Natural Resources Conservation Council (NRCA) of the Ministry of Environment and Housing;

Private Sector - The goal is to increase environmental awareness and corporate commitment to sound environmental practices;

Local Communities - The goal is to strengthen communities' capacities for tackling environmental problems that can be solved at the local level; and

General Public - The goal is to heighten awareness of environmental problems and to assist the general public to participate in finding solutions.

ENACT is a phased programme estimated to cost $15 million over a ten-year period, 1994-2004. During this period, there will be a gradual transfer of responsibility for implementation from the Canadian executing agency to the NRCA.

CIDA'S PROGRAMMES FOR COASTS, OCEANS AND THE ENVIRONMENT

The three projects -CFRAMP, ENCAPD, and ENACT- represent an investment by CIDA of $39.1 million over a 13-year period, 1991 to 2004. These projects have similar characteristics that are indicative of CIDA's approach, namely,

- the time frame of the projects is medium-term (5 years) to long-term (10 years);
- there is considerable interaction between CIDA and the recipients at the planning and implementation stages; and
- local institutional strengthening and capacity-building constitute important objectives.

These characteristics are a consequence of the realization by CIDA that changes relating to coasts, oceans and the environment are long-term phenomena requiring attitudinal changes in public perceptions and must be accompanied by local institution building. These changes are also critical for a successful outcome to assistance projects.

These three projects are examples of undertakings that emanated from CIDA's Americas' Branch, but other projects from other Branches also deal with coasts, oceans and the environment. For example, CIDA's Partnership Branch has supported partnership activities between Canadian universities and the University of the West Indies (UWI) and the Cuban Institute of Oceanography, University of Havana. CIDA has supported the Oceans Institute of Canada (OIC) in a programme on sustainable oceans covering legal and policy issues, not only in the Caribbean but also in Asia and the South Pacific. CIDA has likewise supported the participation of Caribbean participants in the International Oceans Institute's (IOI) training programmes in oceans management. As pointed out earlier, CIDA has also provided support to coastal, oceans and environmental projects through contributions to multilateral agencies, i.e., the World Bank, the Global Environmental Facility (GEF), United Nations institutions such as the Food and Agricultural Organization (FAO), and many others. CIDA recognizes that the oceans and environmental issues in the Caribbean require not only co-operation among countries on a regional basis, but also co-operation among international and national donor agencies.

NEW DIRECTIONS AND FUTURE PROSPECTS

New directions and future prospects for CIDA's programmes in coasts, oceans and the environment in the Caribbean will be determined by: i) the Canadian policy focus on coastal, oceans and environment management and development; ii) Caribbean needs, requirements and priorities in terms of coasts, oceans and the environment; and iii) CIDA's approach to meeting these needs.

Canadian Policy Focus: Coasts, Oceans and the Environment

In 1995, the Canadian Foreign Policy Review *Canada and the World* identified sustainable development as an overarching policy theme. In 1997, the Government of Canada passed the *Oceans Act*, which confirms the government's commitment to sustainable oceans management and development. In conformity with Canadian government policy directions, CIDA is in the process of developing an oceans strategy. This proposed strategy implies that all ocean industries, such as fisheries, marine oil and gas, marine transportation (shipping), marine-oriented tourism, and the protection of the ocean environment, are relevant areas for CIDA's involvement. However, it should be stressed that CIDA's emphasis will likely be on oceans management rather than on oceans development.

The major elements identified in relation to an oceans policy focus by CIDA are:

- the focus should cover all ocean industries;
- greater emphasis should be placed on regional co-operation for the management of ocean space;
- increased co-ordination between donor agencies for programme delivery; and
- Canadian expertise and technology should be effectively utilized.

These elements all have implications for CIDA's policy and involvement in the Caribbean. However, this involvement depends essentially on the needs and priorities of the Caribbean region. Some significant initiatives and developments are taking place in this region in response to global forces that place the role of the oceans and of the environment in a new perspective.

Caribbean Needs, Requirements and Priorities for Coasts, Oceans and the Environment

The Caribbean is undergoing a period of adjustment to the global forces of trade and market liberalization and regional integration, which have been instrumental in creating large world market blocs. The European Union, the North American Free Trade Agreement (NAFTA), the beginning of the Free Trade Area of the Americas (FTAA) negotiations, as well as the results of the World Trade Organization's (WTO) Uruguay round of trade negotiations have made it obligatory that the Caribbean liberalize its trade and integrate regionally. The region has been proceeding with the deepening and broadening of this integration under the auspices of CARICOM and the Association of Caribbean States (ACS). CARICOM has extended its membership to include Surinam and Haiti. The Dominican Republic and Cuba are also being considered for membership. The integration of Cuba with the wider Caribbean will certainly strengthen Caribbean regional integration. Cuba can also play a significant role in oceans management and development in the region. It has a highly developed fishing industry and supporting infrastructure, as well as universities and institutions that can provide training in marine areas.

Caribbean states are becoming more committed to the protection and conservation of their terrestrial and marine environments and to sustainable development. In recent years, increased attention has been placed on environmental matters at both regional and national levels. However, it is clear that sustainable development requires significantly improved management capacity. This has been recognized in the SIDS Programme of Action. Much work has been done by international and regional agencies in terms of identifying environmental needs, priorities and requirements. All Caribbean countries have had to develop National Environmental Action Plans (NEAPs) as members of the World Bank Caribbean Group for Co-operation in Economic Development (CGCED). Furthermore, CARICOM is proposing to have the Caribbean Sea internationally recognized as a special area for sustainable development. This, along with attempts by Caribbean states to prevent the passage of nuclear wastes through this sea, signals that the oceans are being accorded higher priority by Caribbean states than ever before. Nevertheless, there are two priority issues with regard to the Caribbean Sea. The first is the settlement of delimitation problems in establishing

EEZs in this sea. The second is the development of a management plan for the sustainable development of this sea and the establishment of an appropriate regional management institution to implement this plan. All these initiatives suggest that high priority will be accorded to issues involving coasts, oceans and the environment by Caribbean states in the future. CIDA and other donor agencies can, however, only be supportive of priorities as determined by the states themselves, and of their measures and actions in meeting these priorities.

Future Policy Directions for CIDA in Coasts, Oceans and the Environment

The widening scope of CARICOM, together with problems of adjustment in the region to global economic forces, will dominate the Caribbean well into the first decade of the next century. This state of affairs will have significant implications for CIDA and other regional donor agencies. However, one might expect more regional resources to be devoted to resolving regional issues. These changes, accompanied by CIDA's experience with projects relating to coasts, oceans and the environment in the Caribbean, indicate a strategy for CIDA in this region should:

- be supportive of CARICOM goals, but keeping within sound policy, legislative and regulatory frameworks;
- support the creation of appropriate regional institutions for coastal, oceans and environmental management;
- focus on management capacity-building by means of human resource development activities;
- facilitate the broadening of regional integration, including supporting Cuba's integration into the wider Caribbean;
- encourage the transfer of appropriate technology; and
- encourage co-ordination and collaboration with international regional and national agencies in programmes for coastal, oceans and environmental management.

Based on its experience in other parts of the world, CIDA has encouraged increased local participation in the delivery of its projects as local institutional capacity acquires the competence to manage project delivery. This trend will be increasingly relevant to the Caribbean if institutional strengthening is attained in this region. There is no reason, given the region's emphasis on human resource training and on institutional strengthening, that this should not be the case.

CONCLUSION

CIDA has nearly thirty years experience with programmes for fisheries in the Caribbean. More recently, that experience has evolved to include programmes for coasts, oceans and the environment. Management capacity-building has been a core element and essential feature of programmes that involve establishing or strengthening management institutions and training of key personnel. The CIDA programmes have improved local management capacity and capabilities in the Caribbean region. They have enabled the region to attain an institutional and management foundation on which to base further developments, mainly in the area of sustainable development.

Sustainable development requires changes in perceptions about the environment, concerted policies to attain the objectives of sustainable development, the strengthening or creation of appropriate regional and national institutions to implement policies, and management capacity-building, which is also essential for the effective and efficient operation of these institutions. The Caribbean region has displayed its commitment to sustainable development by taking action on all these fronts. However, many challenges remain. The widening and deepening of the integration movement, securing of international recognition of the Caribbean Sea as a special area of sustainable development, the creation of a Regional Centre for Oceans Management, and fostering greater public awareness and support for environmental measures are key policy issues for the Caribbean region to address in the near future.

Caribbean governments can only tackle these problems realistically by demonstrating the political will to do so, and by supporting regional approaches and measures for sustainable development, given their financial and personnel constraints. CIDA recognizes the need to co-operate with other international and donor agencies in assisting the Caribbean region to meet its commitment to sustainable development, and it will do its part to help the region attain its objectives.

IDRC's Programmes in Latin America and the Caribbean on Coastal Ecosystems

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BACKGROUND AND PROBLEM STATEMENT

Globalization, structural adjustment and democratization in Latin America and the Caribbean (LAC) are complex and interrelated economic, social and environmental processes. Their complexity, and the tangled web of causes and effects that drive them, continue to challenge and frustrate policy, research and development communities and the populations affected.

The patterns of economic growth and decision-making in LAC are increasingly influenced by global forces. International capital profoundly influences local markets, bringing technological advances and linkages to agribusiness. Regional trading blocks such as the MERCOSUR (Southern Cone Common Market) and NAFTA (North American Free Trade Agreement) increasingly dominate production and consumption patterns in the hemisphere. These factors can stimulate economic growth but may also exacerbate longstanding imbalances in the distribution of wealth. For example, in Brazil the richest 20% of the population now have incomes 30 times greater than the poorest 20% (UNDP 1995). Social sectors such as the poor and those not linked to international interests are largely excluded from the decision-making processes that affect them. This particularly affects local producers of commercial goods who face reduced import tariffs and heavy competition in their own markets. Latin American societies are seeking locally appropriate ways to capture some of the benefits of globalization while managing the effects on communities, natural resources and the environment.

As a result of serious economic difficulties, Latin American governments were obliged during the 1980s to implement structural adjustment programmes (SAPs) in an effort to reduce the national debt. Under SAPs, national markets were opened up to foreign imports, price subsidies were abandoned, and certain sectors of the economy were privatized. Weakened national governments reduced spending in social areas (education, health and social security) and transferred their traditional responsibilities to lower levels of government. Municipal governments now have to respond to new and greater demands from their constituents but often lack the financial resources or management skills they need to carry out their responsibilities. Less-powerful sectors such as women, peasants and indigenous groups not linked to international interests or without influence in their own societies are typically excluded from these levels of decision-making.

The 1980s also saw a gradual return to democratic institutions throughout the LAC region. As democracy consolidates, new actors are emerging and different views on future directions for the region are being put forward. Consequently, there is increasing need to treat conflicts over access to political power and competing development visions through negotiated processes that are participatory and reach equitable solutions. The combined effects of globalization, structural adjustment and democratization have been to reduce the role of the state in directing development and to increase the influence of multinational corporations (e.g., mining companies), international agreements (e.g., World Trade Organization) and some parts of civil society (e.g., NGOs).

The development of democratic institutions in LAC still lags behind the process of rapid economic change. This imbalance creates conditions that allow decisions to be made that lead to resource degradation and impoverishment. For example, deforestation in LAC has damaged many tropical rainforest ecosystems (90% in the case of Mexico; de Janvry and Garcia 1992), degraded soils (25% of the land in Central America is degraded; World Resources Institute 1992), and clogged waterways. The poor are concentrated in increasing numbers on marginal lands and in urban settings (80% of the rural poor in LAC live on marginal land areas; Tognetti *et al.* 1995). Other effects include urbanization, migration, land conflicts, trade of illicit crops, underemployment, growth of the informal sector, and feminization of poverty.

Problems resulting from globalization often cannot only be solved at the local level. International leadership by both state and multinational corporations and binding international agreements to generate global solutions are required. Change at these levels can only occur, however, if civil society at the national level makes use of spaces for

mobilizing social action that can influence some of the decisions taken. Understanding global processes and their impact at the local level can also provide some opportunities for coping with the effects of the current development path. Nevertheless, fundamental problems of economic, gender-based and cultural inequity seem intractable and easy solutions are unrealistic.

Whatever progress is made toward a more balanced society in LAC will also have to depend on better management of the social, economic and ecological systems upon which rural populations currently depend. There can be no equitable, sustainable and productive development in rural areas if the natural resource base continues to decline. The cycle of impoverishment and resource degradation is particularly evident on the hillsides, highlands, forest margins, and coastal areas of Central and South America, where large and increasing numbers of poor people depend upon a declining natural resource base. While aboriginal and traditional societies in these environments developed relatively sustainable and equitable resource-based economies capable of producing a surplus, the management of these systems has been undermined by a wide range of forces - including population pressure, profit-driven resource extraction, political trends, policy changes, and the slow pace of appropriate technological development.

Mismanagement of natural resources is not a new problem. The intensification of shifting cultivation by the classic Maya society to the point of ecological collapse is perhaps one of the best known historical examples of management failure in tropical agriculture. Indiscriminate logging of tropical hardwoods in Central America during the 19th century in the absence of a reforestation strategy is another. More recent examples of resource mismanagement have resulted from poorly managed market liberalization, processes of unplanned decentralization, conflict over exploitation of rain forests, and so forth. Women, children and indigenous peoples often bear the costs of resource degradation disproportionately.

Past efforts to address rural poverty ventured into agrarian reform and technological change during the 1960s and 1970s, sectoral development and food security strategies during the 1980s, and various forms of integrated rural development and economic diversification throughout the period. More recently, the promotion of land markets, opening of agricultural markets, decentralization, and implementation of antipoverty programmes have dominated the rural development agenda. These interventions have typically paid little attention to environmental effects or to sociocultural factors such as the role of gender relations that are so critical to successful development. Women remain largely excluded from economic power and political influence while indigenous cultures are pushed to the brink of extinction.

Natural resource management decisions are made at various levels, from the farm to national institutions and beyond. Institutional and policy decisions that dictate access or entitlement to resources affect the productivity, sustainability, and equity of specific resource management systems. Through the allocation of public and private expenditures, the opportunities available to resource users and other rural dwellers to accumulate social capital (education and health) and benefit from physical capital (roads, telecommunications, electricity, and water supply) are defined. Legislation and policy implementation by the public bureaucracy influence the incentive structure (for example, market development, taxes and interest rates) and define the regulatory framework (for example, zoning and sectoral policies). Agricultural research and development programmes establish the affordability and appropriateness of natural resource conservation technologies.

Policy strategies are needed to overcome the exceedingly limited capacity of the poor in marginal environments to invest in long-term improvements of the resource base (Reardon and Vosti 1995). However, the capacity of governments to "control" what goes on in their jurisdictions should not be overestimated, especially considering the recent trend of erosion in government power. Moreover, diverse government branches often develop policies that go in opposite directions. Furthermore, management decisions are ultimately made by the resource users. With reduced government power, management decisions are increasingly influenced by the resource users, which include small-scale farmers and indigenous peoples as well as ranchers, hydroelectric companies, and large-scale corporations in industries such as forestry, mining and agribusiness. Resources are used by one group in ways that may undermine the livelihood of other groups. Even the identification of resource problems is contested in light of different information sources, world views and fundamental values, and by differences conditioned by gender, culture, and political and economic power. The resulting conflicts lead to chaotic and wasteful deployment of human capacities and the depletion of natural resources that make development possible in the first place.

The International Development Research Centre (IDRC) focussed its initial research support on agricultural commodities and post-harvest technologies, evolving over time to include more holistic analyses of the farm enterprise and the chains of activity from farm production to final consumption. Research was also supported in the areas of social and economic policies affecting the rural poor, rural health systems and demographic dynamics, but in most cases independently from farming systems research. In the Andes, some research was supported on community-level coping strategies in dealing with increasing commercialization of the economy. More recently, approaches involving the integration of technologies, institutions and policies have informed the research process, involving a wide range of research partners in networks emphasizing information sharing, interdisciplinarity and research economies of scale. Participation of local communities in the research and development (R&D) process, gender equity and environmental sustainability, although always a concern, have been emphasized further.

IDRC's research partners include national agricultural research systems (NARS), NGOs, public agencies at local and national levels, international agricultural research centers (IARCs), and university research organizations, both in LAC and in Canada. Some of the development problems they encounter arise from, first, the lack of appropriate technologies and policy instruments for coping with fragile environments and, second, sociopolitical constraints on transparency and participation in resource management decisions at local, national and international levels. The central premise of this programme initiative is that access to relevant information about resource management issues, appropriate technology and management options, and targeted policy instruments, combined with more-inclusive decision-making processes, will contribute to more equitable and sustainable resource management.

Current thinking in LAC maintains that extreme inequalities in the distribution of resources and power characteristic of many LAC societies are still at the root of impoverishment and resource degradation (IFAD 1993). The magnitude, scale and combination of development problems resulting from these conditions are evolving so quickly that, compounded by the process of globalization, they contribute to political instability on a global scale. The problems link the North and the South in ways that obligate the global society to act.

GOALS AND SPECIFIC OBJECTIVES OF THE PROGRAMME INITIATIVE

The Programme Initiative MINGA: Alternative Approaches to Natural Resource Management in Latin America and the Caribbean (MINGA PI) seeks to enhance, through research, the capacity of LAC societies to define, develop and implement equitable and sustainable natural resource management (NRM) strategies in representative areas of selected ecoregions.

The specific objectives of the MINGA PI are:

1 To identify and adapt appropriate methods and approaches for generating information and enhancing its use in NRM.

2 To improve decisions affecting the rural poor by strengthening participatory and multisectoral approaches to decision-making and assessing their impact on the fairness, efficiency and effectiveness of NRM.

PROGRAMME IMPLEMENTATION

General Approach

Programme implementation will involve support to research partners including local, national, and international specialists engaged in the analysis, synthesis and extrapolation of key experiences with NRM. Analysis and characterization of information needs and decision-making processes in selected areas will be linked by researchers to experience elsewhere with a view to arriving at syntheses of lessons learned. Findings will also be extrapolated by researchers within and across ecoregions and, for selected issues, projected over time. Better understanding of the conditions under which specific approaches work and their potential effects will be disseminated by the groups involved and by IDRC.

Ecoregions

The MINGA PI will work in four LAC ecoregions: the Andean highlands, the Central American hillsides, the Amazonian lowlands, and coastal zones. These ecoregions and the people that live in them vary greatly among themselves in terms of ecological (biophysical and human) traits. In any given ecoregion, the climate, soils, and mineral and biological resources, along with people's social organization and technological stock, determine the nature, extent and intensity of natural resource use.

Coastal areas are extremely important for food production and human settlement. Most major cities and communities of the world, including the LAC, are located close to the sea. For example, in Brazil, 18 of 22 cities with populations over one million are located in coastal areas. Economic activities in these often overpopulated areas result in a wide range of environmental problems, including water pollution, spread of disease, reduction of aquatic resources, and loss of coastal and aquatic biodiversity. These problems affect the prospects for sustainable livelihoods in coastal communities and are interrelated physically and socially because coastal areas are open ecosystems that include both urban and rural, and land- and water-based contexts. The PI will support research on key bottlenecks in the development of integrated coastal management systems and capacity-building to deal with the complex range of interactions and relationships inherent in effectively and equitably managing natural resource use in this ecoregion.

Benchmark Areas

Analysis of specific issues related to biophysical and socioeconomic information needs and participation in natural resource decisions will be supported in a few well-defined geographic and socioeconomic areas such as coastal zones and watersheds within the selected ecoregions described above. They will be "benchmark areas" where specific sets of natural resources are used by a range of social actors including farmers (men and women), small businesses and petty traders, resource companies, and townspeople. Research in benchmark areas will enable the people involved to generate, assess and validate methodologies, models and approaches to sustainable NRM. The effects of these approaches on beneficiaries will also be assessed at this level and results integrated into syntheses of lessons learned. From benchmark areas, findings can be extrapolated to other areas and projected over time.

Synthesis and Extrapolation

Benchmark areas may not provide all of the information needed to synthesize and extrapolate research results. Consequently, the PI will identify opportunities to support the documentation of well-developed experiences with specific approaches, methods or tools for NRM and synthesis of lessons learned elsewhere. These synthesis studies will also include findings from benchmark areas and add value to specific analyses by situating them in broader research contexts. New knowledge generated through this research can be used to advance understanding and facilitate problem solving.

Methodological Approach

Objective 1: Methods for Monitoring and Assessment

The PI will support a critical review of existing methods used in the analysis of ecosystems from social, economic and environmental perspectives to capture lessons learned and to identify areas requiring further research to make the research methods more appropriate to specific contexts. In particular, reviews will define a minimum set of criteria and variables to be used in methods applied by MINGA-supported projects. This should facilitate the analysis and synthesis of results of individual PI partner projects by offering a common ground for comparative studies within and across ecoregions. Similarly methods for undertaking baseline studies and monitoring and assessment of evolving production systems (e.g., remote sensing and geographical information system), environmental impacts and social change will be supported.

Objective 2: Approaches to Decision-Making

The lack of accountability, participation and co-ordination in decisions in NRM throughout LAC contribute to environmental degradation and conflict. To resolve or avoid these problems, decision-making processes that are better informed and more inclusive are needed.

In any particular benchmark setting, there are specific organizations or individuals at local, regional and national levels who influence or are affected by NRM decisions. These "stakeholders" in resource management include farmers' organizations, public institutions and private businesses as well as men and women with varying degrees of wealth and power. The formal sector organizations normally have a greater impact on decision-making. Informal groups (community groups, women's organizations, informal-sector traders, ethnic minorities, and small-scale farmers) have typically been unable to influence decisions affecting resources on which they depend for their livelihoods. Needs, constraints and opportunities vary considerably from one context and socio-economic group to another and special attention must be given to groups typically excluded from the decision-making processes which effect NRM.

Recent experience in LAC suggests that participatory and multisectoral approaches that bring previously excluded groups into decision-making offer new opportunities for improving resource management decisions, reducing poverty and finding better ways to avoid or resolve conflict.

Consensus-building processes have the potential to influence policy measures as they offer government officials the possibility of implementing some decisions acceptable to a wide range of sectors. In recognition of this potential, the University of Peace in Costa Rica has established an intensive course in alternative approaches to resolving conflicts over natural resources. Examples of similar techniques that can be applied to NRM include consultations, roundtables, co-management regimes, "mesas de concertación", participatory rural appraisals, collaborative watershed management, and participatory planning at local and regional levels.

There is a need to critically assess new approaches to resource management with a view to determining the conditions under which they lead to more effective, transparent and inclusive decisions. The act of making more information available about the interests, decision frames and criteria of less-powerful groups can play into the hands of powerful groups. An assessment of the impact of participatory approaches to NRM on equity and sustainability would help inform the use of these approaches by NGOs, national programmes and international donors.

Canada has considerable relevant experience and expertise that will be tapped by the MINGA PI. This experience is particularly strong in approaches that involve a broad range of stakeholders in NRM. National, provincial and local roundtables advisory groups to governments have operated for several years in various settings. In cases where indigenous people have participated, they have been instrumental to the success of roundtables. Indigenous peoples have also developed experience in co-management agreements with federal and provincial governments, which are challenged to integrate indigenous and state-based management and knowledge systems.

Guiding Principles

In benchmark areas and in the synthesis work, researchers and their partners will be encouraged to focus on six fields: enhance local solutions; undertake gender analysis; enhance management skills; draw on specialized skills; strengthen communication and exchange networks; and develop indicators of successful NRM.

Enhance Local Solutions: Local people are not passive in the face of problems. Local strategies for improving NRM and decision-making should be identified and enhanced through research. A process of technological innovation that builds on this understanding is more likely to result in feasible and adoptable technologies.

Undertake Gender Analysis: Men and women's roles, needs, priorities, access to resources, and rights (legal and customary) may be different in particular cultural settings. For example, women may not have effective legal protection of rights to the community lands they rely on for access to pastures. Women may not have the capacity or access to decision-making processes where they may express their views and have them on the action agenda. Researchers need to analyze these differences to be in a better position to identify competing resource interests and facilitate better resource management decisions.

Enhance Management Skills: Skills in NRM are largely based on tacit knowledge that can only be gained through direct experience. Capacity-building in skills such as interest-based negotiation, environmental impact assessment, gender analysis, and regional planning can enhance the research in the process.

Draw on Specialized Skills: Communities and research groups may not have the specific skills needed to analyze issues important to them or the need and opportunity to develop these skills. Research that draws on these specialized skills can meet information needs in a more timely manner.

Strengthen Communication and Exchange Networks: Reinventing the wheel is perhaps the most common and worrisome failing in the international R&D system. Appropriate literature searches, links with existing networks, reviews of research methodologies, and exchange of research results can help avoid wasteful use of resources and accelerate the research process.

Develop Indicators of Successful NRM: Understanding and measuring development impacts is typically an afterthought in both research and applied projects. Researchers should design and use appropriate indicators of successful NRM so as to be in a better position to assess the equity and sustainability of the NRM strategies they examine.

Gender

As has been pointed out throughout the document, the approach adopted by the PI has been to consider gender relations as an integrated part of the activities to be undertaken.

In this PI, gender considerations are particularly relevant given the strong globalization trends that affect labour relations in the countryside and more specifically how that translates into power relations and sharing responsibilities in the household. For example, changes in employment practices as a result of globalization have contributed to male migration leaving women in charge of farming systems in the Andes. In some cases, female labour is preferred, for example, in the flower export business. Research would be needed to identify the reasons and socio-economic forces that are producing such changes in the labour market as they relate to NRM.

Given the emphasis of this PI on decision-making processes, it will be essential to apply gender analysis so as to identify what men and women need in terms of strengthening their capacity to express their concerns, and to see them implemented as part of the decision-making agenda. Placing the combined needs of men and women in the sociopolitical and economic context of the region will permit IDRC with its partners to develop solutions that are gender equitable.

Networking and Dissemination

Networking and dissemination are essential elements of the PI's work and will be fully integrated into the *modus operandi* of the benchmark areas and research activities supported by the PI. In addition, the PI will support the development of mechanisms to facilitate the synthesis and exchange of key lessons regarding the role of improved resource management for more equitable and sustainable livelihoods in the four selected ecoregions. The networking and dissemination activities will account for the variety of groups that the PI intends to reach, and will tailor the information products and services to meet their very different information needs and information-seeking behaviour.

The PI's focus on inclusive decision-making processes will be translated into support for dissemination, to the various stakeholders, of information required to understand the complex issues that they must address to bring about positive change in the lives of marginalised populations. The dissemination strategy will target the following groups: researchers, other funders, policy- and decision-makers, NGOs and environmental nongovernmental organizations (ENGOs), and beneficiaries.

Researchers supported by the PI (at present or potentially) will be able to share the PI's orientations and priorities, concerns, methodological problems, and research results primarily through its Web page (in Spanish and English) and information brochures. New projects will include the necessary funds to ensure that researchers are fully connected to relevant research networks and have access to appropriate information sources on-line. Dissemination of research findings will be supported through electronic media, articles in academic and professional journals, and workshops and seminars.

To reach Other Funders, the PI will work closely with IDRC's Business Development Office to develop within the partner institutions and the MINGA team the skills required for effective fundraising, and to produce high-quality promotional material about research needs for poverty reduction and better NRM. This material will be based on what Centre partnerships have accomplished and can look forward to accomplishing in the future.

Policy- and decision-makers in Latin American national, regional and local administrations are key to long-term sustainability of any gains resulting from the application of research results. As outlined in the "Background Section", some policies and resulting legislation, regulations and programmes may effectively help or hinder sustainable development and the efforts of people to overcome impoverishment as they protect the environment from which they draw their livelihoods. Research projects supported under this initiative will have to address ways of reaching key policy-makers at the outset and demonstrating the benefits of participating in inclusive consultative processes with groups they may not necessarily recognize a priori as valid interlocutors. Communication with decision-makers will constitute a distinct, clearly developed component of the research methodology whenever appropriate in research projects.

Many local and international NGOs and ENGOs have a long history of working with rural communities to address the problems of concern to this PI. They constitute an important partner group for the PI and the researchers it supports in that they have active networks that can disseminate research findings. As well, research findings can inform NGO programming activities and provide essential feedback to researchers. Some of the NGO and ENGO networks with which IDRC is in contact specialize in community communication and can repackage research results.

The ultimate intended beneficiaries of most projects supported by the PI are rural people, a group that warrants special consideration. First of all, they are more likely to be users of information repackaged by a variety of extension services, including those offered by the NGO community, as well as governments and some research centers. Rural people who stand to benefit from research supported under the PI are important among the stakeholders contemplated by the PI in its concern for equity in resource management. To negotiate with other stakeholders on anything approaching a "level playing field", they must be able not only to access useful, timely and reliable information in a format that is culturally appropriate; they must also be able to exchange information "horizontally", from one rural community to another. Their special position as purveyors of information, not only to researchers but to each other, will be considered explicitly in research proposals, recognizing gender differences in knowledge, information needs, and the means of communicating knowledge and information.

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Capacity-building and Human Resources for Coasts and Ocean Management in CARICOM Countries: UNDP Perspective

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The United Nations Development Programme (UNDP) recognizes the growing unsustainable use of coastal and oceanic marine resources, despite the numerous national, regional and international agreements and activities to which governments have become a party and the range of activities that are being implemented or initiated. There are numerous constraints to reducing unsustainable uses, in particular inadequate levels of commitment to implement decisions taken at national, regional, hemispheric and international levels. In the Caribbean region, part of the problem relates to geopolitical approaches to addressing issues and problems related to management of the Caribbean Sea. Despite noble efforts through initiatives such as the Caribbean Environment Programme (CEP) and others to take more holistic approaches towards coastal and marine resource management, this trend has not been reversed. UNDP applauds the objectives of this meeting towards addressing issues of marine and coastal resource management from the perspective of the wider Caribbean especially within the context of the International Year of the Ocean.

The focus of this panel on "Practices and Experiences of Donor Agencies and Regional Organizations in Supporting Management Capacity-building" is timely and important. UNDP has provided support for a range of activities throughout the Caribbean through our country offices located in the wider Caribbean. My brief is confined to elaborating upon UNDP efforts as regional Sustainable Development Advisor within the Caribbean Community (CARICOM). Three broad areas of activity can be identified:

- support for substantive technical maritime and other environmental and sustainable development treaty implementation issues
- support for broader development policy and process issues related to overall sustainable development
- suggestions for maximizing the use of available resources in the region for greater efficiency in meeting international obligations under treaties dealing with maritime, environmental and sustainable development

SUPPORT FOR TREATY IMPLEMENTATION ACTIVITIES

An exhaustive list of treaty implementation activities is not presented here, merely an illustrative one highlighting the more generic regional approaches undertaken with UNDP support. Individual Caribbean governments are free to request any help they wish under their UNDP country programmes to address any aspect of treaty implementation. In some cases support has been provided for skills training and institutional capacity-building under these country programmes. Specific information on UNDP national projects within the Caribbean is available from relevant country offices having specific responsibility for country programme management.

The following are specific examples of regional UNDP activities regarding international treaty implementation:

- establishment of Ozone Depleting Substances Units (ODS units) - Montreal Protocol
- national biodiversity strategies and action plans
- climate change communication strategies
- CARICOM Regional Maritime Safety, e.g., International Maritime Organization treaty implementation (Support to the CARICOM Secretariat US$ 300,000)
- CARICOM Regional Disaster and Emergency Response, e.g., oil spills [support to Caribbean Emergency Disaster Response Agency (CEDERA)]
- Implementation of the Small Island Developing States Programme of Action (SIDS POA) [an important soft agreement on coastal and marine resource management], e.g., climate change; CARICOM Regional

Consultation in Preparation for Kyoto, November 1997; CARICOM Regional Consultation on Formulation of Global Environmental Facility (GEF) Sustainable Energy Proposals; Biodiversity, Hemispheric Consultation in Preparation for GEF Council Meeting New Delhi, Santo Domingo, January 1998; information sharing and networking SIDSNet (see below for more detail); technical assistance under the Small Island Developing States Technical Assistance Programme (SIDSTAP) administered by the UNDP Special Unit for Technical Co-operation under Developing Countries (SU/TCDC); a compendium of projects was prepared for the SIDS Ministerial Meeting and is available online and as a four-volume hard copy SIDS consultants database.

- Agenda 21 [Capacity 21 US$ 750,000], includes GEF Small Grants Programme (Organization of Eastern Caribbean States (OECS), Trinidad and Tobago, Suriname) [US$ 700,000]; strengthening human resources [regional personnel for Senior Sustainable Development Advisor (SDA), GEF, SOP co-ordinators]; environmental management guidelines workshops through the OECS in Jamaica, Trinidad and Tobago, and Guyana provided tools for decision-makers to mainstream environmental considerations into development projects and programmes.

UNDP SUPPORT FOR DEVELOPMENT POLICY AND PROCESS ISSUES RELATED TO OVERALL SUSTAINABLE DEVELOPMENT

Information

UNDP believes that facilitating the development of a regional capacity for information sharing and networking is one of the key strategies for promoting greater efficiency in the implementation of treaty obligations. It is essential for facilitating the transfer of information and enabling richer dialogue and communication, both nationally and regionally and indeed intra-regionally (between the SIDS geographical regions of the Caribbean, Pacific, Atlantic, Mediterranean and the Indian Ocean).

Considerable resources have been devoted by UNDP to the establishment of SIDSNet. To date US$ 400,000 has been provided to get the site up and running. Additional support has been provided to enhance the OECS capacity for information sharing and networking through computerization and training on Internet access and website development. SIDSnet is expected to promote greater transparency with respect to information acquisition and sharing.

Case studies and best practices have been developed to facilitate sharing of information and know how. This support was provided specifically for activities in support of Agenda 21 guidelines with respect to coastal and marine conservation areas. Case studies have been developed within CARICOM on coastal conservation in Barbados and the Soufriere Marine Management Area in St. Lucia (SMMA) (devolution of authority for natural resources management to community groups). Best practices on the work of Grencoda with respect to addressing coastal erosion resulting from beach sand mining have been documented.

Strengthening National Institutional Frameworks for Decision-making

A number of initiatives have been launched to strengthen national institutional frameworks for decision making. Sustainable development councils (SDCs) have been established in six pilot countries in CARICOM. These council include the participation of non-state actors in national decision-making including, NGOs, communities, the business and commercial sectors, academic institutions, special interest groups, and trade unions. Environmental monitoring group (EMG) guideline workshops have also been organized.

Enhancing National And Regional Ownership Of The Developmental Process For Sustainable Development

UNDP acts almost as a silent partner, facilitator and nurturer of human-centered sustainable development (SD) activities. Projects it has supported include:

- building CARICAD's capacity for assisting countries in implementing participatory approaches towards national decision-making for SD (e.g., explaining Capacity 21 implementation strategy)

- promoting and facilitating national execution of projects and programmes to ensure that the capacity has been built to continue the activities beyond the life of projects and programmes (e.g., climate change and biodiversity enabling activities and support under the Montreal Protocol). Local ownership of the process has been facilitated through the use of local consultants.
- facilitating participation in international negotiations on environmental and SD agreements (e.g., sponsorship of national delegations to meetings)
- providing technical guidance and advice on treaty obligations (e.g., facilitating the SIDS implementation process in collaboration with the Economic Commission for Latin America and the Caribbean (ECLAC) and CARICOM by supporting ministerial meetings on SIDS and providing interagency support to countries in preparation for the mid-1999 review of progress under the SIDS POA by the UN General Assembly. A SIDS donors meeting is scheduled for February 1999 and assistance has been offered to countries for the preparation of project proposals by November 1998 although there has been limited response to the offer as yet despite repeated requests)
- UNDP is also expected to decentralize some of its activities from its New York Headquarters through the establishment of a Sub-regional Resource Facility based in Trinidad and Tobago. Through this modality greater support is expected to be provided to the Wider Caribbean Region.

UNDP Recommendations of Strategies for Maximizing the Use of Available Resources for Treaty Implementation

An important issue for consideration by this meeting is the examination of opportunities for maximizing the use of resources currently available to the region for implementation of treaty obligations under maritime, environmental and other SD agreements.

The following strategy was presented to the Caribbean Sea Forum. Several donors and other regional institutions have expressed an interest in supporting its implementation, in particular the Commonwealth Secretariat, the Organization of American States (OAS), the CARICOM Secretariat and the Canadian International Development Agency (CIDA).

Overarching Context of this Strategic Examination

Identification of opportunities to assist the region in overcoming constraints towards sustainable use of Caribbean coastal and oceanic marine resources.

Process Issues

Develop strategies for more efficient use of available resources and initiatives currently funded nationally and regionally with respect to the implementation of international conventions.

Priority Focus and Action

Strategic examination of

1. Financial resources available within existing national and regional initiatives on biodiversity, climate change and other environmental and sustainable development agreements
2. Available national and regional institutional and infrastructural resources either dedicated to or with the potential for promoting co-ordinated approaches to the implementation of Agenda 21, SIDS POA and international conventions on environment and development

Available Financial Resources

A few examples of existing initiatives for implementation of the Rio Conventions on Biodiversity and Climate Change and other environment or sustainable development agreements to which countries are signatory regionally, on a hemispheric basis or internationally are set out in the table below. If a wider Caribbean analysis is used, significant existing financial resources to support implementation on these agreements would be identified, perhaps upwards of US$ 70 million might be identified.

Environmental or Sustainable Development Agreements	Contribution (in million US$)
Caribbean Planning for Adaptation to Global Climate Change (CPACC)	6.3 (United Nations Framework Convention on Climate Change (UNFCCC))
GEF Enabling Activities (EA) on Climate Change	1,938 240 + UNFCCC
GEF EAs on Biodiversity	1,359 000 + Convention on Biological Diversity
GEF Small Grants Programme	800,000 + Convention on Biological Diversity
National Programmes on Ozone Depleting Substances	Montreal Protocol
Others United Nations Environment Programme Organization of American States Commonwealth Secretariat International Financial Institutions, e.g., Caribbean Development Bank, Inter-American Development Bank, World Bank , Bilateral donors	Cartagena/Specially Protected Areas and Wildlife (SPAW) Bolivia Summit

Available National /Regional Institutional And Infrastructure Resources

Across the wider Caribbean, a number of sustainable development/natural resource management units or mechanisms with mandates under Agenda 21, SIDS POA, SPAW/Cartagena and resources to support activities can be identified, including:

- CARICOM Secretariat
- OECS Secretariat, specifically the OECS/National Resources Monitoring Unit (NMRU)
- Caribbean Environmental Health Institute (CEHI)
- ECLAC/Caribbean Development and Co-operation Committee Secretariat (CDCC)
- UNDP Caribbean Country Offices
- UNEP/Regional Co-ordinating Unit (RCU)
- Caribbean Centre for Development Administration (CARICAD)
- Institute of Marine Affairs (IMA)
- University of the West Indies (UWI Centre for Environment and Development (UWICED), Sustainable Economic and Development Unit (SEDU), Centre for Resource Management and Environmental Studies (CERMES), etc.)
- The Secretariat of the Association of Caribbean States (ACS)

National And Regional NGOs with a Focus on or Mandates Delegated to Them on Sustainable Development/Natural Resource Management Issues

A number of NGOs involved in these areas operate in the wider Caribbean, including the Caribbean Conservation Association (CCA), Caribbean Natural Resources Institute (CANARI), and the Island Resources Foundation (IRF).

Implementing Mechanisms for National and Regional Projects

CPACC	RPIU and NICUs
GEF EAs: Communications Strategies on Climate Change	National Steering Committees & National Project Teams
GEF EAs: National Biodiversity Strategies and Action Plans (NBSAP)	National Task Forces & National Project Teams
CEP	National Focal Points
Montreal Protocol	ODS Units

Perspectives for Co-ordination/Integration

National mechanisms and project initiatives often include areas of commonality. For example, the CPACC, communications strategies, NBSAPs, and the CEP have direct linkages to sustainable use of the Caribbean Sea. They each contain several areas that can and should lend themselves to integration, particularly with respect to budgetary lines for activities related to information, public awareness and sensitization, and upstream linkages and inputs to national policy frameworks on sustainable development.

CONSTRAINTS, OPPORTUNITIES AND POTENTIAL FOR INTEGRATION

In most CARICOM countries national capacities tend to be overextended for a range of reasons including,

- national mechanisms are often co-ordinated by personnel drawn from the same national agencies institutions (with severe impacts on national capacity to implement their substantive duties)
- activities undertaken by various project teams often need to be supervised/overseen by the same national institutions with mandates for sustainable development/natural resources management (usually with limited or no direct involvement by central planning/finance ministries agencies or non-state actors)
- limited focus on rationalizing the selection of national focal points for international agreements or mechanisms such as GEF, UNFCCC, SIDS, UNEP/CEP, and the Bolivia Summit (some collaboration is expected at the policy level but this is often not a regional reality and focal points tend to function independently at the operational level resulting in wasteful duplication and inefficiencies)
- efforts towards co-ordination tend to be non-formal and are often initiated by enlightened "personalities" within agencies sectors or special interest groups

RECOMMENDATIONS

The working groups of this forum may wish to consider the following recommendations for countries and other regional actors:

- identify and inventory existing national and regional resources (financial/institutional) under the broad areas suggested above
- co-ordinate or even integrate where possible, the use of budgetary allocations within existing funded initiatives, either nationally or regionally as appropriate
- rationalize the establishment of national focal points for regional, hemispheric and international mandates
- network and share information resources within and between countries

All these activities need to be undertaken within the context of cost effectiveness and institutional efficiency.

Long-term Capacity-building Strategy Through Sub-regional Networking and Projects: The IOC/UNESCO/FER(EU) Pilot Project for Latin America and the Caribbean

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Intergovernmental Oceanographic Commission (UNESCO)

In December 1994, the "Europe-Latin America Conference on Co-operation in Research, Information, Education and Development" convened in Madrid and Alcalá de Henares, Spain. This international meeting was jointly organized by the Euro-American Institute of Science, Culture and Communication "Antonio Machado" (INECAM) of the University of Alcalá de Henares and the European Federation of Networks for Scientific and Technical Co-ordination (FER), with funding support from the European Union.

The main objectives of this conference were: i) to determine common research topics of interest for Latin America and Europe for potential co-operative projects for the fields of information, education, research and development; ii) to favour development of science and technology networking between Europe and Latin America for fields of common interest and mutual collaboration; and, iii) to develop proposals for co-operation between Europe and Latin America, in particular, in the fields of communications and new informatic techniques. The overall objective of the conference was to formalize the establishment of a Latin American Federation of Co-operation Networks for Science and Technology in priority topics following the model of FER.

Among other areas of co-operation identified (from nine in total), marine science and technology (with emphasis on the coastal zone) were selected as a potential co-operative topic. In the follow-up process and following a request submitted through FER, the Intergovernmental Oceanographic Commission (IOC) of UNESCO (IOC-Capacity-building Training, Education and Mutual Assistance (TEMA) Unit) prepared and co-ordinated, in March 1995, a proposal dealing with a "Feasibility Study for the Implementation of a Network in Marine Science and Technology between Europe and Latin America". This proposal was submitted, via FER, to the European Union (Brussels) for funding. The declared objective of the proposal was "mutual strengthening of capabilities for development, management and protection of ocean and coastal areas, in a context of sustainable development, for the Eastern Pacific, South Western Atlantic and Caribbean sub-regions" of Latin America.

Taking into account the proposal's main objective and the memorandum of understanding signed (May 1995) by UNESCO and FER, two workshops were organized: the Workshop on Management of Oceanographic Systems in the Eastern Pacific" (EULA-Chile Centre, Concepción, Chile, 9-16 April 1996) involved eleven countries from México to Chile and the "TEMA Workshop on Oceanographic Systems of the Southwestern Atlantic" (FURG, Rio Grande do Sul, Brazil, November 1997) involved six countries from Colombia to Argentina. A third workshop on integrated coastal area management (ICAM), the "TEMA Pluridisciplinary Workshop on Wider Caribbean Networks on Integrated Coastal Area Management", is being organized for the Wider Caribbean (Cartagena de Indias, Colombia, 7-12 September 1998).

Objectives

The specific objectives of these workshops are:

i) to define the regional components for the co-operative axis in marine science and technology between Europe and Latin America

ii) to determine the initial steps to implement mechanisms of co-ordination and to establish five thematic networks for the sub-regions, namely integrated coastal zone management, sustainable management of living resources, global change, air-sea interaction and "El Niño" phenomena, post-graduate education and research, and marine environmental risks and emergencies.

Funds for these workshops comes from the European Union, the IOC and several multilateral, bilateral and national partners. Host institutions were selected by their academic and organization level, pluridisciplinarity and representativeness of the sub-regions, as well as their tradition of European-Latin American co-operation and their interest in and commitment to regional activities.

The Eastern Pacific and Southwest Atlantic workshops were attended by approximately 160 experts from 11 Eastern Pacific countries; six continental Caribbean and Atlantic countries; six European countries; and nine international and bilateral co-sponsoring organizations. The results of the workshops were compiled into general and specific actions reflecting national, sub-regional and regional proposals. In addition, an integrated common research plan for the selected topics was drafted with the strong commitment of countries represented. Future actions were prioritized for each thematic group in each workshop. These action items are listed below.

Eastern Pacific Workshop (Concepción, Chile, 9-16 April 1996)

Main Proposal

To develop co-operation and co-ordination networks in marine sciences and technology between Latin America and Europe for the following topics: integrated coastal zone management, sustainable management of living resources, global change, air-sea interaction and "El Niño" phenomena, post-graduate education and research, and marine environmental risks and emergencies.

Specific Actions

Project proposals are to be developed through networking co-operation between the sub-region and Europe for each of the following themes.

Thematic Group I (Integrated Coastal Zone Management) : i) characterization of coastal zones for the Eastern Pacific; ii) identification, quantification and validation of parameters and corresponding models for the coastal environments to describe and valorize corresponding ecosystems and their resources; iii) human resources development for research and management of the coastal zone

Thematic Group II (Sustainable Management of Living Resources): i) pelagic resources and their relation to the marine environment for the South Eastern Pacific; ii) strengthening activities dealing with management and protection of fisheries resources and the marine environment in general for Central American coasts; iii) research and training in technologies for environmental management and diseases control related to mariculture activities in the Eastern Pacific

Thematic Group III (Global Change, Air-Sea Interaction and" El Niño" Phenomena)I : i) strengthen and/or develop oceanographic/meteorological networking for operational purposes, as well as develop a regional climatology base; ii) establish climate regional models for the Central and South Eastern Pacific sub-regions including socio-economic evaluations and nested global change impacts at the coastal and inland areas; iii) determine those oceanographic and meteorological components most relevant to impacts concerning fisheries resources

Thematic Group IV (Post-graduate Education and Research) : i) complete a directory of post-graduate programmes in marine science and technology for the region; ii) design and present advanced level courses in marine science and technology to fill gaps in ongoing post-graduate programmes offered at Latin American academic centers; iii) provide consultancies to design and evaluate curricula related to ongoing pre- and post-graduate programmes in marine science and technology

Thematic Group V (Marine Environmental Risks and Emergencies) : i) prepare an awareness and prevention information programme related to marine environmental risks and emergencies; ii) design a "cartography" of potential risks for the Eastern Pacific; iii) establish a sub-regional network for tsunamis surveillance and alert

Southwestern Atlantic Workshop (Rio Grande do Sul, Brasil, 3 - 11 November 1997)

Thematic Group I (Integrated Coastal Zone Management) : i) develop a strategy for the implementation of a co-ordinated regional process for ICAM (research, training and management)

Thematic Group II (Sustainable Management of Living Resources)

I: Coastal Resources: i) structure and dynamics of meta-populations of exploited invertebrate resources; ii) re-discover basic, usually neglected, elements influencing sustainable management

II: Large-Scale Fisheries: i) improve the knowledge of physical processes influencing spatial distribution and variation of exploited fish stocks; ii) develop mechanisms to co-ordinate training, research and management

III: Others: i) evaluate the re-installation of sub-regional co-ordination mechanisms for fisheries for ASOS; ii) [re. Regional Fisheries Advisory Committee for the Southwest Atlantic (CARPAS)]; iii) research and document marine regional biodiversity; iv) implement a regional bibliographic data bank; v) improve communications

Thematic Group III: Global Change, Air-Sea Interaction and "El Niño" Phenomena : Cooperativa del Atlántico Sudoccidental Superior para Investigaciones Oceanográfico-Meteorológicas - Red CASSINO - Research, training and education network with emerging research groups as target.

Thematic Group IV: Post-graduate Education and Research: network on training and education and re-enforcement of the human resources actions of the ASOS region

Thematic Group V Marine Environmental Risks and Hazards : i) morphodynamics and coastal erosion of the ASOS region; ii) monitoring of land-based pollutants in the coastal environment; iii) programme on HAB impacts evaluation on the ASOS region

The on-going methodology described above will serve as a pilot strategy for long-term capacity-building in marine science and technology by enhancing national, sub-regional and regional communication and co-ordination capacities. These capacities will be based on sub-regional or regional training and research initiatives/projects. The strategy was discussed and adopted during expert consultations carried out by the TEMA-Capacity-building Unit and was endorsed by the XIX IOC Assembly in 1997.

The overall initiative was analyzed and discussed during a review and evaluation conference (Alcalá de Henares, Spain, January 1998). At the same time, follow-up activities for the 1998-99 period ("implementation second phase") were identified. These activities include the implementation of several thematic networks in Latin America and the Caribbean, formalization of contacts with European partner institutions, development of an Internet home page for the whole exercise, and reinforcement of the European side of the programme through a fourth meeting to be held in Barcelona, Spain (30 November - 3 December 1998). The formalization of the above-mentioned networks reflects the proposals of both meetings described above. The proposals for implementation through several macro-projects will be submitted for funding during 1999 to a number of agencies, in particular the European Union.

The 1998 Action Agenda for Integrated Coastal and Oceanic Management of the Caribbean Sea

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BACKGROUND

At the Earth Summit in Brazil in 1992, the 1994 Global Conference on the Sustainable Development of Small Island Developing States (SIDS) in Barbados, and in subsequent hemispheric fora, Caribbean Community (CARICOM) member states have placed high priority on strengthening the management capacity for marine areas in the wider Caribbean, with special emphasis on coastal zones. In early 1997, assisted by the Canadian International Development Agency (CIDA) and the Commonwealth Science Council (CSC), CARICOM sponsored a seminal research initiative on "Sustainable Oceans Management in the Caribbean". In June 1997, CARICOM ministers responsible for foreign affairs agreed that efforts should be made to secure international recognition of the Caribbean Sea as a special area. The November 1997 Economic Commission for Latin America and the Caribbean (ECLAC) ministerial meeting on the 1994 Barbados Programme of Action for the Sustainable Development of Caribbean SIDS agreed to support the "special area" concept and to place it within the context of sustainable development. Also in November 1997, the third regular meeting of the ministerial council of the Association of Caribbean States (ACS) endorsed the Caribbean Sea "Special Area" concept and agreed to collaborate with regional and international organisations to secure its adoption by the 1999 Special Session of the UN General Assembly.

Against this background, and in the context of the International Year of the Ocean, the CARICOM Secretariat collaborated with international, hemispheric and regional supporters to organize a Caribbean Sea Forum from 4 - 6 June 1998 in the Republic of Trinidad and Tobago. The Forum was attended by almost 100 national representatives from government and non-government organizations (NGOs) of the wider Caribbean. Also present were representatives from regional and international technical assistance and financing agencies with an interest and involvement in the integrated management of Caribbean coastal and oceanic resources.

The Forum considered a wide range of coastal and oceanic issues in three working groups on policy, legal/regulatory, and science and technology. A three-year action agenda was formulated and the Forum participants unanimously agreed to invite CARICOM heads of government to consider the adoption of a number of recommendations for action. With a focus on capacity-building, needs were identified in each of the three areas.

Capacity-building needs with respect to policy

- For a CARICOM Secretariat-led Working Party, including representation from ACS member states bordering on the Caribbean Sea, to examine in depth the concept of the Caribbean Sea as a special area for sustainable development with a view to refining the proposal and developing an action plan to facilitate its national, regional and international acceptance.
- For the CARICOM Secretariat to prepare a regional programme for the sustainable development of the oceanic and coastal resources of the region, taking into account existing work done in this area, specifically "A Strategy for Co-operation In Sustainable Ocean Management and Development in the Commonwealth Caribbean". The programme would pull together information on existing activities and identify gaps and priority areas for additional funding.
- For the CARICOM Secretariat to establish a Maritime Delimitation Technical Commission to advise on demarcation of exclusive economic zones (EEZs) for its members on the basis of the United Nations Convention on the Law of the Sea (UNCLOS) principles, and to serve as the technical advisory group to CARICOM on negotiations of maritime boundaries with non-CARICOM Caribbean states.
- To develop programmes and access funding for education and training for sustainable oceanic and coastal management with emphasis on project design and project cycle management, and to invest in public awareness and education activities on the sustainable development of oceanic and coastal areas.

- Commitment to promote a culture of collaborative resource management that includes negotiated agreements between government agencies and stakeholders, and sets out obligations, rights, responsibilities and expectations of all parties.
- To design a comprehensive Caribbean marine disaster mitigation plan that focuses, *inter alia*, on oil spill contingency; mitigating the effects of climate change through physical planning, standards, and tools that facilitate adaptation and accommodation as well as retreat and relocation of human settlements from vulnerable areas; and development of hazard maps and vulnerability assessments.

Capacity-building needs in respect of legistation and regulatory arrangements

- To prepare regional model legislation focusing on the integrated management of coastal and oceanic resource systems and the implementation of relevant international instruments.
- To institute clear legal mechanisms that ensure participation of stakeholders in policy and law making and implementation, and to identify mechanisms for improving public access to information and legal redress.
- To establish inter-sectoral mechanisms, such as National Sustainable Development Councils, that include the participation of NGOs and private sector interests, with a mandate to facilitate adequate consideration of issues that fall within the legal jurisdiction of disparate agencies.
- To establish a regional mechanism to conduct regular reviews on international environmental conventions both contemplated and enacted, to advise policy makers on negotiating strategies and to make provision for appropriate implementation arrangements, including capacity-building and human resources development.
- To promote formal education in environmental law and, as an interim arrangement, consider the placement of this skill in a regional organisation for deployment to CARICOM member states when necessary.

Capacity-building needs in respect of science and technology

- To formulate and implement national strategies and action plans related to the exploration, exploitation and conservation of coastal and oceanic resources, taking into account land-based activities that impact on the marine environment.
- To strengthen strategic intra- and inter-regional collaboration among science and technology institutional mechanisms (e.g., Caribbean Community Ocean Sciences Network (CCOSNET), Caribbean Environmental Programme Network (CEPNET), IOCARIBE and Caribbean Coastal Marine Productivity Programme (CARICOMP)) dealing with coastal and oceanic resource management.
- For the CARICOM Secretariat to develop and execute, in consultation with the governments and relevant regional and international organisations (e.g., Institute of Marine Affairs, Caribbean Environmental Health Institute, University of the West Indies, Caribbean Council for Science and Technology (CCST), IOCARIBE, Caribbean Epidemiology Center (CAREC), United Nations Environment Programme/Regional Co-ordinating Unit-Caribbean and the Organization of American States), integrated action plans for regional coastal and oceanic resources management.
- To strengthen national and regional programmes in public awareness, education and training in the sustainable use of coastal and oceanic resources, with priority consideration being given to:
  - Coastal and Oceanic Resources Exploration [undertake resource inventories; quantitatively assess the resources; identify critical habitats; determine the carrying capacity of ecosystems
  - Coastal and Oceanic Resources Exploitation [marine products; technology development; aquaculture and mariculture; sustainable use of biodiversity]
  - Coastal and Oceanic Resources Conservation/Environment [biodiversity inventories; conservation of biodiversity; bio-accumulation; epidemiological surveillance; ocean climate and sea-level rise]

The IOCARIBE Strategy for Marine Science Capacity-building in the Caribbean and Adjacent Regions

Rafael Steer Ruiz
IOCARIBE

INSTITUTIONAL BACKGROUND

The *Medium-Term Strategy of UNESCO* for contributing to development highlights the following goals[1]:

> The Medium-Term Strategy will aim, in the *first place*, to generate and update the scientific knowledge base required to understand the relationship between population, environment and development issues, focusing in both the social, economic and cultural contexts and global concerns. Support will therefore be given to research and development activities and to networking centres of excellence and research institutions.
>
> *Secondly*, the strategy will aim to strengthen Member States' capacities to improve and reorient, on the basis of scientifically sound knowledge, national education and training activities in both the formal and non-formal sectors.
>
> *In addition*, Member States' capacity will be strengthened with respect to the generation of information materials that are scientifically designed and adapted to different cultures, and their wide dissemination through information systems, services and networks.
>
> *Thirdly*, the strategy will aim to reach and mobilize decision-makers, opinion leaders and media professionals in order to increase their awareness of environment issues and to encourage them to disseminate the appropriate message.

As a regional Sub-Commission of the IOC of UNESCO, IOCARIBE is responsible for the science base, the gathering of knowledge, the implementation of scientifically based information, the quality control, the voice of scientific credibility, and for ensuring that knowledge and data can be shared and used by all. Without these elements there can not be sustainable development. IOCARIBE is in its own right the best instrument available for implementing these strategies at the regional and sub-regional level in the wider Caribbean.

STATUS OF CO-OPERATION IN THE IOCARIBE REGION

The shift of emphasis from the open ocean to the coastal zone leads to a greater emphasis on regional and sub-regional co-operation and to the strengthening of IOC regional subsidiary bodies.[2] After 20 years of presence in the region, through the IOCARIBE Association and Sub-Commission, IOC has had a significant positive impact on the development of capacities for marine science and technology in participating Member States. It has also contributed to the development of human resources through the training, education and mutual assistance component in scientific programmes. Much of the knowledge available today on the marine environment in the region is in some way related to Co-operative Investigation in the Caribbean and Adjacent Areas (CICAR) and IOCARIBE.

However, many of the small island and isthmus developing states (SIDS) did not participate in IOCARIBE activities and therefore did not profit as much from these initiatives.[3] Furthermore, even the level of involvement of active Member States has been variable and some believe it has decreased in recent years. Other weaknesses of IOCARIBE include: lack of ample participation and commitment by Member States; limited success in attracting major resources for programme implementation; the tendency to evolve into a close circle of scientists excluding neighbouring states and other organizations notably non-governmental organizations (NGOs); lack of continuous programme accountability both on results and resources; inadequate communications between the Secretariat and Member States; and insufficient administrative autonomy in the regional Secretariat; and others. The most relevant problems and related solutions are presented in the final report of the evaluation of IOCARIBE carried out during 1995. Learning from these past mistakes is considered in setting the goals and strategy for IOCARIBE.

REGIONAL STRATEGY: PRINCIPLES AND PROGRAMMES

IOCARIBE has introduced substantial reforms to procure a streamlined regional structure well fitted for implementing operational programme is approved by Member States. Adjustments are needed in the way Member States participate in the Sub-Commission, in the relations with other regional intergovernmental and NGOs, and in the management of the regional programmes and regional secretariat, as recommended by the 1995 IOCARIBE Evaluation.[4] Long-term goals may still be similar, but the strategy to pursue them must adapt to changing regional circumstances and needs of Member States.

Just as in 1968 (CICAR), 1975 (Association) and 1984 (Sub-Commission), the wider Caribbean region is at another crossroads or "decision event" with regards to the future of marine science and technology. An enhanced role is instrumental for OCARIBE as it moves toward a new cycle in its life history in the region. The Sub-Commission is well positioned to meet this challenge. The basic structure is in place and their is a wealth of experience available to support decisions on a new fresh approach.

To successfully implement these changes, the Sub-Commission has adopted general *strategic principles* and *strategic programmes*. They are introduced in the next sections. The order of presentation does not imply priority.

Strategic Principles

i) Be imaginative, be experimental. Testing new models for managing international co-operation is easier for the IOC at the regional level where they can be readily applied within the flexible smaller regional structure. If done wisely and successfully, they will prove beneficial for Member States and can be duplicated in other regions or at the global level.

ii) Substantial changes are needed in traditional scientific programmes. The 1995 IOCARIBE Evaluation recommends a series of short-term managerial actions which, if applied, should ensure the Sub-Commission fulfils its original goals (Short Term Action Plan 1996-98).

iii) Redefine the role of the Sub-Commission in the institutional scenario of the region. "a niche" must be identified for IOCARIBE. The relative advantages of IOCARIBE must be identified in terms of differences and complementarity with both inter- and non-governmental organizations.

iv) Make the Sub-Commission useful and interesting to all Member States. Reproduce the positive experience of those States who have benefited in past years, for those who have not. The teachings and experiences (including failures) of previous years must be built on and profited from.

v) IOCARIBE is seeking a higher degree of commitment from Member States through a correspondingly higher level intergovernmental instrument. This will have the form of a "memorandum of understanding" at the appropriate ministerial level. This will ensure a stronger support to the scientific and academic participants, improve contributions from governments, and will make IOCARIBE more visible to them.

vi) Apply the concept of "sub-regions" when necessary, keeping in mind the overall principle of regional unity. Environmental and oceanic processes apply to the whole IOCARIBE region, and small-scale coastal problems recur or are shared by the majority of countries in the region. However, differences among countries in the region on the one hand, and common characteristics on the other, create the need for informal groups to improve participation and efficiency in the implementation of some IOCARIBE activities. A careful selection, definition and duration of such activities must be made in order to preserve the region's unity.

vii) IOCARIBE shall perform as a "system of centres of excellence" to foster exchange of knowledge and information. It should serve as a network to nourish the creation of a "school of thought" among top level scientists, educators, managers, policy-makers and the general public.

viii) Adopt the concept that IOCARIBE is a "league" for mutual support and benefit "...through the concerted actions of its members" (part of Article 2 of the IOC Statutes). There is no room for the attitude "What is in it for me?". IOCARIBE is here to help Member States to do things themselves, together and better. Substitute the out-dated relationships of donor-recipient with that of partners looking together for opportunities and resources.

> *This is a mature regional organization whose purpose is to work together for the common good. Members are friends and neighbours, not parent and child. Our shores are washed by the same waters, and we all breath the same air. These are the common threads woven into a successful regional association. Break one thread and the whole cloth unravels.* (G. Maul, Vice-Chairman of IOCARIBE).

Medium-term Strategic Programmes

The evaluation of IOCARIBE suggested three major activities to be carried out in the medium term. These activities are directed at enhancing the management and output of the traditional scientific programmes, and to improving the impact and presence of IOCARIBE in the region.

These activities are programmes in the sense that will require a detailed planing of activities and resources, but they should not be mistaken for scientific or service programmes. The three "strategic programmes" are essentially cross-sectorial, multidisciplinary and policy-oriented, in nature. Their principles underlie all traditional programmes and fostering their evolution.

1. *National Marine Policies and Co-ordinating Structures.* IOCARIBE should assist Member States to develop their own capacity to formulate high-level national plans and policies to meet their needs in marine science and technology. National inter-ministerial mechanisms for co-ordination (i.e., National Oceanographic Commissions) should be encouraged and experiences in their implementation shared. The concept of "country profiles" in marine sciences needs to be updated. Implementation of a country profile under the new structure must take account of Member States' policies and needs.

2. *Capacity-building. Training, Education and Mutual Assistance (TEMA)* should be present in all activities of the Sub-Commission. Each regional science and services programme must meet specific quantifiable TEMA requirements. These requirements would be defined by a comprehensive IOCARIBE-TEMA strategy. New and effective "indicators" of performance for all capacity-building activities should be designed for the region.

3. *Information Management and Networking.* IOCARIBE must rearrange itself as a networking structure. IOCARIBE must reconfigure itself to be an alliance of scientific institutions and experts from Member States bonded voluntarily together. Throughout the larger region of the Sub-Commission, the value-added elements which it provides must be clearly evident. IOCARIBE must improve communications and information flow by establishing a regional Marine Information Management System. The regional Secretariat would serve as a smaller central node (downsizing) and information broker. Specialized nodes would be located in national or regional institutions and organizations (out sourcing), including NGOs. The networking capacity of the Sub-Commission should be stressed and strengthened, not only interconnecting computers but users, scientists, managers, politicians and the public.

IOCARIBE has focused on these three Strategic Programmes. The Sub-Commission is concentrating its efforts toward establishing a realistic niche where it is competitive. Resources will be optimized and the efficiency of IOCARIBE will be increased. These strategies have been launched using regular operational resources. Implementation of the strategy will apply the "snowballing" principle to the "demonstration" effect.

STRATEGIC INFORMATION FOR CAPACITY-BUILDING

IOCARIBE has an important role to play in promoting and encouraging Member States to strengthen their national marine information infrastructure and to increase their information management capacity-building efforts. These efforts will strengthen and improve IOCARIBE's information management capabilities, and assist its 29 member countries in organizing and disseminating relevant information for the rational use of their coastal and marine resources. The most promising potential for IOCARIBE lies in its networking capacity which can be efficiently realized with relatively little funding.[6]

The IOCARIBE Information Network

The main objectives of the IOCARIBE Marine Information Network project are to:

- establish a clearing-house on marine and coastal scientific data and information for the Caribbean and adjacent regions
- establish a clearing house on management and referral information on the Sub-Commission, Member States, and regional projects for continuous assessment, planning and indicators of performance
- establish and manage the IOCARIBE Integrated Coastal Area Management (ICAM) Network and manage a discussion list on the Internet to serve as a "permanent workshop" on ICAM for the region
- promote the International Oceanographic Data and Information Exchange (IODE) programme in the region and facilitate regional co-operation and networking among marine and coastal scientists and other professionals
- promote enhanced collection of the data related to the protection, conservation, management and sustainable use of the coastal resources of the region
- establish and maintain internal (Intranet) and external (Internet) networks
- make available to member states on a regular basis up-to-date relevant data and information
- develop and strengthen, as required, institutions capable of implementing the objectives and activities related to the management of marine and coastal data and information.

These objectives are in keeping with IOCARIBE's Strategy and Action Plan and follow the recommendations of the IOCARIBE Evaluation. They also support the implementation of the IOCARIBE Framework Strategy on ICAM.

IOCARIBE's marine information system would be concerned with the acquisition, documentation, use and exploitation of information at two levels:

a) coastal and ocean-related data and information derived from available scientific sources and its dissemination to a wide variety of users, in a variety of formats; and

b) management and referral information, required for the efficient administration of regional co-operation, and for decisions making about capacity-building at both the regional and national levels.

Country Profiles

The Sub-Commission for the Caribbean and Adjacent Regions, IOCARIBE, undertook the task of cataloguing the marine science structure and capacity in countries in the region. The goal of this activity is to understand the weaknesses and strengths related to institutional structure, national policies, national authorities and scientific capacity, as well as the real dimension of national problems and needs. Member States must first know what they want and need before they identify solutions. IOCARIBE in turn may provide assistance to those countries in making their diagnosis and planning a strategy.

These country profiles are intended to advance the basis for discussions among Member States concerning the methods and goals of marine research capacity and structure in the region and will serve as a management tool for IOC and IOCARIBE. Anticipated outcomes of the project include an in-depth analysis of the marine capacity and structure in the Caribbean region, generation of useful management tools to steer the regional co-operation, and development of strategies and policies for marine science and capacity-building at both regional and national levels. They will also promote common programmes and facilitate decision making concerning financial support to governments and international organizations. The information being collected will be made available through communication media such as the Internet.

Since the 1980s the IOC became acutely aware of the problem faced by developing countries in the marine sciences. To assist those countries, IOC requires, as do the countries themselves, a means of assembling information to address such questions as:

- What capacity does the country possess to conduct research at the national level and for its own needs?
- What are the real needs and questions to be answered for each country in marine affairs?

- What assistance does the country need to carry out its research plan?
- What role play do the marine sciences play within the national priorities of each country?
- What is the best way for each country to fulfill its requirements for marine science capacity?

The marine science country profile (MSCP) is concerned with the provision of information required to make decisions concerning the development of marine sciences, ocean services and related technology in the context of national goals (policies) in marine affairs. An MSCP is designed to assist decision makers in governments, universities and other national institutions, and in international organizations or funding agencies. It is also a useful tool in establishing priorities for research and infrastructure funding , including capacity-building.

The 1995 IOCARIBE Evaluation found that many developing countries in the region still have the same unanswered questions. The situation in the region may not be the same, and the way regional co-operation takes place is different, but the information is still required. The IOCARIBE Medium-Term Strategy and the Short-Term Action Plan are designed to find answers to these questions.

"Knowledge for Decisions"

The IOC has an important role to play as facilitator between scientists/technical experts and decision makers. One of its aims is to strengthen this role by initiating an ongoing dialogue between these groups in the private sector as well as in national governments. Only in this manner can it be ensured that the data and information generated will closely reflect what is required to make environmentally and economically sound decisions. This is a chance for those requiring local knowledge about the marine and coastal environmental to express their needs and to discuss the best way to attain the information. The aim is to determine the usefulness of scientific research, observations, and monitoring to present and potential users, with a view to providing relevant widely available data and information. Questions to be dealt with include: What is the demand for the kind of services the IOC can provide?, how can these services be made more relevant to existing users?, and what is the potential to attract new users and obtain mutual benefits? Co-operation between IOCARIBE and the private and public sectors will permit a continued commitment to oceanographic research, systematic ocean observations, technology development and transfers, and related education and training, which will ensure the sustainable development of the coastal and marine environment.

NOTES

1. UNESCO. 1996. *Approved Medium-Term Strategy, 1996-2001.* Paris: UNESCO (28 C/4). pp. 28-29.
2. Draft IOC Medium-Term Strategy. p.3
3. *Report on IOCARIBE Evaluation. Document SC-IOCARIBE-V/8 Prov.* Cartagena, October 1995. Paris: UNESCO.
4. Ibid.
5. Maul, G. Vice-Chairman of IOCARIBE. Draft personal letter. 15 August 1995.
6. Report on IOCARIBE Evaluation. p. 30., Document IOC/INF-1043. Paris 16 September 1996

DISCURSO DE CLAUSURA/CLOSING ADDRESS

Palabras de Clausura del Taller Internacional Sobre Nuevas Direcciones en la Formación de Capacidades para el Manejo Sostenible del Océano y Zonas Costeras en el Gran Caribe

Daniel Codorníu Pujals
Viceministro del Ministerio de Ciencia, Tecnología y Medio Ambiente

Distinguidos miembros de la presidencia,

Participantes en el Taller Internacional Sobre Nuevas Direcciones en la Formación de Capacidades para el Manejo Sostenible del Océano y Zonas Costeras en el Gran Caribe,

Invitados,

Ante todo quisiera expresarles un caluroso saludo de nuestra Ministra, la Dra. Rosa E. Simeón Negrín, que aunque no ha podido estar físicamente en las actividades del Taller, ha estado constantemente al tanto del mismo, y se une a la felicitación que todos nos hacemos por su éxito.

La celebración de este Taller constituye una importante contribución a la materialización de la política ambiental que nuestro Estado viene desarrollando con sentido de alta prioridad desde el triunfo mismo de la Revolución y que ha tenido su máxima expresión en los últimos 5 años.

La política ambiental, entendida como expresión de la voluntad estatal respecto a la protección del medio ambiente y el uso racional de los recursos naturales, se manifiesta en primer término en un conjunto de principios y conceptos básicos, los que en buena parte son proyectados en forma de estrategias y materializados mediante el Derecho.

Por otra parte, en tanto una política ambiental debe ser, en buena medida, una política para el desarrollo sostenible, nuestro análisis tiene que ir más allá de la simple consideración de las variables ambientales para insertarse en todo un contexto socioeconómico nacional e internacional.

El proyecto revolucionario cubano, definido esencialmente por su carácter humanista, se trazó como principal objetivo, desde un inicio, el elevar el nivel y calidad de vida del pueblo en su concepto más amplio, principios sobre los cuales se argumenta en la actualidad la sostenibilidad del desarrollo. Relevantes logros alcanzados durante los primeros años de construcción de la nueva sociedad en las esferas económica, educacional y de la salud, tuvieron una incidencia directa sobre el medio ambiente. Cabe destacar en este contexto la creación de las bases para el desarrollo de una capacidad científico-técnica autóctona.

En 1976 se creó la Comisión Nacional para la Protección del Medio Ambiente y Conservación de los Recursos Naturales. Ese mismo año, al promulgarse la Constitución de la República, se introdujo en su Artículo 27 la protección del medio ambiente y su estrecha vinculación con el desarrollo económico y social.

En 1981 se promulga la Ley 33 *De Protección del Medio Ambiente y del Uso Racional de los Recursos Naturales*, en este sentido, una de las leyes pioneras de América Latina. Al amparo de la Ley 33, se dictaron un conjunto de cuerpos legales contentivos de contravenciones relacionadas con las esferas específicas del medio ambiente.

En 1992, apenas concluída la Conferencia de las Naciones Unidas sobre Medio Ambiente y Desarrollo (CNUMAD), comúnmente conocida como Cumbre de Rio, en la que Cuba participó activamente, se hicieron modificaciones a la Constitución de la República el 24 de febrero de 1976, y se modifica su Artículo 27, fortaleciendo la concepción de la integración del medio ambiente con el desarrollo económico y social sostenible:

> *El Estado protege al Medio Ambiente y los recursos naturales del país. Reconoce su estrecha vinculación con el desarrollo económico y social sostenible para hacer más racional la vida humana y asegurar la supervivencia, el bienestar y la seguridad de las generaciones actuales y futuras. Corresponde a los órganos competentes aplicar ésta política. Es deber de los ciudadanos contribuir a la protección del agua, la atmósfera, la conservación del suelo, la flora, la fauna y de todo el uso potencial de la naturaleza.*

Como una expresión clara de la voluntad política del país vinculada a los nuevos conceptos y metas para un desarrollo sostenible, se elaboró, en 1993 el Programa Nacional de Medio Ambiente y Desarrollo, adecuación cubana a la Agenda 21. El contenido temático de este Programa Nacional, indicó la necesidad de incorporar nuevos Capítulos no previstos en la Agenda 21, que identificaban aspectos de especial importancia en la estrategia de desarrollo del país. Tal es el caso de los temas: "Energética Sostenible", "Protección de los Recursos Minerales", "Protección de los Recursos Turísticos", "Protección del Medio Ambiente del Trabajo" y "Patrimonio Natural y Cultural". Los 32 Capítulos del Programa Nacional, contienen en cada caso un diagnóstico del tema abordado, los objetivos a alcanzar y un conjunto de acciones concretas, basadas e integradas a las propias proyecciones y acciones de los Programas Nacionales de Desarrollo en ejecución, a fin de garantizar, con un carácter sostenible, los objetivos económicos y sociales previstos en cada uno de ellos.

En 1994 se creó el Ministerio de Ciencia, Tecnología y Medio Ambiente, como organismo rector de la política ambiental del país. Con el nuevo Ministerio se resolvía una contradicción de la antigua estructura de dirección de la actividad ambiental en el país, en la cual determinados ministerios eran rectores en materia ambiental del mismo recurso que explotaban con fines productivos, convirtiéndose así en "jueces" y "partes" de la propia actividad.

Paralelamente, se indicó como función común a todos los organismos de la Administración Central del Estado "incorporar la dimensión ambiental en las políticas, planes, proyectos, programas y demás acciones que realice el organismo, en correspondencia con el desarrollo económico y social sostenible; cumplir con las disposiciones y medidas que deriven de la política ambiental nacional y a ese fin, dictar las disposiciones que correspondan, dentro del marco de su competencia y controlar su cumplimiento".

El año 1995 resultó decisivo para la institucionalización del Sistema de Medio Ambiente, al establecerse la Agencia de Medio Ambiente con sus centros, institutos y demás instituciones, creándose las 15 Unidades de Medio Ambiente Territoriales y los cinco Organos de Ciencia, Tecnología y Medio Ambiente de las cuatro regiones de montaña y la Ciénaga de Zapata, insertándose estas últimas acciones en el desarrollo del Plan Turquino-Manatí.

Se definieron las bases de un sistema jerárquico de regulaciones ambientales, emitiéndose un conjunto de resoluciones que han ido llenando importantes vacíos. Merece la pena destacar las relativas a la Evaluación de Impacto Ambiental y a la Inspección Estatal Ambiental.

Durante 1995 las acciones de gestión ambiental se incrementaron, tanto a nivel central como territorial, al tiempo que se identificaron los principales focos de contaminación y se revitalizaron y fortalecieron importantes programas y planes y grupos de trabajo.

No puede obviarse en este contexto la política internacional cubana en el campo internacional. Como ya mencionamos anteriormente, en 1992, Cuba participó activamente en la preparación de la Conferencia de Río y ya en ocasión de ésta presentó un Informe Nacional en el que se hacía un balance de los problemas y logros ambientales del país y se expresaba lo que Cuba esperaba de esta Cumbre. Se firmaron durante la Conferencia el Convenio sobre la Diversidad Biológica y la Convención Marco de las Naciones Unidas sobre el Cambio Climático, los que serían posteriormente ratificados y puestos en vigor. Ese mismo año, entraron en vigor para el país el Convenio de Viena para la protección de la Capa de Ozono y el Protocolo de Montreal relativo a las sustancias que agotan la Capa de Ozono. Ya en años anteriores Cuba se había adherido a otros tratados internacionales, relacionados con la protección del mar, la flora y la fauna, entre otros. De especial importancia para nuestro país y nuestra región y estrechamente vinculado con la temática de este evento, merecen la pena destacarse la Convención para la Protección y el Desarrollo del Medio Ambiente Marino en la Región del Gran Caribe, más conocida como Convenio de Cartagena, y el Programa de Acción de Barbados para el Desarrollo Sostenible de los Pequeños Estados Insulares en Desarrollo.

En el año 1996 se comenzó la elaboración de dos elementos básicos e integradores de la política ambiental cubana, la Estrategia Ambiental Nacional y la Ley de Medio Ambiente, aprobada esta última por nuestro Parlamento hace casi exactamente un año.

> *Los objetivos de la Estrategia Ambiental Nacional son: indicar las vías idóneas para preservar y desarrollar los logros ambientales alcanzados por la Revolución, superar los errores e insuficiencias detectadas e identificar los principales problemas del medio ambiente en el país que requieren de una mayor*

atención en las condiciones actuales, y sentar las bases para un trabajo más efectivo, en aras de alcanzar las metas de un desarrollo económico y social sostenible.

La estrategia contiene los principios en los que se sustenta el trabajo ambiental en la presente etapa, consideraciones sobre el desarrollo económico y social sostenible y las bases para lograrlo, la definición de los principales actores de la política y la gestión ambiental y las vías para su concertación, así como la identificación de los principales problemas ambientales del país, a saber, la degradación de los suelos, el deterioro del saneamiento y las condiciones ambientales en asentamientos humanos, la deforestación, la contaminación de las aguas interiores y marinas, y la pérdida de diversidad biológica.

La Estrategia incluye además los INSTRUMENTOS PARA MATERIALIZARLA, los que conforman un sistema integrado, en el cual todos sus componentes se interrelacionan e influyen mutuamente.

La legislación ambiental incluye además de la nueva Ley de Medio Ambiente, ley marco en su esencia, todas las demás regulaciones legales destinadas a proteger las esferas específicas del medio ambiente, incluídas las normas técnicas en materia de protección ambiental.

Listo ya para su consideración por nuestro gobierno se encuentra el proyecto de Decreto-Ley para la Gestión de la Zona Costera, que incluye las normativas necesarias para la preservación y uso sostenible de los componentes naturales de la zona costera y su zona de protección, con énfasis especial en los ecosistemas frágiles, es decir, las playas, los manglares, los arrecifes coralinos y las cayerías y penínsulas.

Por otro lado, la política científica trazada, desde los primeros años del triunfo revolucionario y su consecuente ejecución, en indisoluble unión con la política educacional, han permitido que el país cuente hoy con un importante potencial científico-técnico, principalmente en lo concerniente a los recursos humanos, que se caracteriza por una alta profesionalidad, calificación, y experiencia; y que durante toda su etapa de creación y consolidación ha aportado nuevos conocimientos y resultados, los cuales han sido introducidos y asimilados por diversos sectores productivos y de servicios.

Esta capacidad científica y tecnológica participa activamente en la proposición de alternativas para mitigar o solucionar los problemas ambientales; sustentar de forma armónica, racional y eficiente el uso de los recursos naturales renovables y no renovables de los que se dispone; controlar los problemas de contaminación; y viabilizar un desarrollo industrial que se base en la producción de tecnologías autóctonas y la transferencia de tecnologías idóneas, en función de las necesidades del país.

En este sentido, trabajamos para maximizar la contribución de la capacidad científico-tecnológica nacional a la solución de los problemas medio ambientales del país. Para ello, se dirigen acciones para:

- Fortalecer en los Programas y Proyectos de Ciencia e Innovación Tecnológica las investigaciones y estudios que sustenten científicamente la dimensión ambiental incorporada a los Programas de Desarrollo Económico y Social priorizados.
- Ejecutar proyectos de investigación e innovación tecnológica, dirigidos a prevenir, evaluar, controlar y revertir el deterioro ambiental, así como introducir las soluciones obtenidas en los Programas de Desarrollo Económico y Social.
- Fortalecer en los proyectos de los Programas Científico Técnicos y otros componentes del Plan Nacional de Ciencia e Innovación Tecnológica, los requerimientos ambientales desde su etapa de diseño, así como su evaluación económica e impacto social con el objetivo de ofrecer resultados que viabilicen la sostenibilidad de nuestro desarrollo.
- Identificar los principales problemas en la esfera del medio ambiente que transitan por la ciencia y la innovación tecnológica, tenga en cuenta las necesidades nacionales, ramales y territoriales y promover, además, los estudios encaminados a ampliar los conocimientos sobre el estado de los recursos naturales y el medio ambiente en general.

- Promover el uso de tecnologías ambientalmente adecuadas que combinen métodos tradicionales, con los requerimientos y exigencias del desarrollo sostenible; así como la adecuada evaluación de los procesos de transferencia tecnológica.
- Promover dentro del movimiento del Fóro de Ciencia y Técnica las soluciones e innovaciones que coadyuven al logro de una gestión ambiental más adecuada.
- Promover las investigaciones económicas y sociales requeridas como apoyo a la actividad ambiental.

En la Proyección Estratégica de la Ciencia y la Innovación Tecnológica en Cuba que se ha concluído recientemente, tienen un lugar destacado las áreas de prioridades Vinculadas al Estudio de la Naturaleza Cubana con especial atención a nuestra biodiversidad, los suelos, las aguas interiores y marinas, el manejo de las costas, la contaminación atmosférica, así como la influencia de los cambios globales en el ambiente cubano. Así mismo, se priorizarán las investigaciones que permitan continuar desarrollando la salud de nuestra población en su concepto más integral y en armonía con el medio ambiente. En este contexto se prestará especial atención a las investigaciones encaminadas a buscar soluciones al desarrollo sostenible a aquellos territorios más atrasados o con características especiales (montañas, áreas semidesérticas, humedales, cuencas hidrográficas, etc.).

Es importante destacar que, tomando como punto de partida la Estrategia Ambiental Nacional, se elaboran en la actualidad las estrategias ambientales sectoriales y territoriales, las que basadas en las características de cada actividad económica y social y de cada territorio permitirán abordar con más precisión los problemas ambientales específicos así como también involucrar a todos los actores necesarios en el empeño de preservar nuestro entorno.

Estimados colegas e invitados:

La difícil situación económica por la que ha atravesado el país en los últimos años, ha gravitado sin dudas sobre la explotación de los recursos naturales y ha limitado las acciones para su conservación que hubieran sido deseables y necesarias. Sin embargo, en tanto la capacidad para aprender y extraer experiencias de las dificultades, es también consustancial a nuestro proceso, la idea de la sostenibilidad lejos de debilitarse se ha reforzado, ya que hemos adquirido mayor conciencia y nuevas habilidades para emplear de modo racional nuestros recursos.

Los principales problemas ambientales que actualmente se denuncian en el mundo, asociados a la extrema pobreza, la insalubridad, la falta de educación y los problemas demográficos, por una parte y a la opulencia, el despilfarro y los inadecuados patrones de producción y consumo, por la otra, tienen su base en las estructuras y modelos de desarrollo económico y social vigentes, que tendrán que ser modificados necesariamente si en realidad se pretende garantizar la sobrevivencia de las futuras generaciones.

Para Cuba es vital luchar por preservar para el próximo milenio los logros y conquistas sociales alcanzados por nuestro proceso revolucionario, dirigiendo toda nuestra capacidad y esfuerzo para lograr un trabajo ambiental más dinámico y flexible que responda a las situaciones actuales que enfrenta el país y a las nuevas que surjan.

En este empeño el hombre es decisivo. De ahí que sea de vital importancia la realización de acciones, entre las cuales este taller ha sido un elocuente ejemplo, donde se ponga énfasis en la preparación de los recursos humanos para enfrentar los grandes retos del presente y del futuro.

Felicitamos al comité organizador por el éxito del evento y agradecemos una vez más las organizaciones canadienses y cubanas que apoyaron y alentaron esta valiosa iniciativa, así como la importante contibución de la Comisión Oceanográfica Intergubernamental.

IOC Workshop Reports

The Scientific Workshops of the Intergovernmental Oceanographic Commission are sometimes jointly sponsored with other intergovernmental or non-governmental bodies. In most cases, IOC assures responsibility for printing, and copies may be requested from:

Intergovernmental Oceanographic Commission – UNESCO
1, rue Miollis, 75732 Paris Cedex 15, France

No.	Title	Languages
I 1	CCOP-IOC, 1974, Metallogenesis, Hydrocarbons and Tectonic *Patterns in Eastern Asia (Report of* the IDOE Workshop on); Bangkok, Thailand, 24-29 September 1973 UNDP (CCOP),	E (out of stock)
2	CICAR Ichthyoplankton Workshop, Mexico City, 16-27 July 1974 (UNESCO Technical Paper in Marine Sciences, No. 20).	E (out of stock) S (out of stock)
3	Report of the IOC/GFCM/ICSEM International Workshop on Marine Pollution in the Mediterranean; Monte Carlo, 9-14 September 1974.	E,F E (out of stock)
4	Report of the Workshop on the Phenomenon known as 'El Niño'; Guayaquil, Ecuador, 4-12 December 1974.	E (out of stock) S (out of stock)
5	IDOE International Workshop on Marine Geology and Geophysics of the Caribbean Region and its *Resources; Kingston, Jamaica,* 17-22 February 1975	E (out of stock) S
6	Report of the CCOP/SOPAC-IOC IDOE International Workshop on Geology, Mineral Resources and Geophysics of the South Pacific; Suva, Fiji, 1-6 September 1975.	E
7	Report of the Scientific Workshop to Initiate Planning for a Co-operative Investigation in the North and Central Western Indian Ocean, organized within the IDOE under the sponsorship of IOC/FAO (IOFC)/UNESCO/ EAC; Nairobi, Kenya, 25 March-2 April 1976.	E, F,S, R
8	Joint IOC/FAO (IPFC)/UNEP International Workshop on Marine Pollution in East Asian Waters; Penang, 7-13 April 1976	E (out of stock)
9	IOC/CMG/SCOR Second International Workshop on Marine Geoscience; Mauritius 9-13 August 1976.	E, F, S, R
10	IOC/WMO Second Workshop on Marine Pollution (Petroleum) Monitoring; Monaco, 14-18 June 1976	E, F E (out of stock) R
11	Report of the IOC/FAO/UNEP International Workshop on Marine Pollution in the Caribbean and Adjacent Regions; Port of Spain, Trinidad, 13-17 December 1976.	E, S (out of stock)
11 Suppl.	Collected contributions of invited lecturers and authors to the IOC/FAO/UNEP International Workshop on Marine Pollution in the Caribbean and Adjacent Regions; Port of Spain, Trinidad, 13-17 December 1976	E (out of stock), S
12	Report of the IOCARIBE Interdisciplinary Workshop on Scientific Programmes in Support of Fisheries Projects; Fort-de-France, Martinique, 28 November-2 December 1977.	E, F, S
13	Report of the IOCARIBE Workshop on Environmental Geology of the Caribbean Coastal Area; Port of Spain, Trinidad, 16-18 January 1978.	E, S
14	IOC/FAO/WHO/UNEP International Workshop on Marine Pollution in the Gulf of Guinea and Adjacent Areas; Abidjan, Côte d'Ivoire, 2-9 May 1978	E, F
15	CPPS/FAO/IOC/UNEP International Workshop on Marine Pollution in the South-East Pacific; Santiago de Chile, 6-10 November 1978.	E (out of stock)
16	Workshop on the Western Pacific, Tokyo, 19-20 February 1979.	E, F, R
17	Joint IOC/WMO Workshop on Oceanographic Products and the IGOSS Data Processing and Services System (IDPSS); Moscow, 9-11 April 1979.	E
17 suppl.	Papers submitted to the Joint IOC/WMO Seminar on Oceano-graphic Products and the IGOSS Data Processing and Services System; Moscow, 2-6 April 1979.	E
18	IOC/UNESCO Workshop on Syllabus for Training Marine Technicians; Miami, U.S.A., 22-26 May 1978 (UNESCO reports in marine sciences, No. 4 published by the Division of Marine Sciences, UNESCO).	E (out of stock), F, S (out of tock), R
19	IOC Workshop on Marine Science Syllabus for Secondary Schools; Llantwit Major, Wales, U.K., 5-9 June 1978 (UNESCO reports in marine *sciences, No. 5, published by the* Division of Marine Sciences, UNESCO).	E (out of stock), S, R, Ar
20	Second CCOP-IOC Workshop on IDOE Studies of East Asia Tectonics and Resources; Bandung, Indonesia, 17-21 October 1978	E
21	Second IDOE Symposium on Turbulence in the Ocean; Liège, Belgium, 7-18 May 1979.	E, F, S, R
22	Third IOC/WMO Workshop on Marine Pollution Monitoring; New Delhi, 11-15 February 1980.	E, F, S, R
23	WESTPAC Workshop on the Marine Geology and Geophysics of the North-West Pacific; Tokyo, 27-31 March 1980.	E, R
24	WESTPAC Workshop on Coastal Transport of Pollutants; Tokyo, Japan, 27-31 March 1980.	E (out of stock)
25	*Workshop on the Inter-calibration* of Sampling Procedures of the IOC/ WMO UNEP Pilot Project on Monitoring Background Levels of Selected Pollutants in Open-Ocean Waters; Bermuda, 11-26 January 1980.	E (Superseded by IOC Technical Series No.22)
26	IOC Workshop on Coastal Area Management in the Caribbean Region; México City, 24 September- 5 October 1979.	E, S
27	CCOP/SOPAC-IOC Second International Workshop on Geology, Mineral Resources and Geophysics of the South Pacific; Nouméa, New Caledonia, 9-15 October 1980.	E
28	FAO/IOC Workshop on the effects of environmental variation on the survival of larval pelagic fishes. Lima, 20 April-5 May 1980.	E
29	WESTPAC Workshop on Marine Biological Methodology; Tokyo, 9-14 February 1981.	E
30	International Workshop on Marine Pollution in the South-West Atlantic; Montevideo, 10-14 November 1980.	E (out of stock) S
31	Third International Workshop on Marine Geoscience; Heidelberg, 19-24 July 1982.	E, F, S
32	UNU/IOC/UNESCO Workshop on International Co-operation in the Development of Marine Science and the Transfer of Technology in the context of the New Ocean Regime; Paris, France, 27 September-1 October 1982.	E, F, S
32 Suppl.	Papers submitted to the UNU/IOC/ UNESCO Workshop on International Co-operation in the Development of Marine Science and the Transfer of Technology in the Context of the New Ocean Regime; Paris, France, 27 September-1 October 1982.	E
33	Workshop on the IREP Component of the IOC Programme on Ocean Science in Relation to Living Resources (OSLR); Halifax, 26-30 September 1963.	E
34	IOC Workshop on Regional Co-operation in Marine Science in the Central Eastern Atlantic (Western Africa); Tenerife, 12-17 December 1963.	E, F, S
35	CCOP/SOPAC-IOC-UNU Workshop on Basic Geo-scientific Marine Research Required for Assessment of Minerals and Hydrocarbons in the South Pacific; Suva, Fiji, 3-7 October 1983.	E
36	IOC/FAO Workshop on the Improved Uses of Research Vessels; Lisbon, Portugal, 28 May-2 June 1984.	E
36 Suppl.	Papers submitted to the IOC/FAO Workshop on the Improved Uses of Research Vessels; Lisbon, 28 May-2 June 1984	E
37	IOC/UNESCO Workshop on Regional Co-operation in Marine Science in the Central Indian Ocean and Adjacent Seas and Gulfs; Colombo, 8-13 July 1985.	E
38	IOC/ROPME/UNEP Symposium on Fate and Fluxes of Oil Pollutants in the Kuwait Action Plan Region; Basrah, Iraq, 8-12 January 1984.	E
39	CCOP (SOPAC)-IOC-IFREMER-ORSTOM Workshop on the Uses of Submersibles and Remotely Operated Vehicles in the South Pacific; Suva, Fiji, 24-29 September 1985.	E
40	IOC Workshop on the Technical Aspects of Tsunami Analysis, Prediction and Communications; Sidney, B.C., Canada, 29-31 July 1985.	E
40 Suppl.	First International Tsunami Workshop on Tsunami Analysis, Prediction and Communications, Submitted Papers; Sidney, B.C., Canada, 29 July-1 August 1985.	E
41	First Workshop of Participants in the Joint FAO/IOC/WHO/IAEA/UNEP Project on Monitoring of Pollution in the Marine Environment of the West and Central African Region (WACAF/2); Dakar, Senegal, 28 October- 1 November 1985.	E
43	IOC Workshop on the Results of MEDALPEX and Future Oceano-graphic Programmes in the *Western Mediterranean; Venice,* Italy, 23-25 October 1985.	E
44	IOC-FAO Workshop on Recruitment in Tropical Coastal Demersal Communities; Ciudad del Carmen, Campeche, Mexico, 21-25 April 1986.	E (out of stock) S
44 Suppl.	IOC-FAO Workshop on Recruitment in Tropical Coastal Demersal Communities, Submitted Papers; Ciudad del Carmen, Campeche, Mexico, 21-25 April 1986.	E
45	IOCARIBE Workshop on Physical Oceanography and Climate; Cartagena, Colombia, 19-22 August 1986.	E
46	Reunión de Trabajo para Desarrollo del Programa "Ciencia Oceánica en Relación a los Recursos No Vivos en la Región del Atlántico Sud-occidental"; Porto Alegre, Brasil, 7-11 de abril de 1986.	S
47	IOC Symposium on Marine Science in the Western Pacific: The Indo-Pacific Convergence; Townsville, 1-6 December 1966	E
48	IOCARIBE Mini-Symposium for the Regional Development of the IOC-UN (OETB) Programme on 'Ocean Science in Relation to Non-Living Resources (OSNLR)'; Havana, Cuba, 4-7 December 1986.	E, S
49	AGU-IOC-WMO-CPPS Chapman Conference: An International Symposium on 'El Niño'; Guayaquil, Ecuador, 27-31 October 1986.	E
50	CCALR-IOC Scientific Seminar on Antarctic Ocean Variability and its Influence on Marine Living Resources, particularly Krill (organized in collaboration with SCAR and SCOR); Paris, France, 2-6 June 1987.	E
51	CCOP/SOPAC-IOC Workshop on Coastal Processes in the South Pacific Island Nations; Lae, Papua-New Guinea, 1-8 October 1987.	E
52	SCOR-IOC-UNESCO Symposium on Vertical Motion in the Equatorial Upper Ocean and its Effects upon Living Resources and the Atmosphere; Paris, France, 6-10 May 1985.	E
53	IOC Workshop on the Biological Effects of Pollutants; Oslo, 11-29 August 1986.	E
54	Workshop on Sea-Level Measurements in Hostile Conditions; Bidston, UK, 28-31 March 1988.	E
55	IBCCA Workshop on Data Sources and Compilation, Boulder, Colorado, 18-19 July 1988.	E
56	IOC-FAO Workshop on Recruitment of Penaeid Prawns in the Indo-West Pacific Region (PREP); Cleveland, Australia, 24-30 July 1988.	E
57	IOC Workshop on International Co-operation in the Study of Red Tides and Ocean Blooms; Takamatsu, Japan, 16-17 November 1987.	E
58	International Workshop on the Technical Aspects of the Tsunami Warning System; Novosibirsk, USSR, 4-5 August 1989.	E
58 Suppl.	Second International Workshop on the Technical Aspects of Tsunami Warning Systems, Tsunami Analysis, Preparedness,	E

No.	Title	Languages
	Observation and Instrumentation. Submitted Papers; Novosibirsk, USSR, 4-5 August 1989.	
59	IOC-UNEP Regional Workshop to Review Priorities for Marine Pollution Monitoring Research, Control and Abatement in the Wider Caribbean; San José, Costa Rica, 24-30 August 1989.	E, F, S
60	IOC Workshop to Define IOCARIBE-TRODERP proposals; Caracas, Venezuela, 12-16 September 1989.	E
61	Second IOC Workshop on the Biological Effects of Pollutants; Bermuda, 10 September-2 October 1988.	E
62	Second Workshop of Participants in the Joint FAO-IOC-WHO-IAEA-UNEP Project on Monitoring of Pollution in the Marine Environment of the West and Central African Region; Accra, Ghana, 13-17 June 1988.	E
63	IOC/WESTPAC Workshop on Co-operative Study of the Continental Shelf Circulation in the Western Pacific; Bangkok, Thailand, 31 October-3 November 1989.	E
64	Second IOC-FAO Workshop on Recruitment of Penaeid Prawns in the Indo-West Pacific Region (PREP); Phuket, Thailand, 25-31 September 1989.	E
65	Second IOC Workshop on Sardine/Anchovy Recruitment Project (SARP) in the Southwest Atlantic; Montevideo, Uruguay, 21-23 August 1989.	E
66	IOC ad hoc Expert Consultation on Sardine/ Anchovy Recruitment Programme; La Jolla, California, U.S.A., 1989	E
67	Interdisciplinary Seminar on Research Problems in the IOCARIBE Region; Caracas, Venezuela, 28 November-1 December 1989.	E (out of stock)
68	International Workshop on Marine Acoustics; Beijing, China, 26-30 March 1990.	E
69	IOC-SCAR Workshop on Sea-Level Measurements in the Antarctica; Leningrad, USSR, 28-31 May 1990.	E
69 Suppl.	IOC-SCAR Workshop on Sea-Level Measurements in the Antarctica; Submitted Papers; Leningrad, USSR, 28-31 May 1990.	E
70	IOC-SAREC-UNEP-FAO-IAEA-WHO Workshop on Regional Aspects of Marine Pollution; Mauritius, 29 October - 9 November 1990.	E
71	IOC-FAO Workshop on the Identification of Penaeid Prawn Larvae and Postlarvae; Cleveland, Australia, 23-28 September 1990.	E
72	IOC/WESTPAC Scientific Steering Group Meeting on Co-Operative Study of the Continental Shelf Circulation in the Western Pacific; Kuala Lumpur; Malaysia, 9-11 October 1990.	E
73	Expert Consultation for the IOC Programme on Coastal Ocean Advanced Science and Technology Study; Liège, Belgium, 11-13 May 1991.	E
74	IOC-UNEP Review Meeting on Oceanographic Processes of Transport and Distribution of Pollutants in the Sea; Zagreb, Yugoslavia, 15-18 May 1989.	E
75	IOC-SCOR Workshop on Global Ocean Ecosystem Dynamics; Solomons, Maryland, U.S.A., 29 April-2 May 1991.	E
76	IOC/WESTPAC Scientific Symposium on Marine Science and *Management of Marine Areas of* the Western Pacific; Penang, Malaysia, 2-6 December 1991.	E
77	IOC-SAREC-KMFRI Regional Workshop on Causes and Consequences of Sea-Level Changes on the Western Indian Ocean Coasts and Islands; Mombasa, Kenya, 24-28 June 1991.	E
78	IOC-CEC-ICES-WMO-ICSU Ocean Climate Data Workshop Goddard Space Flight Center; Greenbelt, Maryland, U.S.A., 18-21 February 1992.	E
79	IOC/WESTPAC Workshop on River Inputs of Nutrients to the Marine Environment in the WESTPAC Region; Penang, Malaysia, 26-29 November 1991.	E
80	IOC-SCOR Workshop on Programme Development for Harmful Algae Blooms; Newport, U.S.A. 2-3 November 1991.	E
81	Joint IAPSO-IOC Workshop on Sea Level Measurements and Quality Control; Paris, France, 12-13 October 1992.	E
82	BORDOMER 92: International Convention on Rational Use of Coastal Zones. A Preparatory	E
83	IOC Workshop on Donor Collaboration in the Development of Marine Scientific Research Capabilities in the Western Indian Ocean Region; Brussels, Belgium, 12-13 October 1992.	E
84	Workshop on Atlantic Ocean Climate Variability; Moscow, Russian Federation, 13-17 July 1992	E
85	IOC Workshop on Coastal Oceanography in Relation to Integrated Coastal Zone Management; Kona, Hawaii, 1-5 June 1992.	E
86	International Workshop on the Black Sea; Varna, Bulgaria, 30 September – 4 October 1991	E
87	Taller de trabajo sobre efectos biológicos del fenómeno «El Niño» en ecosistemas costeros del Pacifico Sudeste; Santa Cruz, Galápagos, Ecuador, 5-14 de octubre de 1989.	S only (summary in E, F, S)
88	IOC-CEC-ICSU-ICES Regional Workshop for Member States of Eastern and Northern Europe (GODAR Project); Obninsk, Russia, 17-20 May 1993.	E
89	IOC-ICSEM Workshop on Ocean Sciences in Non-Living Resources; Perpignan, France, 15-20 October 1990.	E
90	IOC Seminar on Integrated Coastal Management; New Orleans, U.S.A., 17-18 July 1993.	E
91	Hydroblack'91 CTD Intercalibration Workshop; Woods Hole, U.S.A., 1-10 December 1991.	E
92	Réunion de travail IOCEA-OSNLR sur le Projet « Budgets sédimentaires le long de la côte occidentale d'Afrique » Abidjan, côte d'Ivoire, 26-28 juin 1991.	E
93	IOC-UNEP Workshop on Impacts of Sea-Level Rise due to Global Warming. Dhaka, Bangladesh, 16-19 November 1992.	E
94	BMTC-IOC-POLARMAR International Workshop on Training Requirements in the Field of Eutrophication in Semi-enclosed Seas and Harmful Algal Blooms, Bremerhaven, Germany, 29 September-3 October 1992.	E
95	SAREC-IOC Workshop on Donor Collaboration in the Development of Marine Scientific Research Capabilities in the Western Indian Ocean Region; Brussels, Belgium, 23-25 November 1993.	E
96	IOC-UNEP-WMO-SAREC Planning Workshop on an Integrated Approach to Coastal Erosion, Sea Level Changes and their Impacts; Zanzibar, United Republic of Tanzania, 17-21 January 1994.	E
96 Suppl.	IOC-UNEP-WMO-SAREC Planning Workshop on an Integrated Approach to Coastal Erosion, Sea Level Changes and their Impacts; Submitted Papers 1. Coastal Erosion; Zanzibar, United Republic of Tanzania 17-21 January 1994.	E
96 Suppl	IOC-UNEP-WMO-SAREC Planning Workshop on an Integrated Approach to Coastal Erosion, Sea Level Changes and their Impacts; Submitted Papers *2. Sea Level; Zanzibar,* United Republic of Tanzania 17-21 January 1994.	E
97	IOC Workshop on Small Island Oceanography in Relation to Sustainable Economic Development and Coastal Area Management of Small Island Development States; Fort-de-France, Martinique, 8-10 November, 1993.	E
98	CoMSBlack '92A Physical and Chemical Intercalibration Workshop; Erdemli, Turkey, 15-29 January 1993.	E
99	IOC-SAREC Field Study Exercise on Nutrients in Tropical Marine Waters; Mombasa, Kenya, 5-15 April 1994.	E
100	IOC-SOA-NOAA Regional Workshop for Member States of the Western Pacific - GODAR-II (Global Oceanographic Data Archeology and Rescue Project); Tianjin, China, 8-11 March 1994.	E
101	IOC Regional Science Planning Workshop on Harmful Algal Blooms; Montevideo, Uruguay, 15-17 June 1994.	E
102	First IOC Workshop on Coastal Ocean Advanced Science and Technology Study (COASTS); Liège, Belgium, 5-9 May 1994.	E
103	IOC Workshop on GIS Applications in the Coastal Zone Management of Small Island Developing States; Barbados, 20-22 April 1994.	E
104	Workshop on Integrated Coastal Management; Dartmouth, Canada, 19-20 September 1994.	E
105	BORDOMER 95: Conference on Coastal Change; Bordeaux, France, 6-10 February 1995.	E
105 Suppl.	Conference on Coastal Change: Proceedings; Bordeaux, France, 6-10 February 1995	E
106	IOC/WESTPAC Workshop on the Paleographic Map; Bali, Indonesia, 20-21 October 1994.	E
107	IOC-ICSU-NIO-NOAA Regional Workshop for Member States of the Indian Ocean - GODAR-III; Dona Paula, Goa, India, 6-9 December 1994.	E
108	UNESCO-IHP-IOC-IAEA Workshop on Sea-Level Rise and the Multidisciplinary Studies of Environmental Processes in the Caspian Sea Region; Paris, France, 9-12 May 1995.	E
108 Suppl.	UNESCO-IHP-IOC-IAEA Workshop on Sea-Level Rise and the Multidisciplinary Studies of Environmental Processes in the Caspian Sea Region; Submitted Papers; Paris, France, 9-12 May 1995.	E
109	First IOC-UNEP CEPPOL Symposium; San José, Costa Rica, 14-15 April 1993.	E
110	IOC-ICSU-CEC regional Workshop for Member States of the Mediterranean - GODAR-IV (Global Oceanographic Data Archeology and Rescue Project) Foundation for International Studies, University of Malta, Valletta, Malta, 25-28 April 1995.	E
111	Chapman Conference on the Circulation of the Intra-Americas Sea; La Parguera, Puerto Rico, 22-26 January 1995.	E
112	IOC-IAEA-UNEP Group of Experts on Standards and Reference Materials (GESREM) Workshop; Miami, U.S.A., 7-8 December 1993.	E
113	IOC Regional Workshop on Marine Debris and Waste Management in the Gulf of Guinea; Lagos, Nigeria, 14-16 December 1994.	E
114	International Workshop on Integrated Coastal Zone Management (ICZM) Karachi, Pakistan; 10-14 October 1994.	E
115	IOC/GLOSS-IAPSO Workshop on Sea Level Variability and Southern Ocean Dynamics; Bordeaux, France, 31 January 1995	E
116	IOC/WESTPAC International Scientific Symposium on Sustainability of Marine Environment: Review of the WESTPAC Programme, with Particular Reference to ICAM, Bali, Indonesia, 22-26 November 1994.	E
117	Joint IOC-CIDA-Sida (SAREC) Workshop on the Benefits of Improved Relationships between International Development Agencies, the IOC and other Multilateral Inter-governmental Organizations in the Delivery of Ocean, Marine Affairs and Fisheries Programmes; Sidney B.C., Canada, 26-28 September 1995.	E
118	IOC-UNEP-NOAA-Sea Grant Fourth Caribbean Marine Debris Workshop; La Romana, Santo *Domingo, 21-24 August* 1995.	E
119	IOC Workshop on Ocean Colour Data Requirements and Utilization; Sydney B.C., Canada, 21-22 September 1995.	E
120	International Training Workshop on Integrated Coastal Management; Tampa, Florida, U.S.A., 15-17 July 1995.	E
121	Atelier régional IOC-CERESCOR sur la gestion intégrée des zones littorales (ICAM), Conakry, Guinée, 18–22 décembre 1995	F
122	IOC-EU-BSH-NOAA-(WDC-A) International Workshop on Oceanographic Biological and Chemical Data Management, Hamburg, Germany, 20-23 May 1996	E
123	Second IOC Regional Science Planning Workshop on Harmful Algal Blooms in South America; Mar del Plata, Argentina, 30 October–1 November 1995.	E, S
124	GLOBEC-IOC-SAHFOS-MBA Workshop on the Analysis of Time Series with Particular Reference to the Continuous Plankton Recorder Survey; Plymouth, U.K.,4-7 May 1993.	E
125	Atelier sous-régional de la COI sur les ressources marines vivantes du Golfe de Guinée ; Cotonou, Bénin, 1-4 juillet 1996.	E

No.	Title	Languages
126	IOC-UNEP-PERSGA-ACOPS-IUCN Workshop on Oceanographic Input to Integrated Coastal Zone Management in the Red Sea and Gulf of Aden. Jeddah, Saudi Arabia, 8 October 1995.	E
127	IOC Regional Workshop for Member States of the Caribbean and South America GODAR-V (Global Oceanographic Data Archeology and Rescue Project); Cartagena de Indias, Colombia, 8-11 October 1996.	E
128	Atelier IOC-Banque Mondiale-Sida/SAREC-ONE sur la Gestion Intégrée des Zones Côtières ; Nosy Bé, Madagascar, 14-18 octobre 1996.	E
129	Gas and Fluids in Marine Sediments, Amsterdam, the Netherlands; 27-29 January 1997.	E
130	Atelier régional de la COI sur l'océanographie côtière et la gestion de la zone côtière ;Moroni, RFI des Comores, 16-19 décembre 1996.	E
131	GOOS Coastal Module Planning Workshop; Miami, USA, 24-28 February 1997	E
132	Third IOC-FANSA Workshop; Punta-Arenas, Chile, 28-30 July 1997	S/E
133	Joint IOC-CIESM Training Workshop on Sea-level Observations and Analysis for the Countries of the Mediterranean and Black Seas; Birkenhead, U.K., 16-27 June 1997.	E
134	IOC/WESTPAC-CCOP Workshop on Paleogeographic Mapping (Holocene Optimum); Shanghai, China, 27-29 May 1997.	E
135	Regional Workshop on Integrated Coastal Zone Management; Chabahar, Iran; February 1996.	E
136	IOC Regional Workshop for Member States of Western Africa (GODAR-VI); Accra, Ghana, 22-25 April 1997.	E
137	GOOS Planning Workshop for Living Marine Resources, Dartmouth, USA; 1-5 March 1996.	E
138	Gestión de Sistemas Oceanográficos del Pacífico Oriental; Concepción, Chile, 9-16 de abril de 1996.	S
139	Sistemas Oceanográficos del Atlántico Sudoccidental, Taller, TEMA;Furg, Rio Grande, Brasil, 3-11 de noviembre de 1997	S
140	IOC Workshop on GOOS Capacity Building for the Mediterranean Region; Valletta, Malta, 26-29 November 1997.	E
141	IOC/WESTPAC Workshop on Co-operative Study in the Gulf of Thailand: A Science Plan; Bangkok, Thailand, 25-28 February 1997.	E
142	Pelagic Biogeography ICoPB II. Proceedings of the 2nd International Conference. Final Report of SCOR/IOC Working Group 93; Noordwijkerhout, The Netherlands, 9-14 July 1995.	E
143	Geosphere-biosphere coupling: Carbonate Mud Mounds and Cold Water Reefs; Gent, Belgium, 7–11 February 1998.	E
144	IOC-SOPAC Workshop Report on Pacific Regional Global Ocean Observing Systems; Suva, Fiji, 13-17 February 1998.	E
145	IOC-Black Sea Regional Committee Workshop: 'Black Sea Fluxes' Istanbul, Turkey, 10-12 June 1997.	E
146	Taller Internacional sobre Formacion de Capacidades para el Manejo de las Costas y los Océanos en le Gran Caribe, La Habana, – Cuba, 7–10 de Julio de 1998 / International Workshop on Management Capacity-Building for Coasts and Oceans in the Wider Caribbean, Havana, Cuba, 7–10 July 1998	S/E