# Report of the External Review Committee Assessment of the Inter American Institute for Global Change Research

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# Report of the External Review Committee Assessment of the Inter American Institute for Global Change Research


*American Association for the Advancement of Science*
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# Chapter 1 – Executive Summary and Recommendations

When founded by intergovernmental agreement in 1994, the Inter-American Institute for Global Change Research (IAI) was envisaged as an intergovernmental instrument by which scientists and decision makers of countries throughout the Americas might jointly address the critical cross-border issues associated with global change. The External Review Committee (ERC) appointed by the American Association for the Advancement of Science (AAAS) has found that over the past 13 years, the Institute has largely proven its worth and has notable achievements. It has recently made promising strides in overcoming operational difficulties, and appears to be organizationally on a positive trajectory. The ERC recognizes that the stability and dedication of the Directorate (DIR) has contributed greatly to this positive trajectory.

The IAI's current research program is widely perceived as producing high-quality science, especially in the natural sciences. Moreover, the Institute's greatest regional contribution has been in successfully building scientific capacity throughout the Americas. The ERC is of the view, however, that progress in science and scientific capacity building has been insufficiently translated into policy-relevant discourse and action. Strong science can and should underpin national and regional policies and support the region's contribution to the global change research agenda. The coupling of natural and social sciences and dialogue with decision makers are critical to these efforts.

Adequate funding will determine the IAI's future success, even more so if the Institute hopes to meet the challenges and recommendations of this review. The IAI administration and infrastructure depend on the sustained efforts of countries to meet their contribution commitments, and the Conference of the Parties (CoP) should urge even greater compliance. Moreover, the IAI draws heavily upon additional contributions to its research and capacity-building agenda to which several countries, notably the United States, have been the principal contributors to date. The ERC also calls on the CoP, with the support of all IAI organizations, to work with the DIR and other IAI organs to formulate a strategy for establishing an endowment for the IAI, consistent with the intent of IAI's original Charter.

The IAI's success is limited by its challenge to effectively communicate its organizational progress and achievements internally, externally, and in meaningful dialogue with relevant stakeholders. As a result, the Institute has not been able to work effectively with decision

makers to inform action as originally intended, nor has it received the required regional support. The ERC calls on the CoP or its designee to develop a comprehensive, robust communication strategy that (1) raises awareness of the Institute by celebrating its achievements; (2) encourages dialogue between the science and decision-making communities at all levels; and (3) promotes data sharing and collaboration among Institute participants.

Finally, the IAI should be steadfast in its commitment to adhere to its long-term vision as set out in the founding Charter. To maintain, and indeed to improve, the level of IAI contributions to global change research and ensure the sustained support of its members, the Institute, with the direction and oversight of the CoP, must establish appropriate metrics to evaluate its effectiveness in fulfilling its stated mission.

Detailed findings and recommendations with respect to science and research, capacity building, funding, operations and governance, and communications and dialogue follow in this chapter and are elaborated in chapters 3 through 7.

## Science and Research Program

The IAI has helped facilitate high-quality research, especially in the natural sciences, and has made valuable contributions to the international global change community. Regionally, IAI-funded science has played a substantial role in building scientific capacity. The Institute has further potential to provide valuable guidance to decision makers at all levels, from high-level government agencies down to local resource managers and operational agents, but it is currently falling short of its goal to inform action. Improved dissemination of science results to decision makers will undoubtedly begin to address this problem. However, IAI research must become more regionally relevant and actionable to gain the interest and support of end users. This requires better use of a broad range of scientists (e.g., social, economic, engineering, health) who are adept at connecting science findings with policy and management tools, and increasing the Institute's focus on human impacts of global change.

A special opportunity exists for the IAI to emerge as a leader in global change research by communicating its scientific results through the regional assessment of the findings of the recently released report from the Intergovernmental Panel on Climate Change (IPCC). However, realizing this opportunity will require renewed commitment of the CoP and additional resources for the Institute.

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### FINDINGS

- **The IAI's current research program is perceived as having produced high-quality science, especially in the natural sciences. Aspects of this science have been internationally recognized and supported.**
- **The IAI science agenda has transitioned from selecting individual programs that broadly supported the global change program agenda to selecting groups of projects that have international appeal, are regionally relevant, and complement each other.**
- **IAI science has become more collaborative and increasingly led by Latin American scientists.**
- **The IAI's Data and Information System (DIS) is not effective in achieving its mission to serve science and society and to inform action.**
- **Many of the IAI research projects have become more interdisciplinary since the Institute's inception. However, there are still too few projects analyzing the reciprocal links between human activities and environmental change.**

### RECOMMENDATIONS

- **Continue to maintain and even enhance the standard of scientific excellence that the IAI has demonstrated thus far.**
- **Continue to strengthen the regional relevance of the IAI research portfolio by focusing on the topics of risk, vulnerability, and adaptation related to global change.**
- **Continue to develop new mechanisms to foster collaborations among scientists of the region, such as initiating "across-project" synthesis activities involving both scientists and stakeholders.**
- **Develop and execute a plan to evaluate and upgrade the IAI DIS to better meet the objectives of the Institute.**
- **Encourage new projects that study the feedbacks between humans and global and regional environmental changes. These new projects require the participation of a range of disciplinary expertise beyond the natural sciences.**

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## Capacity Building

To date, the Institute's greatest regional contribution has been in successfully building scientific capacity throughout the Americas. This effort has been closely coupled to its efforts to support interdisciplinary, collaborative research. The DIR and funded research teams, working together, have helped train hundreds of new scientists and senior researchers through numerous workshops and training institutes. As part of its evolution, capacity-building efforts have increasingly focused on the role of human dimensions of global change.[1] The IAI should point to these achievements as it establishes communication with regional stakeholders, and continue its innovative approach toward capacity building.

### FINDINGS

- **There is strong evidence that IAI capacity-building activities are some of the most valuable contributions that the Institute has made to both science and society in the Americas. The IAI Directorate has employed a variety of approaches to capacity building, including short courses, workshops, and apprenticeships.**
- **It will be difficult to evaluate the long-term impact of these approaches, because specific mechanisms are not in place to track outcomes.**
- **Recently, progress has been made toward developing capacity in scientific program management across the region.**

### RECOMMENDATIONS

- **Continue to offer a broad range of capacity-building activities, including developing additional innovative approaches such as apprenticeships with government agencies, NGOs, and industry to broaden the range of opportunities for IAI-trained graduates.**
- **Develop a tracking mechanism of capacity-building efforts to, (1) aid in the future planning of capacity building activities and (2) effectively use the human and financial resources of the Institute.**
- **Continue building capacity in science program management, because it is critical to the IAI's functioning effectively in the region.**

## Funding

Funding for the IAI remains a concern. Funding issues include (1) the status of member states' commitments to voluntary contributions essential for operating the Institute; (2) the narrow base of consistent (and substantial) resources to support research and capacity building; and (3) the lack of an endowment to ensure stable strategic resources for the Institute. The CoP needs to address disparities between the commitments and actual contributions of member states in a creative and equitable fashion. Dialogue with key stakeholders should enhance the Institute's efforts to augment and diversify its funding base. The DIR should share lessons learned from IAI projects that have been successful in attracting additional resources and should systematically track these resources to demonstrate the diversification and amplification of support. As member states are made aware of the IAI's many successes in research and capacity building, and as they are also properly recognized for their in-kind support, they may be more inclined to meet their current commitments and perhaps provide additional support.

### FINDINGS

- VOLUNTARY CONTRIBUTIONS: **Not all member states have paid their agreed-upon contributions.**
- RESEARCH AND CAPACITY-BUILDING FUNDS DIRECTLY ADMINISTERED BY THE IAI: **While substantial, the IAI funding base has depended on the consistent support of only a few donors.**
- ENDOWMENT: **While the development of an endowment is part of the Institute's original Charter,[2] the ERC did not find evidence that it has been initiated.**

### RECOMMENDATIONS

- **The CoP should develop and implement a creative and equitable mechanism to help all current member states meet their commitments of voluntary contributions while encouraging participation from new nations.**
- **The CoP and its designees should expand the IAI program funding base, especially exploring the possibilities of funding from multilateral and private sector sources (e.g., agribusiness, insurance industry, biofuels sector) while ensuring the inherent objectivity of the IAI.**
- **The CoP should establish an endowment to ensure stable and strategic resources for the Institute.**

## Operations and Governance

The operations of the Institute have improved in recent years, due in part to a dedicated and stable Directorate. The IAI also benefits from its access to a range of leaders from the scientific and political arenas who participate in the CoP, the Executive Council (EC), and the Scientific Advisory Committee (SAC), and who could potentially serve as ambassadors for the Institute. These participants need to be fully engaged in IAI operations to shape the organization's priorities and scientific agenda. To realize its full potential, the IAI must clearly define the roles and responsibilities of each IAI participant.

### FINDINGS

- **While the IAI's broad goals, established 13 years ago in the founding Charter, are still valid, the Institute lacks the metrics to evaluate its effectiveness in fulfilling its mission.**
- **The annual CoP meetings are not regularly attended by representatives from all member states, and this spotty attendance diminishes the effectiveness of the IAI's governing body.**
- **The SAC has operated largely as a review body for IAI science projects, although according to the IAI's founding document, the SAC should be doing more.**
- **The DIR often needs prompt advice on operational matters that arise between meetings of the CoP but there is no clear mechanism in place to provide this advice.**
- **The IAI lacks a long-range strategic plan, and this is likely to cause serious difficulties in the coming decade.**

### RECOMMENDATIONS

- **While the IAI should continue to adhere to its long-term vision as set out in the founding Charter, the CoP should lead efforts to clearly define metrics to evaluate the Institute's progress relative to this vision. Of increasing importance are metrics that demonstrate the synthesis, analysis, communication, and outreach of IAI science to policymakers.**
- **Given the essential role of the CoP as the IAI's central governing body and its role as a representative of the member states, the ERC encourages full participation by representatives that (1) are sufficiently empowered by their respective governments to make or influence resource commitments; (2) have strong links to the national scientific organizations; and (3) are able to relate the IAI to other international conventions.**
- **Under the direction and guidance of the CoP, the SAC should take on the additional advisory tasks originally articulated in the Institute's Charter. These include (1) making recommendations to the CoP regarding the scientific agenda, long-range plans, and annual program of the Institute; (2) directing the peer review system of the Institute; (3) establishing scientific panels for particular issues; and (4) assessing the scientific results of the Institute. The CoP should also consider the possible role of the SAC in undertaking regional assessments.**
- **The EC should provide rapid advice on urgent operational matters when requested by the DIR.**
- **As articulated in the Charter, the EC should appoint a working group to initiate a strategic-planning process.**

## Communications and Dialogue

Effective communications are critical for an international organization such as the IAI to enable member states with diverse scientific, social, and economic cultures to transcend their differences and jointly address their common concerns related to global change. The Director has made communication and outreach a priority function for his entire staff. While this is a promising step, the Institute should do more to achieve effective internal and external communications and meaningful dialogue with stakeholders.

Each of the recommendations in the preceding sections is connected to the Institute's communications, either enhancing the Institute's ability to communicate or allowing it to benefit from improved communications. It is imperative, therefore, that the Institute develop a comprehensive communications strategy as a road map for effectively engaging its constituents. The strategy should position the Institute as the broker of two-way dialogue between the science and decision-making communities throughout the region, ensuring that IAI-funded research is accessible to stakeholders and relevant to the policy needs of member states. It should also include strategies to more effectively share research outcomes and data with regional and international scientists. Finally, it must

address how the Institute can better inform staff and advisors of their organizational responsibilities.

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### FINDINGS

- **There has been a surprising lack of awareness about the IAI in both the science and policy communities within and outside many CoP member countries.**
- **Policymakers across the Americas have had difficulty translating the results of the Institute's science into informed action.**

### RECOMMENDATIONS

- **The CoP or its designee should develop a comprehensive, robust communications and marketing strategy to effectively disseminate the scientific results, science syntheses, policy assessments, and outreach activities of the Institute to relevant government, NGO, and scientific bodies.**
- **The DIR should partner with CoP member states to develop a set of dialogue events with regionally relevant policymakers and decision makers to help (1) shape the IAI science agenda; and (2) facilitate the communication of IAI science to the policy community.**

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[1] As noted in Science and Research Program, Recommendation 5, an important next step is to advance global change research by focusing more on human dimensions. The foundations for this have been laid with the increase in capacity-building and training activities focused on the human dimensions of global change.

[2] Article XIII, Section 3, in the IAI's founding Charter reads as follows: "The Executive Council, with the assistance of the Director, will propose to the Conference of the Parties, for its approval, the establishment of an endowment fund which would generate income through an interest-bearing arrangement, as well as options to obtain resources through other means."

# Capítulo 1 – Resumen ejecutivo y recomendaciones

Cuando se fundó el Instituto Interamericano para la Investigación del Cambio Global (IAI por su sigla en inglés) por acuerdo intergubernamental en 1994, se concibió como un instrumento intergubernamental mediante el cual científicos y dirigentes de los países de América pudieran atender conjuntamente los problemas transnacionales relacionados con el cambio global. El Comité Externo de Revisión (ERC), designado por la Asociación Americana para el Progreso de la Ciencia (AAAS), halló que durante los últimos 13 años, el Instituto ha demostrado ampliamente su importancia y ha obtenido logros notables. Recientemente, el Instituto ha hecho progresos prometedores en superar las dificultades operativas y parece estar encaminado en una trayectoria positiva desde el punto de vista organizativo. El ERC reconoce que la estabilidad y la dedicación de la Dirección Ejecutiva (DIR) han contribuido en gran medida a esta trayectoria positiva.

Se percibe, de manera generalizada, que el programa actual de investigaciones del IAI está produciendo ciencia de alta calidad, especialmente en la disciplina de ciencias naturales. Además, la mayor contribución regional del Instituto ha sido el desarrollo exitoso de la capacidad científica en todo el continente americano. El ERC es de la opinión, sin embargo, que el progreso logrado en el desarrollo de la capacidad científica y la ciencia no ha sido representado de manera suficiente en discurso y acción aplicables a políticas importantes. Una ciencia sólida puede y debe reafirmar las políticas nacionales y regionales, y respaldar la contribución de la región a la agenda de investigación del cambio global. La combinación de las ciencias naturales y sociales con el diálogo entablado con los dirigentes responsables de la toma de decisiones es un aspecto crítico para estos esfuerzos.

Un financiamiento adecuado determinará el éxito futuro del IAI; aún en mayor medida si el Instituto espera hacerle frente a los retos y recomendaciones de este estudio. La administración y la infraestructura del IAI dependen de los esfuerzos sostenidos de los países en el cumplimiento de sus compromisos de contribución, y la Conferencia de las Partes (CoP) deberá exhortar a un cumplimiento aún mayor. Además, el IAI depende mucho de las contribuciones adicionales para su agenda de investigación y desarrollo de capacidades a la cual varios países, en especial los Estados Unidos, han sido los contribuyentes principales hasta ahora. El ERC también pide a la CoP, con el apoyo de todas las organizaciones del IAI, que trabaje con la DIR y

otros órganos del IAI para formular una estrategia destinada a crear una fundación para el IAI, concordante con el propósito de la Carta constitutiva del IAI.

El éxito del IAI está limitado por el reto que enfrenta en comunicar de manera eficaz su progreso y sus logros organizativos internamente, externamente y a través de un diálogo significativo con las partes interesadas pertinentes. Como resultado de ello, el Instituto no ha podido trabajar con los dirigentes encargados de la toma de decisiones para informarles sobre acciones, como fue la intención original, ni ha recibido el apoyo regional necesario. El ERC pide a la CoP, o a la persona designada por la misma, que elabore una estrategia completa de comunicación sólida que (1) concientice sobre la labor del Instituto mediante la celebración de sus logros; (2) estimule el diálogo entre la ciencia y las comunidades dirigentes en todos los niveles; y (3) promueva el intercambio de datos y la colaboración entre los participantes del Instituto.

Finalmente, el IAI debe ser inquebrantable en su compromiso de adherirse a su visión a largo plazo como se estableció en la Carta constitutiva. Para mantener, y de hecho, mejorar el nivel de las contribuciones del IAI a la investigación del cambio global y garantizar el apoyo sostenido de sus miembros, el Instituto, con la dirección y supervisión de la CoP, debe establecer indicadores apropiados para evaluar la efectividad en el cumplimiento de su misión.

Los resultados y recomendaciones en detalle con respecto a ciencia e investigación, desarrollo de capacidades, financiamiento, operaciones y gestión, así como a comunicaciones y diálogo se pueden ver a continuación en este capítulo y se amplían en los capítulos 3 a 7.

## Programa de ciencias e investigación

El IAI ha ayudado a facilitar la investigación de alta calidad, especialmente en el área de ciencias naturales, y ha hecho valiosas contribuciones a la comunidad internacional del cambio global. Regionalmente, las ciencias financiadas por la IAI han tenido un papel sustancial en el desarrollo de la capacidad científica. El Instituto tiene potencial adicional para proporcionar orientación valiosa a los dirigentes encargados de la toma de decisiones en distintos niveles, desde los que trabajan en agencias gubernamentales de alto nivel hasta los gerentes y agentes operativos de recursos locales, pero actualmente no está cumpliendo su objetivo de informar sobre las acciones. Una mejor divulgación de los resultados científicos a los dirigentes comenzará sin dudas a abordar este problema. Sin embargo, la investigación del IAI debe hacerse más pertinente y fácil de implementar en las distintas regiones a fin de obtener el interés y el apoyo de los usuarios finales. Esto requiere un mejor aprovechamiento de la gran variedad de científicos (por ejemplo, de las ciencias sociales, de la economía, de la ingeniería y de la salud) que sean expertos en relacionar los hallazgos de las ciencias naturales con las herramientas normativas y administrativas, e incrementar la dedicación del Instituto en los efectos humanos del cambio global.

Existe una oportunidad especial para el IAI de surgir como líder de la investigación en materia de cambio global, mediante la comunicación de sus resultados científicos en la evaluación regional de las conclusiones del informe recién publicado por el Panel Intergubernamental sobre el Cambio Climático (IPCC). Sin embargo, materializar esta oportunidad requerirá un compromiso renovado de la CoP, así como de recursos adicionales para el Instituto.

### RESULTADOS

- **Se percibe, de manera generalizada, que el programa actual de investigaciones del IAI ha producido ciencia de alta calidad, especialmente en la disciplina de ciencias naturales. Ciertos aspectos de esta ciencia han sido reconocidos y respaldados internacionalmente.**
- **La agenda de ciencias del IAI ha pasado de la selección de programas individuales que apoyaban ampliamente la agenda del programa de cambio global a la selección de grupos de proyectos que tienen atractivo internacional, son aplicables a las regiones y se complementan entre sí.**
- **La ciencia del IAI se ha vuelto más cooperativa y está dirigida cada vez más por científicos latinoamericanos.**
- **El Sistema de Datos e Información del IAI (DIS) no es eficaz en la ejecución de su misión de servir la ciencia y la sociedad, y de informar sobre acciones.**
- **Muchos de los proyectos de investigación del IAI se han vuelto más interdisciplinarios desde el comienzo de las actividades del Instituto. Sin embargo, todavía hay muy pocos proyectos que analizan las relaciones recíprocas entre las actividades humanas y el cambio ambiental.**

RECOMENDACIONES

- Continuar manteniendo e incluso mejorando el nivel de excelencia científica que el IAI ha demostrado hasta ahora.
- Continuar fortaleciendo la relevancia regional del portafolio de investigaciones del IAI por medio de una concentración en los temas de riesgo, vulnerabilidad y adaptación relacionados al cambio global.
- Continuar desarrollando nuevos mecanismos para fomentar las colaboraciones entre científicos de la región, tales como iniciar actividades de síntesis "entre proyectos" que involucren a los científicos y a las partes interesadas.
- Desarrollar y ejecutar un plan para evaluar y actualizar el DIS del IAI a fin de cubrir mejor los objetivos del Instituto.
- Promover nuevos proyectos que estudien la interacción entre los seres humanos y los cambios ambientales globales y regionales. Estos nuevos proyectos requieren la participación de una variedad de asesores en otras disciplinas además de las ciencias naturales.

## Desarrollo de capacidades

Hasta ahora, la mayor contribución regional del Instituto ha sido el desarrollo exitoso de la capacidad científica en todo el continente americano. Este esfuerzo se ha combinado muy bien con sus esfuerzos por apoyar la investigación interdisciplinaria cooperativa. La DIR y los equipos de investigación financiados, en sus labores conjuntas, han ayudado a capacitar a cientos de nuevos científicos e investigadores de experiencia mediante numerosos talleres e institutos de capacitación. Como parte de su evolución, los esfuerzos de desarrollo de capacidades se han concentrado cada vez más en el papel de las dimensiones humanas del cambio climático.1 El IAI debe apuntar en la dirección de estos logros pues establece la comunicación con las partes regionales interesadas, y continuar su enfoque innovador hacia el desarrollo de capacidades.

RESULTADOS

- Hay una fuerte evidencia de que las actividades de desarrollo de capacidades llevadas a cabo por el IAI son algunas de las contribuciones más valiosas que el Instituto ha hecho para la ciencia y la sociedad en las Américas. La Dirección Ejecutiva del IAI ha empleado una variedad de métodos para el desarrollo de capacidades, incluyendo cursos de corta duración, talleres y pasantías.
- Será difícil evaluar el impacto a largo plazo de estos métodos, porque no están establecidos los mecanismos específicos para medir los resultados.
- Recientemente, se ha hecho un progreso para desarrollar capacidades en materia de manejo de programas científicos en toda la región.

RECOMENDACIONES

- Continuar ofreciendo una gran variedad de actividades tendientes al desarrollo de capacidades, e incluso desarrollar métodos innovadores adicionales, tales como pasantías con agencias gubernamentales, organizaciones no gubernamentales, y empresas del sector industrial a fin de ampliar la gama de oportunidades disponibles para los graduados capacitados por el IAI.
- Desarrollar un mecanismo de seguimiento de los esfuerzos destinados al desarrollo de capacidades con el fin de (1) ayudar en la planificación futura de las actividades de desarrollo de capacidades y (2) usar eficientemente los recursos humanos y financieros del Instituto.
- Continuar desarrollando las capacidades en materia de manejo de programas científicos, porque es crítico para el funcionamiento eficaz del IAI en la región.

## Financiamiento

El financiamiento del IAI sigue siendo materia de preocupación. Los problemas relativos al financiamiento son: (1) la situación de los compromisos de los estados miembros respecto a las contribuciones voluntarias esenciales para las operaciones del Instituto; (2) la base limitada de recursos constantes (y sustanciales) para apoyar la investigación y el desarrollo de capacidades; y (3) la ausencia de una fundación destinada a garantizar unos recursos estratégicos estables para el Instituto. La CoP necesita atender de una manera creativa y equitativa las disparidades entre los compromisos y las contribuciones reales de los estados miembros. Dialogar con las partes interesadas clave debe ser provechoso para mejorar los esfuerzos del Instituto dirigidos a aumentar y diversificar su base de financiamiento. La DIR debe compartir las lecciones aprendidas de los proyectos del IAI que han sido exitosos en atraer recursos adicionales y debe hacer sistemáticamente un seguimiento de estos recursos para demostrar la diversificación y la amplificación de los aportes. Como los estados miembros están concientes de los innumerables éxitos del IAI en materia de investigación y desarrollo de capacidades, y también son reconocidos apropiadamente por sus contribuciones en especie, puede que se sientan más inclinados a cumplir sus compromisos actuales y quizás, proporcionar una ayuda adicional.

### RESULTADOS

- CONTRIBUCIONES VOLUNTARIAS: **La estructura de cuotas acordada es crítica para el funcionamiento del Instituto y demuestra el compromiso adquirido por los estados miembros. No todos los estados miembros han dado sus contribuciones acordadas.**
- FONDOS PARA INVESTIGACIÓN Y DESARROLLO DE CAPACIDADES ADMINISTRADOS DIRECTAMENTE POR EL IAI: **La base de financiamiento del IAI, aunque ha sido sustancial, ha dependido del apoyo constante de sólo unos pocos donantes.**
- FUNDACIÓN: **Aunque el establecimiento de una fundación forma parte de la Carta constitutiva original del Instituto,[2] el ERC no encontró evidencia de que ésta haya sido creada.**

### RECOMENDACIONES

- **La CoP tiene el reto de desarrollar e implementar un mecanismo creativo y equitativo para ayudar a todos los estados miembros a cumplir sus compromisos de contribuciones voluntarias a la vez que exhortar la participación de nuevas naciones.**
- **La CoP y sus representantes designados deben ampliar la base de financiamiento del programa del IAI, en especial explorando las posibilidades de financiamiento por parte de fuentes multilaterales y del sector privado (por ejemplo, la agroindustria, la industria aseguradora, el sector de biocombustibles) y garantizando al mismo tiempo la objetividad inherente del IAI.**
- **La CoP debe elaborar un plan para el establecimiento de una fundación a fin de garantizar los recursos estratégicos para el Instituto.**

## Operaciones y gestión

Las operaciones del Instituto han mejorado en los últimos años, debido en parte a un trabajo dedicado y estable de la Dirección Ejecutiva. El IAI se beneficia también del acceso a una diversidad de líderes provenientes de las áreas científicas y políticas que participan en la CoP, el Consejo Ejecutivo (EC), y el Comité Asesor Científico (SAC), y quienes podrían servir posiblemente como embajadores del Instituto. Estos participantes necesitan estar completamente involucrados en las operaciones del IAI para diseñar las prioridades de la organización y la agenda científica. Para realizar todo su potencial, el IAI debe definir claramente las funciones y las responsabilidades de cada participante del IAI.

### RESULTADOS

- **Aunque las metas generales del IAI, establecidas hace 13 años en la Carta constitutiva, son aún válidas, el Instituto carece de un sistema de medición para evaluar la eficacia en el cumplimiento de su misión.**
- **Las reuniones anuales de la CoP no cuentan con una asistencia regular de los representantes de todos los estados miembros y estas inasistencias disminuyen la eficacia del órgano directivo del IAI.**
- **El SAC ha operado principalmente como un órgano de revisión para los proyectos de ciencia del IAI, aunque de**

acuerdo con el documento de constitución del IAI, el SAC debería estar haciendo más.

- La DIR a menudo necesita recibir asesoría inmediata sobre asuntos operativos que surgen entre una y otra reunión del CoP.
- El IAI carece de un plan estratégico a largo plazo, y esto probablemente ocasionará graves dificultades en la década venidera.

RECOMENDACIONES

- Mientras que el IAI debe continuar rigiéndose por su visión a largo plazo según se estableció en la Carta constitutiva, la CoP debe realizar esfuerzos para definir con claridad un sistema de medición que permita evaluar el progreso del Instituto respecto a esta visión. Son de importancia creciente los indicadores que demuestren a los legisladores la síntesis, el análisis, la comunicación y la divulgación de la ciencia del IAI.
- Dado el rol esencial de la CoP como órgano directivo central del IAI y su función como representante de los estados miembros, el ERC exhorta la participación completa de representantes que (1) estén suficientemente capacitados por sus respectivos gobiernos para adquirir compromisos de recursos o ejercer una influencia en ello; que (2) tengan fuertes vínculos con las organizaciones científicas nacionales; y que (3) sean capaces de asociar el IAI a otras convenciones internacionales.
- Bajo la dirección y guía de la CoP, el SAC debe emprender las tareas adicionales de asesoría formuladas originalmente en la Carta constitutiva del Instituto. Estas tareas son: (1) hacer recomendaciones a la CoP respecto a la agenda científica, los planes a largo plazo y el programa anual del Instituto; (2) dirigir el sistema de revisión por colegas del Instituto; (3) establecer comisiones científicas para asuntos particulares; y (4) evaluar los resultados científicos del Instituto. La CoP debe considerar también la posible función del SAC de hacer evaluaciones regionales.
- El EC debe proporcionar asesoría rápida sobre asuntos operativos urgentes cuando la DIR se lo solicite.
- Según se formuló en la Carta constitutiva, el EC debe designar un grupo de trabajo para iniciar un proceso de planificación estratégica.

## Comunicaciones y diálogo

Una comunicación eficaz es crítica en una organización internacional como el IAI para hacer posible que estados miembros con diversas culturas científicas, sociales y económicas trasciendan sus diferencias y enfrenten juntos sus preocupaciones comunes relacionadas al cambio global. El Director ha dado una función prioritaria a la comunicación y la divulgación para todo su personal. Aunque esto es un paso promisorio, el Instituto debe hacer más para lograr unas comunicaciones internas y externas eficaces y un diálogo significativo con las partes interesadas.

Cada una de las recomendaciones incluidas en las secciones precedentes está relacionada con las comunicaciones del Instituto, ya sea para mejorar la capacidad del Instituto para comunicarse o para permitirle beneficiarse de mejores comunicaciones. Es imperativo, pues, que el Instituto desarrolle una estrategia global de comunicaciones como plan de acción para involucrar de manera eficaz a sus integrantes. La estrategia debe situar al Instituto como intermediario del diálogo mutuo entre las comunidades científicas y dirigentes de toda la región, asegurando que la investigación financiada por el IAI sea accesible a las partes interesadas y pertinente a las necesidades normativas de los estados miembros. Se debe incluir también estrategias para compartir con más eficacia los datos y resultados de las investigaciones con los científicos regionales e internacionales. Finalmente, debe abordar el asunto de cómo el Instituto puede informar mejor de sus responsabilidades organizativas al personal y a los asesores.

RESULTADOS

- Ha habido una carencia sorprendente de concienciación sobre el IAI en las comunidades científicas y políticas, dentro y fuera de muchos países miembros de la CoP.
- En todas las Américas, los legisladores han tenido dificultad en representar los resultados científicos del Instituto en acción informada.

RECOMENDACIONES

- La CoP o su representante debe desarrollar una estrategia global sólida de comunicaciones y mercadeo para comunicar eficazmente los resultados científicos, la síntesis de ciencia, las evaluaciones de las políticas y las

**actividades divulgativas del Instituto a los entes gubernamentales, no gubernamentales y científicos pertinentes.**

- **La DIR debe asociarse con los estados miembros de la CoP para crear un conjunto de eventos de diálogo con los legisladores y los dirigentes regionalmente pertinentes con el objetivo de ayudar a (1) diseñar la agenda científica del IAI y (2) facilitar la comunicación de la ciencia del IAI a la comunidad política.**

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[1] Como se mencionó en la Recomendación 5 del Programa de Ciencia e Investigación, un paso importante a seguir es promover la investigación sobre el cambio global con un enfoque mayor en las dimensiones humanas. Se han echado los cimientos para esto mediante el aumento en las actividades de desarrollo de capacidades y capacitación dedicadas a las dimensiones humanas del cambio global.

[2] En el Artículo XIII, Sección 3, de la Carta constitutiva del IAI se establece lo siguiente: "El Consejo Ejecutivo, con la asistencia del Director, propondrá a la Conferencia de las Partes, para su aprobación, el establecimiento de una fundación que genere ingresos mediante un plan con rendimiento de intereses, así como opciones para obtener recursos mediante otros medios".

# Capítulo 1 – Resumo executivo e recomendações

Fundado por meio de um acordo intergovernamental em 1994, o Instituto Interamericano para Pesquisa em Mudanças Globais (Inter-American Institute for Global Change Research – IAI) foi concebido como um instrumento intergovernamental através do qual cientistas e tomadores de decisões de países das Américas poderiam abordar em conjunto questões transnacionais críticas relacionadas às mudanças globais. O Comitê Avaliador Externo (External Review Committee – ERC), nomeado pela Associação Americana para o Avanço da Ciência (American Association for the Advancement of Science – AAAS), verificou que, ao longo dos últimos 13 anos, o Instituto demonstrou em larga medida o seu valor, e obteve conquistas notáveis. Recentemente, o Instituto fez avanços promissores para superar dificuldades operacionais e, do ponto de vista organizacional, parece seguir uma trajetória positiva. O ERC reconhece que a estabilidade e dedicação da Diretoria (Directorate – DIR) contribuíram fortemente para essa trajetória positiva.

Existe uma percepção geral de que o programa de pesquisas atual do IAI produz ciência de alta qualidade, especialmente no campo das ciências naturais. Além disso, a maior contribuição regional do Instituto é o bem-sucedido esforço para desenvolver capacidades científicas nas Américas. No ponto de vista do ERC, contudo, o progresso científico e de desenvolvimento de capacidade científica não se traduziram em um discurso e ações relevantes no campo das políticas. Políticas regionais e nacionais podem e devem ser embasadas por uma ciência forte, que também deve respaldar a contribuição da região para a agenda de pesquisa sobre as mudanças globais. A combinação das ciências naturais e sociais e o diálogo com os tomadores de decisões são fatores cruciais para o êxito desses esforços.

No futuro, o sucesso do IAI dependerá da obtenção de financiamento adequado, ainda mais se o Instituto quiser vencer os desafios e seguir as recomendações desta avaliação. A administração e infra-estrutura do IAI dependem do esforço sustentado dos países para fazer contribuições com as quais se comprometeram, e a Conferência das Partes (Conference of the Parties – CoP) deveria instá-los a uma observância ainda mais estrita desses compromissos. Além disso, o IAI depende fortemente das contribuições adicionais à sua agenda de pesquisa e desenvolvimento de capacidades, as quais têm sido aportadas por diversos países, dentre os quais os Estados Unidos, como principal contribuinte até o momento. O ERC conclama a CoP,

com o apoio das organizações do IAI, a trabalhar junto à DIR e outros órgãos do IAI, para formular uma estratégia que vise ao estabelecimento de uma dotação para o IAI, conforme previsto no Acordo Constitutivo do IAI.

O sucesso do IAI é limitado pelo desafio de comunicar com eficácia seu progresso organizacional e suas realizações, tanto interna como externamente, e mediante diálogo significativo com as partes interessadas relevantes. Em decorrência disso, o Instituto não foi capaz de trabalhar junto aos tomadores de decisões para fornecer informações que subsidiem a tomada de ações, como pretendido originalmente, nem tampouco recebeu o apoio necessário da região. O ERC conclama a CoP ou seu designado a desenvolver uma estratégia de comunicação abrangente e robusta que (1) aumente a conscientização sobre o Instituto ao celebrar as suas realizações; (2) estimule o diálogo entre a comunidade científica e as comunidades decisórias, em todos os níveis; e (3) promova o intercâmbio de dados e a colaboração entre todos os participantes do Instituto.

Finalmente, o IAI deve se ater ao compromisso de honrar a sua visão de longo prazo, conforme disposto no Acordo Constitutivo. Com o intuito de manter e aprimorar a contribuição do IAI em prol da pesquisa sobre mudanças globais e assegurar o apoio contínuo de seus membros, o Instituto, sob a direção e supervisão da CoP, deve estabelecer métricas adequadas para avaliar a eficácia do cumprimento de sua visão.

A seguir, delineiam-se as conclusões e recomendações relativas à ciência e à pesquisa, ao desenvolvimento de capacidades, financiamento, operações, governança, comunicação e diálogo, os quais serão elaborados em mais detalhe nos capítulos 3 a 7.

## Programa de ciência e pesquisa

O IAI facilitou a realização de pesquisas de alta qualidade, especialmente no campo das ciências naturais, e fez contribuições valiosas para a comunidade internacional de mudanças globais. No âmbito regional, projetos científicos financiados pelo IAI exerceram um papel substancial no desenvolvimento das capacidades científicas. Ademais, o Instituto tem o potencial de oferecer orientação valiosa para os tomadores de decisões de todos os níveis, das agências governamentais de alto escalão até os gestores de recursos locais e agentes operacionais. Entretanto, a sua atuação tem sido insatisfatória no que se refere ao fornecimento de informações que subsidiem a tomada de ações. Certamente, o passo inicial para a solução desse problema consiste em melhorar a divulgação de resultados científicos para os tomadores de decisões. As pesquisas do IAI, no entanto, devem tornar-se mais relevantes do ponto de vista regional, e mais acionáveis para conquistarem o interesse e o apoio dos usuários finais. Para isso, é necessário recorrer a uma ampla gama de cientistas (p.ex, das áreas de ciências sociais, economia, engenharia, saúde) que tenham a capacidade de fazer a ligação entre as conclusões das ciências naturais e as ferramentas de política e gestão e, além disso, aumentar o foco do Instituto nos impactos humanos das mudanças globais.

Há uma oportunidade especial para o IAI, que pode emergir como líder na pesquisa de mudanças globais, ao comunicar os seus resultados científicos durante a avaliação regional das conclusões do recém-publicado relatório do Painel Intergovernamental sobre Mudanças Climáticas (Intergovernmental Panel on Climate Change – IPCC). Contudo, o aproveitamento dessa oportunidade exigirá o compromisso renovado da CoP e recursos adicionais para o Instituto.

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**CONCLUSÕES**

- **Existe uma percepção geral de que o programa atual de pesquisas do IAI produziu ciência de alta qualidade, especialmente no campo das ciências naturais. Aspectos dessa ciência conquistaram reconhecimento e apoio internacional.**
- **A agenda científica do IAI efetuou uma transição: da seleção de programas individuais que refletiam, em linhas gerais, a agenda do programa de mudanças globais, para a seleção de projetos marcados por apelo**

internacional, relevância regional e complementaridade.

- Os projetos científicos do IAI assumiram uma característica mais colaborativa, e nota-se, de forma crescente, que tem sido liderados por cientistas latino-americanos.
- O Sistema de Dados e Informações (Data and Information System – DIS) do IAI não tem logrado a sua missão de servir à ciência e à sociedade, fornecendo informações que subsidiem a tomada de ações.
- Desde a fundação do IAI, muitos dos projetos de pesquisa tornaram-se interdisciplinares. Todavia, ainda são poucos os projetos que analisam os elos recíprocos entre as atividades humanas e as mudanças ambientais.

RECOMENDAÇÕES

- Continuar a manter e mesmo elevar o padrão de excelência científica demonstrado pelo IAI até o momento.
- Continuar a fortalecer a relevância regional do portfólio de pesquisas do IAI, enfocando tópicos relacionados ao risco, vulnerabilidade e adaptação relacionados às mudanças globais.
- Continuar a desenvolver novos mecanismos de fomento à colaboração entre cientistas da região, tal como o início de atividades de síntese transversal de projetos, com a participação tanto de cientistas como de partes interessadas.
- Desenvolver e executar um plano para avaliar e atualizar o DIS do IAI, com a finalidade de melhor alcançar os objetivos do Instituto.
- Estimular novos projetos que estudem o feedback entre seres humanos e mudanças ambientais, tanto na esfera global como regional. Esses novos projetos requerem participação de uma gama de especialidades disciplinares que vão além do campo das ciências naturais.

## Desenvolvimento de capacidades

Até a presente data, a maior contribuição regional do Instituto foi o êxito em desenvolver capacidades científicas nas Américas. Esse esforço está estreitamente relacionado às iniciativas de apoio à pesquisa interdisciplinar e colaborativa. Trabalhando em conjunto, a DIR e as equipes de pesquisa financiadas ajudaram a treinar centenas de novos cientistas e pesquisadores sênior em numerosos workshops e institutos de treinamento. Como parte de sua evolução, os esforços de desenvolvimento de capacidades enfocaram crescentemente o papel das dimensões humanas nas mudanças globais.1 O IAI deve destacar essas realizações ao se comunicar com as partes interessadas da região, e persistir em sua abordagem inovadora ao desenvolvimento de capacidades.

CONCLUSÕES

- Existem fortes indícios de que as atividades de desenvolvimento de capacidades do IAI são uma das mais valiosas contribuições feitas pelo Instituto tanto à ciência como às sociedades das Américas. A Diretoria do IAI utilizou diversas abordagens para fomentar o desenvolvimento de capacidades, inclusive cursos de breve duração, workshops e estágios.
- Será difícil avaliar os impactos de longo prazo dessas abordagens porque atualmente não há mecanismos de monitoramento de resultados.
- Recentemente, foram obtidos progressos no desenvolvimento de capacidades de gestão de programas científicos em toda a região.

RECOMENDAÇÕES

- Continuar a oferecer uma vasta gama de atividades de desenvolvimento de capacidades, inclusive formulando outras abordagens inovadoras, por meio de estágios com agências governamentais, ONGs e setores produtivos para, assim, ampliar o leque de oportunidades dos formandos que receberam treinamento do IAI.
- Desenvolver um mecanismo de monitoramento dos esforços de desenvolvimento de capacidades do AIA, com a finalidade de (1) auxiliar o planejamento futuro de atividades de desenvolvimento de capacidades; e (2) promover a utilização eficaz dos recursos humanos e financeiros do Instituto.
- Continuar a desenvolver capacidades de gestão de programas científicos, em vista de sua importância crítica para o funcionamento eficaz do IAI na região.

## Financiamento

O financiamento do IAI continua a causar preocupações. Os problemas de financiamento incluem: (1) o status dos compromissos dos estados-membros no que se refere às contribuições voluntárias, essenciais para a operação do Instituto; (2) a estreita base de recursos consistentes (e substanciais) para o amparo das atividades de pesquisa e desenvolvimento de capacidades e (3) a falta de uma dotação que assegure recursos estáveis e estratégicos para o Instituto. A CoP precisa solucionar a disparidade entre os compromissos e as contribuições reais feitas por estados-membros, de uma forma criativa e eqüitativa. O diálogo com as principais partes interessadas deve acentuar os esforços do Instituto para aumentar e diversificar a sua base de arrecadação de recursos. A DIR deve difundir as lições aprendidas em projetos do IAI que conseguiram atrair outros recursos e também monitorar sistematicamente esses recursos para demonstrar a diversificação e a ampliação do suporte financeiro recebido. À medida que os estados-membros se conscientizarem dos muitos sucessos do IAI na pesquisa e no desenvolvimento de capacidades, e ao terem o apoio que deram em espécie devidamente reconhecido, ficarão mais propensos a cumprir seus compromissos e talvez a proporcionar suporte adicional.

### CONCLUSÕES

- **CONTRIBUIÇÕES VOLUNTÁRIAS:** **A estrutura de pagamentos do IAI, conforme acordada, tem importância crítica para o funcionamento do Instituto e demonstra o compromisso dos estados-membros. Porém, nem todos os estados-membros têm feito as contribuições acordadas.**
- **RECURSOS DE PESQUISA E DESENVOLVIMENTO DE CAPACIDADES DIRETAMENTE ADMINISTRADOS PELO IAI:** **Embora seja substancial, a base de financiamento do IAI depende do apoio consistente de apenas alguns doadores.**
- **DOTAÇÃO:** **Apesar de o estabelecimento de uma dotação constar dos termos do Acordo Constitutivo original do Instituto,[2] o ERC não encontrou indícios de que esse processo tenha sido iniciado.**

### RECOMENDAÇÕES

- **A CoP é desafiada a desenvolver e implantar um mecanismo criativo e eqüitativo que auxilie os estados-membros atuais a cumprirem seus compromissos em termos de contribuições voluntárias e que, ao mesmo tempo, estimule a participação de novas nações.**
- **A CoP e seus designados devem expandir a base de financiamento do programa IAI, explorando, especialmente, a possibilidade de obter recursos de fontes multilaterais e do setor privado (p.ex., agronegócio, seguradoras, setor de biocombustíveis), preservando a objetividade inerente ao IAI.**
- **A CoP deve planejar o estabelecimento de uma dotação para garantir recursos estratégicos para o Instituto.**

## Operações e governança

As operações do Instituto foram aperfeiçoadas em anos recentes, parcialmente como resultado da atuação de uma Diretoria dedicada e estável. O IAI também se beneficia do acesso a diversos líderes das arenas científica e política, que participam da CoP, do Conselho Executivo (Executive Council – EC) e do Comitê Científico Consultivo (Scientific Advisory Committee – SAC), e que poderiam atuar como embaixadores do Instituto. Esses participantes devem estar plenamente engajados nas operações do IAI a fim de dar forma às prioridades e à agenda científica da organização. Para a plena materialização de seu potencial, o IAI deve definir com clareza os papéis e as responsabilidades de cada participante do IAI.

### CONCLUSÕES

- **Apesar de terem sido estabelecidas no Acordo Constitutivo há 13 anos, as metas abrangentes do IAI permanecem válidas. O Instituto, entretanto, carece de métricas para avaliar a eficácia da consecução de sua missão.**
- **As reuniões anuais da CoP não contam com a freqüência regular de representantes de todos os estados-membros e essa participação irregular diminui a eficácia do conselho diretivo do IAI.**
- **O SAC tem funcionado, em grande parte, como um órgão de revisão de projetos científicos do IAI, embora o Acordo Constitutivo do IAI preveja uma atuação mais ampla para o SAC.**

› **Freqüentemente, a DIR necessita de aconselhamento imediato sobre questões operacionais que surgem no intervalo entre as reuniões da CoP.**
› **O IAI carece de um plano estratégico de longo prazo, o que provavelmente suscitará graves dificuldades na próxima década.**

RECOMENDAÇÕES

› **A IAI deve continuar a honrar a sua visão de longo prazo, conforme definida no Acordo Constitutivo. Não obstante, a CoP deve encabeçar esforços para definir claramente as métricas a serem usadas na avaliação do progresso do Instituto em relação à sua visão. Assume crescente importância a adoção de métricas que demonstrem a capacidade de síntese, análise, comunicação e abrangência da ciência promovida pelo IAI aos formuladores de políticas.**
› **Em consideração ao papel essencial da CoP enquanto principal conselho diretivo do IAI, bem como representante dos estados-membros, o ERC estimula a participação integral de representantes (1) que tenham sido dotados por seus respectivos governos de um nível suficiente de autonomia para fazer ou influenciar compromissos de recursos; (2) que possuam fortes elos com as organizações nacionais de ciência; e (3) que possam relacionar o IAI a outras convenções internacionais.**
› **Sob a direção e orientação da CoP, o SAC deve assumir outras tarefas consultivas, conforme articulado no Acordo Constitutivo do Instituto. Essas tarefas abrangem (1) elaborar recomendações à CoP quanto à agenda científica, planos de longo alcance e programa anual do Instituto; (2) dirigir o sistema de revisão interpares do Instituto; (3) formar painéis científicos para a discussão de questões específicas e (4) avaliar os resultados científicos do Instituto. A CoP também deve considerar o possível papel do SAC na condução de avaliações regionais.**
› **O EC deve ser rápido ao prestar aconselhamento sobre questões operacionais urgentes, quando solicitado pela DIR.**
› **Conforme disposto no Acordo Constitutivo, o EC deve nomear um grupo de trabalho para iniciar o processo de planejamento estratégico.**

## Comunicações e diálogo

A comunicação eficaz é um fator crítico para uma organização internacional como o IAI, pois permite que estados-membros com diversas culturas científicas, sociais e econômicas transcendam as suas diferenças e tentem resolver juntos preocupações comuns na área das mudanças globais. O Diretor elevou a comunicação e a abrangência ao nível de funções prioritárias para toda a equipe. Trata-se de uma medida promissora, mas o Instituto deve ir além para assegurar a eficácia nas comunicações internas e externas, assim como o diálogo significativo com as partes interessadas.

Todas as recomendações das seções precedentes relacionam-se às comunicações do Instituto, quer visando o aumento de sua capacidade de comunicação ou os benefícios de uma comunicação aprimorada. Conseqüentemente, torna-se imperativo que o Instituto formule uma estratégia de comunicação abrangente, que sirva de guia para o engajamento de seus componentes. A estratégia deve posicionar o Instituto como intermediário de um diálogo de mão-dupla entre a comunidade científica e a comunidade decisória em toda a região, garantindo que as pesquisas financiadas pelo IAI sejam acessíveis a todas as partes interessadas, e relevantes, no que diz respeito às necessidades de formulação de políticas dos estados-membros. Também devem ser concebidas estratégias que permitam compartilhar com mais eficácia os resultados e dados de pesquisas, divulgando-os para os cientistas regionais e internacionais. Finalmente, a estratégia deve determinar como o Instituto pode manter a equipe e os consultores mais bem informados acerca de suas responsabilidades organizacionais.

CONCLUSÕES

› **Foi detectada uma surpreendente falta de conhecimento sobre o IAI tanto na comunidade científica como na decisória, tanto dentro como fora de muitos estados-membros da CoP.**
› **Os formuladores de políticas das Américas encontraram dificuldades para traduzir os resultados dos esforços científicos do Instituto em ações bem informadas.**

RECOMENDAÇÕES

› **A CoP ou sua designada devem desenvolver uma estratégia de comunicação e marketing abrangente e**

**sólida para divulgar com eficácia os resultados científicos, sínteses científicas, avaliações de políticas e as atividades de apoio externo conduzidas pelo Instituto para os órgãos governamentais, ONGs e organismos científicos relevantes.**

› **A DIR deve atuar em parceria com os estados-membros da CoP para desenvolver um conjunto de eventos que propiciem o diálogo com os formuladores de políticas e tomadores de decisões relevantes na região com o intuito de (1) dar forma à agenda científica do IAI; e (2) facilitar a comunicação da ciência do IAI à comunidade de formuladores de políticas.**

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[1] Conforme observado na Recomendação 5 do Programa de Ciência e Pesquisa, um passo importante a ser tomado é promover o avanço da pesquisa sobre mudanças globais, dando maior ênfase às dimensões humanas. As bases para essa etapa já foram estabelecidas pelo aumento das atividades de desenvolvimento de capacidades e treinamento, que enfocam as dimensões humanas das mudanças globais.

[2] O artigo XIII, parágrafo 3, do Acordo Constitutivo do IAI prevê: "O Conselho Executivo, com a colaboração do Diretor, proporá à Conferência das Partes, para aprovação desta, o estabelecimento de um fundo de dotação, cuja finalidade será gerar rendimentos com base em juros, bem como outras opções visando à arrecadação de recursos através de outros mecanismos."

# Chapter 2 – The External Review Process

## Introduction

As part of a more comprehensive assessment of the Institute, the IAI requested resources from the U.S. National Science Foundation to support an independent review of the functioning of its programs, capacity building, outreach and governance, and administration. The process included a Directorate review of the first 10 years of the IAI,[3] an internal review that was solicited and never completed, and a financial review conducted by the National Science Foundation (NSF) Office of Inspector General (OIG).[4]

Over the past year, a formal external review of the IAI, led by the American Association for the Advancement of Science (AAAS), was undertaken at the request of the Institute's governing body, the Conference of the Parties (CoP). The review was conducted by an External Review Committee (ERC)—a panel of leading international experts in the areas of global change research and policy. The ERC members were appointed in boreal spring 2006 by Dr. Vaughan Turekian, chief international officer and director of the Office of International Initiatives at the AAAS. The ERC,[5] chaired by Dr. Jerry Melillo and co-chaired by Mr. Anthony Rock, came together as a group three times over the course of the review: July 12–13, 2006; December 8–9, 2006; and April 16, 2007.

The charge given to the review committee was as follows:

> The IAI External Review Committee (ERC) is to undertake a review of the IAI and its activities with a focus on its institutional and programmatic development. The review of the IAI should be done in terms of the Objectives of the IAI, given in Article II of the Agreement. It should also be forward looking, providing advice and recommendations that will help to define the path or "compass" for the IAI in the next decade. The review is to be credible, transparent, and timely.
>
> **Objectives of the IAI as stated in Article II of the treaty that established the Institute:**[6]
> Promote regional cooperation for interdisciplinary research on aspects of global change related to the sciences of the earth, ocean, atmosphere, and the environment and to social sciences, with particular attention to impacts on ecosystems and biodiversity, socioeconomic impacts, and technologies and economic aspects associated with the mitigation of and adaptation to global change.

The ERC has interpreted and discussed the stated mission of the IAI as the following: (1) to increase understanding of global change processes and their impacts; (2) to increase capacity to conduct research throughout the region; (3) to increase collaboration across national boundaries; and (4) to promote informed action. The ERC evaluated the success of the IAI with respect to the stated mission. Information for the review was developed through three main mechanisms: extensive personal interviews, extensive document review, and selected site visits.

### Interviews

The ERC interviewed more than 100 persons who have either had an association with the IAI in some scientific or policy capacity or are well placed within the science and policy communities of the Americas. The interviews took various forms—face-to-face meetings, telephone dialogues, e-mail exchanges. Given the sensitivities surrounding the relationships of a number of interviewees to the IAI, the ERC, in most cases, avoided attributions of findings to specific people. Many of the findings in this review are attributed generally to observations gleaned from the interview process. For sets of representative interview questions used by the ERC, see Appendix I. Oftentimes during the interviews, the interviewees expanded on the interview questions presented in Appendix I. No recordings of oral interviews were made; although notes were taken. For the list of those contacted for interviews, see Appendix II.

### Document Review

The retrospective component of the review drew on a large collection of IAI documents that had been supplied to the ERC by the IAI. The titles and sources of these documents are listed in Appendix III.

### Selected Site Visits

IAI ERC project director Robert Swap made site visits to the IAI DIR and to meet the EC chair during the period August 24–29, 2006. During that visit, he interviewed the entire DIR staff, gathered institutional documents, and observed the organizational dynamics.

In carrying out its charge, the review committee focused on five main themes: science and research program; capacity building; funding; operations and governance; and communications and dialogue. The major findings and recommendations are summarized in chapter 1 and are discussed in detail in chapters 3–7 of the review document. Supporting documentation is provided in the appendices.

## External Review Committee Membership

- **Dr. Jerry Melillo (chair)**, co-director, Ecosystems Center at the Marine Biological Laboratory. Terrestrial ecologist and expert on how global change and associated human activities are altering the biogeochemistry of terrestrial ecosystems.
- **Mr. Anthony Rock (co-chair)**, vice president for global affairs, Arizona State University, and former acting assistant secretary of state for the United States, responsible for oceans, environment, and scientific affairs.
- **Dr. Alice Rangel de Paiva Abreu**, professor of sociology, director of the International Council for Science (ICSU), Regional Office for Latin America and the Caribbean. Dr. Abreu was vice president of the Brazilian National Council for Scientific and Technological Development and director of the Office of Education, Science, and Technology, Organization of American States. Expert on scientific and technological policy in the Americas.
- **Mr. James Buizer**, executive director, Office of Sustainability Initiatives, Arizona State University. Expert on sustainable development and international programs.
- **Dr. Gilberto Gallopin**, former regional adviser on Environmental Policies, UN Economic Commission for Latin America and the Caribbean. Natural scientist and expert on interdisciplinary approaches to sustainable development.
- **Dr. Mahabir Gupta**, Facultad de Farmacia, Universidad de Panamá, executive director of Interciencia. Expert in advancement of science across Ibero-American countries and use of biodiversity as a source of pharmaceuticals to benefit larger society.
- **Dr. Gordon McBean**, professor and chair for policy, Institute for Catastrophic Loss Reduction, University of Western Ontario. Atmospheric scientist, international expert on climate research.
- **Dr. Ed Miles**,[7] Virginia and Prentice Bloedel Professor of Marine and Public Affairs, and senior fellow, Joint Institute for the Study of Atmosphere and Oceans, University of Washington. Social scientist, expert on global environmental change science and policy.

› **Dr. Hassan Virji**, deputy director, Global Change SysTem for Analysis, Research and Training (START). Climate scientist, expert on international global change, sustainable development, and capacity-building programs.

### Key Project Staffers

› AAAS staff officer and project director: **Dr. Robert J. "Bob" Swap**
› AAAS administrative support: **Mrs. Linda Stroud**

### Time Line and Actions

The ERC held its first meeting in Washington, D.C., July 12–13, 2006. It was an open meeting; scientific officers of the Washington embassies of CoP member countries with a presence in Washington were invited to attend. During the meeting, the committee accomplished the following:

› Reviewed the major components of its charge and identified a set of subtopics associated with each component.
› Outlined a set of fact-finding actions to be carried out by the committee members and the project director, Dr. Robert Swap. The proposed activities included interviews with persons associated with the IAI in a variety of capacities, a site visit to the IAI Directorate in Brazil, and reviews of an extensive set of documents.
› Developed a draft outline of the committee's report.
› Discussed a tentative timetable for producing the report, including setting a date for the second meeting of the committee.

Over the next five months, the committee and its project director carried out their assigned tasks and the results were compiled as background material in preparation for the committee's second meeting, this one in San Francisco on December 8–9, 2006. The time and site were chosen to precede a large and relevant scientific meeting, the annual meeting of the American Geophysical Union (AGU).

During its second meeting, the ERC accomplished the following:

› Discussed the background materials prepared for the meeting.
› Refined the outline of the report and drafted text for the sections of the report for which the committee felt it had the necessary and sufficient information on which to base a substantive evaluation.
› Defined topics on which the committee needed to conduct additional investigations before completing its report. Topics identified for intensive study over the several months after the meeting included the following:
  › The defined roles and actions of the CoP, its EC, and the IAI Directorate (DIR) in promoting the use of IAI science to improve social well-being in IAI member countries.
  › The defined roles and actions of the CoP, its EC, and the IAI DIR in expanding the IAI's funding base.
  › The status of, and future plans for, the IAI Data and Information System.
  › The status of, and future plans for, the Institute.

The first two topics were explored in interviews with the IAI Director and the chairs of the EC and the SAC. In addition, each formal representative of the CoP was contacted electronically and presented with a set of questions from the ERC leadership. The third topic has been discussed with a number of interviewees and revisited in more detail with the leadership of the EC, the SAC, and the DIR. The duly recognized country representative to the CoP, as indicated by DIR staff, was contacted electronically and asked for feedback regarding a short questionnaire developed by the leadership of the ERC. Individual members of the SAC were also asked to respond to a short questionnaire.

The ERC held its third meeting at AAAS headquarters on April 16, 2007. Discussions focused on a review of the near-final draft of the ERC report. Consensus was achieved on the Executive Summary and Recommendations as well as overall report structure.

### General Background about the Inter-American Institute for Global Change Research[8]

The Inter-American Institute for Global Change Research (IAI) was created by an international agreement signed on May 13, 1992, in Montevideo, Uruguay, by representatives from 16 countries within the Americas. The IAI is an intergovernmental organization supported by 19 countries in the Americas; it is committed to the pursuit of scientific excellence, international cooperation, and the open exchange of scientific information to increase the understanding of global change phenomena and their socioeconomic implications.

**The IAI's stated mission is twofold:** *(1) to develop the capacity of understanding the integrated impact of present and future global change on regional and continental environments in the Americas; and (2) to promote collaborative research and informed action at all levels.*

Central to this stated mission is the augmentation of the scientific capacity of the region and the provision of information in a useful and timely manner to regional policymakers. The IAI has as its primary objective the encouragement of transboundary research beyond the scope of national programs by advancing comparative and focused studies based on scientific issues important to the region as a whole.

Specific objectives of the IAI as restated from Article II of the founding document[9] include the following:

***The Institute shall pursue the principles of scientific excellence, international cooperation, and the full and open exchange of scientific information, relevant to global change.*** To do this, the objectives of the Institute are the following:

- Promote regional cooperation for interdisciplinary research on aspects of global change related to the sciences of the earth, ocean, atmosphere, and the environment and to social sciences, with particular attention to impacts on ecosystems and biodiversity, socioeconomic impacts, and technologies and economic aspects associated with the mitigation of and adaptation to global change;
- Conduct or select for sponsorship scientific programs and projects on the basis of their regional relevance and scientific merit as determined by scientific review;
- Pursue on a regional scale that research which cannot be pursued by any individual State or institution and dedicate itself to scientific issues of regional importance;
- Improve the scientific and technical capabilities and research infrastructure of the States of the region by identifying and promoting the development of facilities for the implementation of data management and by the scientific and technical training of professionals;
- Foster standardization, collection, analysis, and exchange of scientific data relevant to global change;
- Improve public awareness and provide scientific information to governments for the development of public policy relevant to global change;
- Promote cooperation among the different research institutions of the region; and
- Promote cooperation with research institutions in other regions.

The IAI has four major institutional organs designed to implement its mission: (1) the Conference of the Parties (CoP), the principal policymaking organ of the Institute; (2) the Executive Council (EC), the executive organ of the Institute; (3) the Scientific Advisory Committee (SAC), the principal scientific advisory organ of the Institute; and (4) the Directorate (DIR), the primary administrative organ of the Institute.

[3] *Responding to the Challenge of Global Change in the Americas: A Decade of Achievement*, IAI/ID.21.E/2003.

[4] Audit of the Inter American Institute for Global Change Research, available at www.nsf.gov/oig/IAI-GCR.pdf.

[5] The complete list of ERC members and their expertise can be found on pp. 11–12.

[6] www.iai.int/files/communications/publications/institutional/agree_en.pdf.

[7] Stepped down from the ERC in February 2007.

[8] Information derived from www.iai.int and the Web pages therein.

[9] http://www.iai.int/files/communications/publications/institutional/agree_en.pdf.

# Chapter 3 – Science and Research Program: Detailed Findings and Recommendations

**FINDING 1: The IAI's current research program is perceived as having produced high-quality science, especially in the natural sciences. Aspects of this science have been internationally recognized and supported.**

In interviews with leading global change researchers, both within and outside the IAI community, the ERC found that IAI-funded science is regarded as first-rate, high-quality research, especially in the natural sciences.

Frequently cited exemplary projects from the Collaborative Research Network programs (CRN1 and CRN2) include the following:

**Assessment of Present, Past, and Future Climate Variability in the Americas from Treeline Environments (CRN1–003):** Interviewees noted this project's adeptness at capitalizing on the unique geography of IAI member countries along the spine of the North and South American continents, and exemplary use of the IAI network to form a collaborative group of investigators from many of these nations. Also notable is the team's subsequent research on glacier fluctuations and environmental history in Patagonia, demonstrating capacity building and collaboration that extend beyond IAI-funded research.[10] This team was also successful in the competition for CRN2 funds for a project that uses the findings from its CRN1 effort, applying that knowledge to investigate how the hydrological cycle along the American Cordillera has changed in the past and how it could potentially change in the future.

**Cattle Ranching, Land Use, and Deforestation in Brazil, Ecuador, and Peru (CRN1–009):** This project is notable for its development of the "pasture paradox," a unique look at how the human forces driving deforestation were themselves altered as a function of both the environment and the dynamic socioeconomic conditions in these three countries.[11]

**An International Consortium for the Study of Global and Climate Changes in the South Atlantic (CRN1–061):** This project is an outstanding example of the IAI's promotion of science research in a region in which political sensitivities had previously limited such opportunities. Since its inception, the project has produced 36 refereed scientific journal articles, and it con-

tinues to gather data and produce new publications as a result of being funded in the CRN2 competition. It should be noted that this project has become more interdisciplinary, now including studies on biological productivity and fisheries as well as studies to investigate the impact of hydrological drainage from the La Plata river basin.[12]

The ERC also found evidence of IAI-funded projects that have evolved into larger-scale research projects, using initial IAI funding to catalyze research endeavors and then sustaining them beyond the scope of the IAI. Two examples of these efforts are provided below.

**CRN1–055** contributed to the creation of critical scientific interest regarding the functioning of the climate and hydrology of the La Plata Basin. This, in turn, gave rise to the La Plata Basin Project (LPBP).[13] The LPBP is recognized by the Climate Variability and Predictability/Variability of the American Monsoon Systems (CLIVAR/VAMOS), Global Energy and Water Cycle Experiment/GEWEX Hydrometeorology Panel (GEWEX/GHP), and the World Meteorological Organization's World Climate Research Program (WMO/WCRP).

**CRN1–061** catalyzed the development of critical scientific information that enabled the project entitled "An International Consortium for the Study of Global and Climate Change in the South Atlantic" to expand to a larger scale. CRN1–061 was also successful in the CRN2 competition with its project "SACC: An International Consortium for the Study of Oceanic Related Global and Climate Changes in South America" (CRN2–076 grant).[14] The SACC has grown to involve the following programs: GEF Patagonia (Argentina); PRONEX/NEIPOC (Brazil); ILTER/PELD (Brazil); ANTORCHAS (Argentina); and GOAL (Brazil, Germany, U.S.A.).[15] CRN2–076 may even contribute to the Global Ocean Observing System (GOOS). Notably, SACC is integrated with OCEATLAN, the regional alliance formed by Argentina, Brazil, and Uruguay to jointly develop and implement an operational oceanographic system that constitutes the regional effort of the GOOS program for the southwestern Atlantic Ocean.[16]

What the ERC finds significant about these examples is that these projects, with initial IAI funding to catalyze the research endeavors, have been able to sustain themselves beyond the scope of the IAI.

An example of a highly influential IAI-funded peer-reviewed publication is the paper by Enfield and colleagues titled "The Atlantic multi-decadal oscillation and its relation to rainfall and river flows in the continental US,"[17] which has been cited 93 times since its publication in 2001.[18]

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**FINDING 2: The IAI science agenda has transitioned from selecting individual programs that broadly supported the global change program agenda to selecting groups of projects that have international appeal, are regionally relevant, and complement each other.**

CRN1 grants were awarded according to the following broad science agendas: understanding climate variability; comparative studies of ecosystems, biodiversity, land use, and water resources; changes in the composition of the atmosphere, oceans, and freshwater; and integrated assessment, human dimensions, and applications.[19] Although many CRN1 grants produced sound science, they also tended to be self-contained, with few interdisciplinary opportunities. A programmatic change toward an interconnected regional focus in IAI science was put into action in 2005 with the change in IAI DIR leadership. The CRN2 grants gave evidence of this move toward integrated regional studies with increased participation that crossed national boundaries and led to more interactions among projects.

Following this trend, the DIR has increasingly used training and education programs to help spur the development of regionally focused IAI science proposals. The Training Institute Seed Grants (TISG) program (2005–07), for example, was followed in early 2007 by a call for proposals[20] focused on human dimensions of global change, a topic that necessarily included a region-specific focus.

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**FINDING 3: IAI science has become more collaborative and increasingly led by Latin American scientists.**

Over the past 13 years, the IAI has witnessed a steady increase in the number of member countries with sufficient capacity to lead large CRN projects. While IAI-funded projects were initially dominated by North American principal investigators (PIs), the percentage of these projects led by U.S. and Canadian PIs steadily declined as projects

| IAI Science Program | Total Projects Funded | Led by U.S. PI | Led by Canadian PI | Led by Other PIs |
|---|---|---|---|---|
| SG (96–97) | 36 | 15 | 6 | 15 |
| ISP1 (96–99) | 11 | 4 | 1 | 6 |
| ISP2 (97–00) | 12 | 6 | 0 | 6 |
| ISP3 (98–04) | 16 | 8 | 0 | 8 |
| CRN1 (99–06) | 14 | 3 | 2 | 9 |
| SGP1 (02–04) | 16 | 3 | 2 | 11 |
| SGP2 (03–06) | 22 | 5 | 3 | 14 |
| CRN2 (06–present) | 12 | 2 | 2 | 8 |

**Table 1: IAI Project Leadership. A summary of the number of IAI science programs funded and the number led by U.S., Canadian, and other PIs: start-up grants (SG); Initial Science Program (ISP); Collaborative Research Network (CRN); and Small Grants Program (SGP).[21] The years that the programs were implemented are in parentheses.**

advanced through the IAI structure (table 1). One interviewee reported that while early projects often included Central or South American partners in minor roles, many of the current CRN2 projects have a reversal of roles, with leadership by Central and South American partners.

The ERC concludes that increased Central and South American leadership is largely attributable to the development trajectory of the IAI's special research and capacity-building programs. As was discussed in Finding 2, the IAI strategy for developing the science and capacity-building programs has been important within the region. The progression of funding opportunities from start-up grants to large-scale projects is clearly evident in table 2. Examples of some of the more recent efforts of the DIR to develop the scientific project management capacity to lead IAI-funded projects include the Program to Expand Scientific Capacity in the Americas (PESCA), which was launched in 2000 and specifically designed to allow scientists from IAI member countries with low participation to link with funded ISPs or CRN1 programs; and the Training Institute and Seed Grants (TISG) program, which also contributes to the expanded scientific leadership by funding scientists generally from underrepresented countries.

| Scientific Activity | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start-up Grant (SG) | √ | √ | | | | | | | | | | |
| Initial Science Program 1 (ISP1) | √ | √ | √ | √ | | | | | | | | |
| Initial Science Program 2 (ISP2) | | √ | √ | √ | √ | | | | | | | |
| Initial Science Program 3 (ISP3) | | | √ | √ | √ | √ | √ | √ | √ | | | |
| Collaborative Research Network 1 (CRN1) | | | | √ | √ | √ | √ | √ | √ | √ | √ | |
| Program to Expand Scientific Capacity in the Americas (PESCA) | | | | | √ | √ | √ | √ | | | | |
| Small Grant Program 1 (SG1) | | | | | | | √ | √ | √ | | | |
| Small Grant Program 2 (SG2) | | | | | | | | √ | √ | √ | √ | |
| Training Institute and Seed Grant Program (TISG) | | | | | | | | | | √ | √ | √ |
| Collaborative Research Network 2 (CRN2) | | | | | | | | | | | √ | √ |

| Training Activity | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| IAI/UM Summer Institutes | | | | √ | √ | √ | | | | | | |
| Summer Institutes and Training Activities | | | | | | | √ | √ | | | | |
| Institutes and Training Activities | | | | | | | | | √ | √ | √ | |

**Table 2: Chronological representation of the evolution of the IAI science and research program and the IAI capacity-building efforts from 1996 through 2007.[22]**

**FINDING 4: The IAI's Data and Information System (DIS) is not effective in achieving its mission to serve science and society and to inform action.**

As indicated in the IAI Charter Agreement, the IAI is tasked with developing and maintaining a data and information system to "improve the scientific and technical capabilities and research infrastructure of the States of the region by identifying and promoting the development of facilities for the implementation of data management…" and fostering "standardization, collection, analysis and exchange of scientific data relevant to global change."[23] In the past two years, the DIR has developed such a system, which currently contains a total of 535 metadata entries from at least 11 IAI-funded science projects (table 3) out of a possible 139 projects, not including PESCA or TISG.[24] It is also important that, in addition to metadata entries, only Web links to actual data reside in the IAI DIS.

| Project | Number of Metadata | PI |
|---|---|---|
| **CRN1** | 130 | H. Tiessen |
| **CRN3** | 7 | B. Luckman |
| **CRN9** | 4 | C. Wood |
| **CRN12** | 30 | O. Sala |
| **CRN26** | 15 | M. Vernet |
| **CRN38** | 4 | M. Cornejo |
| **CRN40** | 2 | Juan Silva |
| **CRN47** | 1 | M. McClain |
| **SGP2–2** | 1 | E. Koch |
| **SGP2–15** | 34 | D. Gaiero |
| **SGP2–69** | 19 | D. Gutierres |
| **IAI**[25] | 288 | n/a |
| **TOTAL** | **535** | |

**Table 3: Total Number of Metadata Entries through November 24, 2006**

Interviews with people actively involved in IAI activities, including senior SAC and CoP leadership, indicate a lack of awareness of the existence of the DIS. Those familiar with the DIS, including DIR personnel who developed and maintain it, indicated that the DIS could be improved, but that a lack of supervision and guidance from the SAC and EC, as well as a lack of feedback from DIS end users—students, scientists, and policymakers—have hindered such improvements.

Recent interviews with DIR staff indicate, however, that the DIR is taking steps to address these concerns. DIR staff have initiated consultations with the National Center for Ecological Analysis and Synthesis (NCEAS) and the Long Term Ecological Research Network (LTER) in the United States to discuss improved practices for handling metadata and project data distribution and archives. Additional discussions are under way with the Canadian private sector regarding the acquisition of an interactive, Web-based tool to identify Institute data resources. In addition, the DIR is developing a data intern position to identify and archive CRN1 data.

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**FINDING 5: Many of the IAI research projects have become more interdisciplinary since the Institute's inception. However, there are still too few projects analyzing the reciprocal links between human activities and environmental change.**

Global change scientists around the world are increasingly recognizing the importance of studying the interactions between ecological and human components to better understand the dynamics of the Earth's system. In many instances, good global change research will include natural and social scientists working side by side.

Traditionally, however, the IAI science program has been dominated by the natural sciences, with a minimal emphasis on the human dimensions of global change. For example, only three of the first 14 CRN1 grants were strongly related to the human dimensions of global change.[26] A notable break in this trend can be seen in the recent TISG awards, many of which include strong human-dimension components.[27] This change is also evident in the recently awarded CRN2 grants, where 5 of the 12 grants awarded are strongly related to the human dimensions of global change.[28] The current Director's commitment to increase social science participation in the IAI,[29] as well as the recent call for proposals focused specifically on the human dimensions of global change,[30] are promising signs of a more balanced, interdisciplinary future for IAI science.

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**RECOMMENDATION 1: Continue to maintain and even enhance the standard of scientific excellence that the IAI has demonstrated thus far.**

The high quality of the science has allowed the IAI to develop and gain momentum across the Americas. The IAI, with the DIR and the SAC, must maintain this standard of scientific excellence to ensure the future success of the Institute.

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**RECOMMENDATION 2: Continue to strengthen the regional relevance of the IAI research portfolio by focusing on the topics of risk, vulnerability, and adaptation related to global change.**

Over the past two decades, scientists around the globe have been increasingly engaged in research to understand and model climatic changes and other global changes resulting from human activity. Now, with a much more sophisticated understanding of the Earth's system, these scientists are turning their attention to assessing the risks that global change will pose for humanity, as well as identifying appropriate adaptation measures for coping with unavoidable impacts. The IAI can continue to make important contributions in this new era of global change research and further strengthen its capacity to conduct science that informs action by encouraging projects that accomplish the following:

- Analyze and assess the risk associated with global and climate change and variability. One potential focus area could be the risk to women, children, and elderly populations within the region that may be particularly vulnerable and least able to adapt to changes.
- Help identify climate-risk management, coping, and adaptation strategies as a part of national development policies.

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**RECOMMENDATION 3: Continue to develop new mechanisms to foster collaborations among scientists of the region, such as initiating "across-project" synthesis activities involving both scientists and stakeholders.**

Cross-project discussions are vital because they provide scientists with opportunities to (1) share information; (2) explore the potential to use the efforts of closely related projects, either in terms of theme or regional context; and (3) refine research approaches to add value to the programmatic goals of the Institute. While there is currently no formal mechanism for communication between PIs on IAI-funded projects, the ERC would like to encourage the informal cross-project networking opportunities recently initiated by the DIR. Meetings for CRN2-awarded PIs and institutional administrative representatives that took place in April and May 2006 allowed the DIR to convey project management expectations as well as spur cross-project discussion in the first stage of the project cycle.[31] These meetings have received positive review from participants and have also helped foster cooperation between several teams conducting IAI-supported research in the La Plata Basin.[32]

The DIR is also commended for conducting a synthesis activity drawing on CRN1 findings. This activity was undertaken in collaboration with the United Nations Educational, Scientific, and Cultural Organization (UNESCO) and with the Scientific Committee on Problems of the Environment (SCOPE)[33] in December 2005 in Ubatuba, Brazil. Products of that exercise include a book of synthesis results (in press) and the publication of a policy brief.[34]

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**RECOMMENDATION 4: Develop and execute a plan to evaluate and upgrade the IAI DIS to better meet the objectives of the Institute.**

To develop a plan for DIS upgrade, it will be crucial to consider how the IAI can best communicate the results of funded projects and programs to both scientific and decision-making audiences. The DIR is encouraged to solicit advice from experts with experience in effective data and information systems to help identify appropriate strategies to make the DIS accessible to these audiences. Examples of DIS projects the IAI should consult are the NSF LTER program, the Large-Scale Biosphere–Atmosphere Experiment in Amazonia (LBA) DIS, the Oak Ridge National Laboratory Distributed Active Archive Center (ORNL DAAC), the NASA Boreal Ecosystem–Atmosphere Study (BOREAS), and the Southern African Regional Science Initiative (SAFARI 2000) data-archiving projects.

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**RECOMMENDATION 5: Encourage new projects that study the feedbacks between humans and global and regional environmental changes. These new projects require the participation of a range of disciplinary expertise beyond the natural sciences.**

The ERC commends the DIR for its recent efforts to correct the imbalance between the social and natural sciences in IAI-funded science by issuing an opportunity for social scientists to join existing CRN2 teams.[35] The ERC encourages the DIR to continue to develop funding opportunities to increase not only the involvement of but also leadership by social scientists in interdisciplinary IAI research projects exploring links between human activities and regional environmental change.

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[10] http://geography.uwo.ca/faculty/luckmanb.

[11] *Responding to the Challenge of Global Change in the Americas: A Decade of Achievement*, IAI/ID.21.E/2003, 69.

[12] Information is available at the SACC Web page: www.sacc.org.uy.

[13] www.eol.ucar.edu/projects/lpb.

[14] SACC stands for South Atlantic Climate Change Consortium. For more information, please see www.sacc.org.uy.

[15] Information was taken from J. H. Muelbert's presentation titled "South Atlantic Climate Change Consortium: Oceanographic Observations in the South West Atlantic," available at: www.jcomm.info/new/components/com_oe/oe.php?task=download&id=715&version=1.0&lang=1&format=1 as 02_Muelbert.pdf.

[16] Ibid.

[17] Enfield DB, Mestas-Nunez AM, Trimble PJ, "The Atlantic multidecadal oscillation and its relation to rainfall and river flows in the continental US," *Geophys. Res. Letters* 28 (10) (May 15, 2001): 2077–80.

[18] The numbers of citations were derived on April 9, 2007, using the Web of Science.

[19] *Responding to the Challenge of Global Change in the Americas: A Decade of Achievement*, IAI/ID.21.E/2003, 40–70.

[20] https://iaibr3.iai.int/twiki/pub/IAI/IaiServicesReception/IAI_SGP_HD_Call4Proposals.pdf.

[21] Information gleaned from *2003–2004 Annual Report*, IAI/ID.30.E.S/2005; *2004–2006 Biennial Report*, IAI/ID.36.E.S/2006; and *Responding to the Challenge of Global Change in the Americas: A Decade of Achievement*, IAI/ID.21.E/2003.

[22] Data sources for the table: www.iai.int/iai_science/scientific_programs_listed_by_year.pdf and the IAI DIR.

[23] Article II, IAI Charter.

[24] Numbers of projects funded from table 1.

[25] These metadata were created by IAI staff but are still related to a scientific project.

[26] CRN1–009; CRN1–031; CRN1–048; *2003–2004 Annual Report*, IAI/ID.30.E.S/2005, 68–69.

[27] *2004–2006 Biennial Report*, IAI/ID.36.E.S/2005, 81–82.

[28] CRN2 projects led by Berbera, Diaz, Sanchez-Azofeifa, Jobbagy, and Castellans.

[29] See *IAI Newsletter* 2/2006 and *2004–2006 Biennial Report*, Editorial, IAI/ID.36.E.S/2006, 50–51.

[30] IAI_SGP_HD_Call4Proposals.pdf.

[31] The April symposium, "Symposium on Climate Change: Organizing the Science in the American Cordillera," was held in Mendoza, Argentina, April 4–6, 2006. Included in IAI–CRN–047 and UNESCO–IHP Abstracts. There were two additional meetings: initial meetings of the CRN2 PIs and their institutional representatives in Edmonton, Canada (April 10–14, 2006), and Buenos Aires, Argentina (May 4–5, 2006), during which cross-project discussions took place.

[32] *2004–2006 Biennial Report*, 49.

[33] SCOPE is the assessment body of the International Council for Science (ICSU), a nongovernmental organization representing a global membership that includes both national scientific bodies (111 members) and international scientific unions (29 members).

[34] The book is titled *Linking the Sciences of Environmental Change to Society and Policy—Lessons from 10 Years of Research Networks in the Americas*," IAI–SCOPE RAP, Ubatuba, Brazil – November 27 – December 2, 2005 submitted to IUGS–SCOPE, Paris, February 2006. The policy brief is titled "How to improve the dialogue between science and society: the case of global environmental change," UNESCO–SCOPE Policy Brief
No. 3, December 2006.

[35] IAI_SGP_HD_Call4Proposals.pdf.

# Chapter 4 – Capacity Building: Detailed Findings and Recommendations

**FINDING 1: There is strong evidence that IAI capacity-building activities are some of the most valuable contributions that the Institute has made to both science and society in the Americas. The IAI Directorate has employed a variety of approaches to capacity building, including short courses, workshops, and apprenticeships.**

While they are impressed with the IAI's scientific findings (see Science and Research Program, Finding 1), the vast majority of people interviewed by the ERC identified the Institute's ability to build Pan-American scientific capacity in the area of global change research as the Institute's greatest contribution in the past 13 years. The following comments are from students participating in the IAI Summer Institute (SI):

> "As a new PhD graduate, I found the IAI/UM Institute invaluable for the role that it played in exposing me to new areas and opportunities for research."[36]

> "The Summer Institute opened up new horizons in my academic and professional curricula. I got not only the opportunity to meet people with the same perspectives, thoughts, and experiences and see how they applied their knowledge in different working areas, but I initiated links with my future academic mentors."[37]

> "The Institute provided me with the opportunity to interact with professionals for the exchange of ideas and experiences in several areas of water management, at both national and international levels."[38]

Throughout the period of CRN1 funding, IAI-funded research helped leverage local educational funding sources to train 619 students (156 B.Sc., 191 M.Sc., 130 Ph.D., and eight postdoctoral fellows).[39] In addition, IAI-funded CRN1 PIs led 177 workshops attended by 1,954 student participants.[40]

The ERC also notes the IAI DIR's efforts regarding training and education to reach out to students from countries in the Americas that are not CoP member states. During the period 1999–2006, students from five additional countries (Barbados, El Salvador, Honduras, Nicaragua, and Trinidad and Tobago) and two territories (Netherlands Antilles and Puerto Rico) were able to participate in and network through the summer institutes facilitated by the IAI (table 4a).

The themes of the summer institutes as articulated in table 4b have become increasingly focused on risk, vulnerability, and adaptation to global change. This is especially true for summer institutes offered from 2003 on.

As a cautionary note, however, the ERC is also concerned that the Institute is not providing ample opportunity for young scientists to be involved in IAI-funded projects. The reason is partly due to the long funding cycle, in which a new Ph.D. who misses an IAI open solicitation may have to wait up to four years for the next solicitation. In countries lacking supplemental funding opportunities in global change research, these young scientists may be effectively cut out of the research community. While the Program to Expand Scientific Capacity in the Americas (PESCA), established by the DIR in 2000, may have allowed for mid-cycle entry by some young scientists, the program's primary aim was to allow for scientists from IAI member countries with low participation to link to currently funded ISP or CRN programs. To date, there has not been the equivalent of a "New Investigator Program" specifically targeted at young scientists.

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**FINDING 2: It will be difficult to evaluate the long-term impact of these approaches, because specific mechanisms are not in place to track outcomes.**

The DIR has successfully implemented a variety of activities aimed at capacity building in the past 13 years. These include summer institutes, training workshops, short courses, short-term internships, and scholarships and research fellowships at the undergraduate, graduate, and postdoctoral levels.[41]

Exit surveys and participant testimonials frequently cite the importance of these training activities in the lives and careers of participants, especially the courses' ability to establish valuable social networks among participants.[42] Discussions with a senior scientist affiliated with an early IAI CRN1 project provide insight regarding the professional paths of students formerly supported by IAI-funded research. Of the researcher's six students supported in part by the project, three have gone on to work as consultant/researchers in government agencies, one works in an Argentine university, another works in a Brazilian college, and another has gone to Europe to pursue a Ph.D. This researcher also hosted one of her colleague's students on the same project as a postdoctoral associate, after which the student took a university position in Brazil.

Discussions with IAI-funded scientists provided valuable information about the professional career paths of their former students. Yet, without a way to track participants systematically a year or more after the course, it was impossible for the ERC to determine the long-term impacts or evaluate the efficacy of these trainings and summer institutes.

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**FINDING 3: Recently, progress has been made toward developing capacity in scientific program management across the region.**

The DIR has recently started to develop scientific administrative capacity in IAI member countries by requiring management training for IAI projects. Noticing that a widespread lack of project management skills created CRN1 administration problems, the DIR, under new leadership, required CRN2 awardees' PIs and their administrative institutional representatives (AIRs) to participate in an initial meeting with the DIR. These meetings, held in Edmonton, Canada, April 10–14, 2006, and in Buenos Aires, May 4–5, 2006, permitted guided discussions and reviews of the individual CRN2 grants with PIs and AIRs. In addition to addressing administrative concerns by conveying expectations of project management, these discussions resulted in inter-CRN links, inclusion of new initiatives, sharing of resources, and the initiation of a network of CRN2 program managers.

During interviews with the ERC, the IAI Director indicated that over the past year there has been far better project reporting and adherence to project guidelines by PIs and their AIRs. The Director has attributed this change in behavior to the requirement of mandatory participation of CRN2 grant recipients in these meetings.

| Country/Territory | 1999 | 2000 | 2001 | 2003a | 2003b | 2003c | 2004a | 2004b | 2005a | 2005b | 2006a | 2006b | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Argentina** | 3 | 3 | 2 | — | — | 1 | — | 2 | 2 | 2 | 8 | 4 | 27 |
| Barbados | — | — | — | 1 | — | — | — | — | 1 | — | — | 1 | 3 |
| **Bolivia** | — | — | — | — | — | 1 | 2 | 2 | 1 | 2 | 3 | — | 11 |
| **Brazil** | 3 | 3 | 3 | — | 10 | 4 | 2 | 2 | 2 | 2 | 10 | 3 | 44 |
| **Canada** | 1 | 1 | 2 | — | — | — | — | — | — | — | 2 | — | 6 |
| **Chile** | 1 | — | 1 | — | — | 2 | — | — | — | 2 | 1 | — | 7 |
| **Colombia** | — | 1 | 1 | 2 | 4 | 2 | — | — | 2 | 2 | 2 | 6 | 22 |
| **Costa Rica** | 1 | — | — | 2 | — | — | — | 2 | — | — | — | 10 | 15 |
| **Cuba** | 1 | 1 | — | 2 | — | 1 | 1 | 2 | 2 | 1 | — | 1 | 12 |
| **Dominican Republic** | — | 1 | — | 3 | — | — | — | 1 | 1 | 1 | — | — | 7 |
| **Ecuador** | — | — | 1 | — | 1 | 2 | — | — | — | — | — | 2 | 6 |
| El Salvador | — | — | — | 2 | — | — | — | — | — | — | — | 2 | 4 |
| **Guatemala** | — | — | — | 2 | — | — | 1 | — | — | — | — | 2 | 5 |
| Honduras | — | — | — | 2 | — | — | 1 | — | — | — | — | — | 3 |
| **Jamaica** | 1 | 1 | 1 | 1 | — | — | — | 1 | 1 | — | — | — | 6 |
| **Mexico** | 2 | 1 | 2 | 2 | — | 1 | 2 | 8 | 2 | 2 | 4 | 3 | 29 |
| Netherlands Antilles | — | — | — | — | — | — | — | — | 1 | — | — | 1 | 2 |
| Nicaragua | — | — | — | 2 | — | — | 1 | 1 | — | 1 | — | — | 5 |
| **Panama** | — | — | 1 | 2 | — | — | — | — | 1 | 1 | — | 11 | 16 |
| **Paraguay** | 1 | — | 1 | — | — | 1 | — | — | — | 4 | 1 | — | 8 |
| **Peru** | — | 2 | 2 | — | 4 | 2 | 1 | — | 2 | 2 | 2 | — | 17 |
| Puerto Rico | — | — | — | — | — | — | — | 1 | — | — | — | — | 1 |
| Trinidad and Tobago | — | — | — | — | — | — | — | — | 1 | — | — | — | 1 |
| **Uruguay** | 1 | 2 | 1 | — | — | 1 | 2 | 1 | — | 1 | 2 | — | 11 |
| **U.S.A.** | 4 | 4 | 3 | — | — | — | — | — | — | — | 2 | — | 13 |
| **Venezuela** | 1 | — | 1 | 1 | 2 | — | 1 | 1 | 1 | 1 | 2 | — | 11 |
| **Total** | **20** | **20** | **22** | **24** | **21** | **18** | **14** | **24** | **20** | **24** | **39** | **46** | **292** |

**TABLE 4A: Numbers of student participants in the IAI Summer Institute from 1999 to 2006 by country/territory.[43] Please note that countries in bold are members of the IAI.**

| Year | Summer Institute Title, Date, and Location |
|---|---|
| 1999 | First IAI Summer Institute on Interdisciplinary Science in the Americas: "Interactions between Seasonal-to-Interannual Climate Variability and Human Systems," July 11–30, 1999, Miami, Florida, U.S.A., www.rsmas.miami.edu/IAI/Inst1999 |
| 2000 | Second IAI Summer Institute on Interdisciplinary Science in the Americas: "Environmental and Social Implications of Land Use and Land Cover Change in the Americas," July 16–August 4, 2000, Miami, Florida, U.S.A., www.rsmas.miami.edu/IAI/Inst2000/inst2000_index.html |
| 2001 | Third IAI Summer Institute on Interdisciplinary Science in the Americas: "Integrated Management of Water Resources in the Americas: Challenges and Emerging Issues," July 15–August 3, 2001, Miami, Florida, U.S.A.; 2001 Summer Institute on Environmental Monitoring and Assessment Applications, May 14–June 1, 2001, Bloomington, Indiana, U.S.A., www.rsmas.miami.edu/IAI/Inst2001 |
| 2003a | IAI Summer Institute on Land Use and Cover Changes in the Amazonian Region: "Patterns, Processes and Plausible Scenarios," October 12–24, 2003, Cachoeira Paulista, Brazil |
| 2003b | IAI Summer Institute on Vulnerability Associated with Climate Variability and Climate Change in Central America and the Caribbean, October 26–November 8, 2003, Santo Domingo, Dominican Republic |
| 2003c | IAI Summer Institute on Global Warming and Climate Changes: "Causes, Mitigation Alternatives and International Actions," November 10–22, 2003, Piracicaba, Brazil |
| 2004a | IAI Institute on Urbanization and Global Environmental Change in Latin America, September 27–October 8, 2004, Mexico City, Mexico |
| 2004b | IAI-IHDP Global Environmental Change Institute on Globalisation and Food Systems–Scientific Workshop and Science–Policy Forum, October 25–November 6, 2004, Nicoya and San Jose, Costa Rica |
| 2005a | IAI Institute on Vulnerability Associated with Climate Variability and Climate Change in South America, October 17–28, 2005, University of Asuncion, Paraguay |
| 2005b | IAI Institute on Climate and Human Health, November 7–18, 2005, University of West Indies, Jamaica |
| 2006a | IAI–CPTEC Training Institute on Climate, Land Use and Modeling, August 13–18, 2006, Cachoeira Paulista, Brazil |
| 2006b | Forum: Science and Policy for Climate Associated Risk Management, November 24, 2006, Panama City, Panama |

**Table 4b: A list of IAI Summer Institutes by year and title corresponding to the columns in Table 4a.**[44]

**RECOMMENDATION 1: Continue to offer a broad range of capacity-building activities, including developing additional innovative approaches such as apprenticeships with government agencies, NGOs, and industry to broaden the range of opportunities for IAI-trained graduates.**

The variety of approaches and activities that the DIR has employed to build regional capacity demonstrates its responsiveness and creativity. The IAI should continue to use this broad range of approaches in addition to exploring new educational and training options made available by advanced communications technologies such as video conferencing and Web meetings.

**RECOMMENDATION 2: Develop a tracking mechanism of capacity-building efforts to, (1) aid in the future planning of capacity building activities and (2) effectively use the human and financial resources of the Institute.**

While metrics reported in the IAI's *10 Year Report* (e.g., the number of graduates sponsored, publications ensuing from IAI projects, and student profiles) are valuable indicators of capacity-building efforts, the ERC recommends adding metrics that will demonstrate the long-term efficacy of such efforts. For example, the IAI might develop a mechanism to track, and potentially showcase, participants in IAI training and education activities, highlighting their subsequent contribution in global change research and involvement in regional research networks. An initial attempt at this type of tracking, evidenced in the

*2004–2006 Biennial Report* in which participants in the SGP2 were tracked through the CRN2 process,[45] is commendable and should be further expanded. The DIR may also benefit from exploring how universities in the United States and Canada track their alumni, and consider adopting some of their techniques.

The IAI is undertaking what the ERC believes is a promising development in establishing IAI internships with the Brazilian INPE CPTEC. The Institute is encouraged to explore additional collaborations with public and private stakeholders as a means of enhancing IAI's regional presence through sponsoring agencies' interaction with IAI-educated students and researchers.

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**RECOMMENDATION 3: Continue building capacity in science program management, because it is critical to the IAI's functioning effectively in the region.**

In continuing its efforts to build science program management capacity, the IAI should explore opportunities to collaborate with regional entities that have similar goals. With the assistance of CoP representatives, the DIR should canvass the global change science communities of member states regarding their priorities or plans in offering technical training for international science program management and consider offering joint training or refresher workshops.

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[36] Michael Taylor, 1999 SI participant, from R*esponding to the Challenge of Global Change in the Americas: A Decade of Achievement*, 94.

[37] Andrea Chavez, 2000 SI participant, from *Responding to the Challenge of Global Change in the Americas: A Decade of Achievement*, 94.

[38] Anabel Sanchez, 2001 SI participant, from *Responding to the Challenge of Global Change in the Americas: A Decade of Achievement*, 95.

[39] *2004–2006 Biennial Report*, 69. Note: There is general consensus among IAI leadership in the DIR and the EC that these numbers, while not accurate in the absolute sense, are accurate in terms of magnitude.

[40] *2004–2006 Biennial Report*, 70.

[41] *Responding to the Challenge of Global Change in the Americas*, 89; 2004–2006 Biennial Report, 69.

[42] *Responding to the Challenge of Global Change in the Americas*, 93–94.

[43] Information compiled and supplied by IAI DIR staff and available from the DIR upon request.

[44] Ibid.

[45] *2004–2006 Biennial Report*, 51.

# Chapter 5 – Funding: Detailed Findings and Recommendations

**FINDING 1: Voluntary contributions: Not all member states have paid their agreed-upon contributions.**

A detailed breakdown of the status of voluntary contributions of member states to the IAI is presented in table 5. One member has paid in advance. Four members are current. Four members are between one and three years in arrears. Four members are between four and six years in arrears. Five members are between 7 and 10 years in arrears. One member is 11 years in arrears.

**Core Budget – 2006 / 2007: Status of Country Contributions as of March 31, 2007**

| From Year<br>To Year | 1994<br>1997 | 1997<br>1998 | 1998<br>1999 | 1999<br>2000 | 2000<br>2001 | 2001<br>2002 | 2002<br>2003 | 2003<br>2004 | 2004<br>2005 | 2005<br>2006 | 2006<br>2007 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Argentina | Full | Part. | Part. | Part. | Part. | Part. | | Part. | 150% | | 200% |
| Bolivia | | | | | | | | | | | |
| Brazil | Full | Full | Full | Part. | 162% | Full | Full | Full | Part. | 123% | |
| Canada | Full | Full | Full | Part. | Part. | 148% | Full | Full | Full | Full | Full |
| Chile | Full | Full | C | C | C | C | 300% | C | 200% | 200% | Full |
| Colombia | | Full | Full | Full | | | | | Full | Full | Full |
| Costa Rica | Full | C | C | C | C | 358% | 405% | Full | Full | Part. | |
| Cuba | Full | Full | Full | C | 199% | | | Full | Full | | |
| Dom. Rep. | | | | | | | | | | | |
| Ecuador | | | | | C | Full | 200% | Full | | | |
| Guatemala | | | | | | | | | | | |
| Jamaica | | Full | Full | | Full | Full | Full | Full | Full | | |
| Mexico | Part. | Part. | Part. | Part. | Part. | 241% | | 179% | 181% | 110% | Full |
| Panama | Full | Full | Full | Full | C | C | Full | Full | Full | 300% | Full |
| Paraguay | | | | | | | | | | | |
| Peru | | C | Part. | | | | 240% | | | | 200% |
| Uruguay | Full | Full | | | | | | | | | |
| U.S.A. | Full | Full | Full | Full | Full | Full | Full | Full | Full | Full | Full |
| Venezuela | Full | Part. | Part. | Part. | Part. | | | Part. | Part. | Part. | Part. |

Note: Figures represent a percentage of the **current** contribution, i.e., Chile in 2002–03 paid the equivalent of three years of contributions.

**Key:**

- Not a member
- Paid more than current year (arrears or advances)
- Payment not received for year
- C Contribution paid in other year

**Table 5: Detailed breakdown of the status of the voluntary contributions of IAI member states from 1994 through 2007.**[46]

**FINDING 2: Research and capacity-building funds directly administered by the IAI: While substantial, the IAI funding base has depended on the consistent support of only a few donors.**

An in-depth analysis of the complexity behind the noncompliance of CoP member governments is beyond the scope of this external review; however, overreliance on one funding source leaves the Institute financially vulnerable.

The NSF Office of Inspector General (OIG) report on the finances of the IAI found that the NSF, acting on the behalf of the U.S. government, has funded a disproportionate amount of total IAI costs, providing approximately 87 percent of the IAI's core operational and research funding from 1996 to 2003.[47] This is much larger than the 25 percent U.S. contribution that was envisaged during the formation of the Institute. Reasons for this noncompliance of CoP member countries meeting their mutually agreed-upon financial commitments are complex.

Many CoP member countries have made notable efforts to secure additional monies by leveraging IAI funding. As of June 2004, supplemental funding raised by the leadership teams of CRN1 exceeded US$20 million.[48, 49]

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**FINDING 3: Endowment: While the development of an endowment is part of the Institute's original Charter,[50] the ERC did not find evidence that it has been initiated.**

As part of its founding Charter, the EC, with the assistance of the Director, is expected to "propose to the Conference of the Parties, for its approval, the establishment of an endowment fund which would generate income through an interest-bearing arrangement, as well as options to obtain resources through other means."[51] To date, however, the Institute has made no move to act on this mandate. In fact, very few EC members interviewed by the ERC were even aware that such a provision existed.

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**RECOMMENDATION 1: The CoP should develop and implement a creative and equitable mechanism to help all current member states meet their commitments of voluntary contributions while encouraging participation from new nations.**

It is clear to the ERC that the Institute cannot function as it was designed to and, more important, as it needs to without the full support of all member countries. It is imperative that all member states hold to their mutually agreed upon commitments if the IAI is to reach the objectives set out in the founding Charter.

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**RECOMMENDATION 2: The CoP and its designees should expand the IAI program funding base, especially exploring the possibilities of funding from multilateral and private sector sources (e.g., agribusiness, insurance industry, biofuels sector) while ensuring the inherent objectivity of the IAI.**

Even if the member states follow Recommendation 1, it is still necessary to diversify funding sources. The ERC recognizes that it is difficult for researchers in some CoP member nations to gain access to research funds. However, these researchers can often leverage research monies awarded by the IAI for the training and education of students in the region. The ERC recommends that the DIR and the Financial Advisory Committee (FAC), under the guidance of the CoP, develop a mechanism to officially document and acknowledge all support that CoP member countries supply, not limited to voluntary contributions. The ERC recognizes and commends the DIR for the steps it has taken, with the help of the NSF OIG,[52] to standardize the mandatory project reporting for the recently awarded CRN2. The ERC encourages the DIR to continue to apply this standardized approach to broader grant reporting in an effort to accurately reflect the additional resources that IAI-funded scientists have successfully attained. Such an action would send a strong message that the efforts of CoP member states to support the IAI through the leveraging of funds are of value and appreciated by the Institute.

While the IAI has been funded overwhelmingly by the member nations' governments, recent interviews with the DIR indicate that the Institute is currently exploring collab-

orations with private sector corporations, such as Petrobras, and with public sector entities, such as the Brazilian hydroelectric energy sector. The ERC endorses this effort to diversify the funding base and encourages the DIR to continue exploring these and other partnerships.

As another means to diversify IAI's funding portfolio, the Institute should consider collaborating with complementary organizations to jointly study issues such as risk, vulnerability, and adaptation. These partnerships may be with similar organizations in other parts of the world and analogous to the collaboration established by a number of the world's leading conservation NGOs in response to funding provided by the Gordon and Betty Moore Foundation. Alternatively, the IAI may wish to partner with complementary inter-American groups, creating strategic partnerships to comprehensively address, for example, regional prospects for biofuels or renewable energy, with an aim to attract funders such as the United Nations, Turner, Ranson, and Gates Foundations.

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**RECOMMENDATION 3: The CoP should establish an endowment to ensure stable and strategic resources for the Institute.**

The ERC believes that it is now imperative that the Institute develop and implement a strategy to ensure its financial stability and flexibility through the creation of an Institute endowment. Institutional endowments are financial instruments commonly used by academic and research institutions to provide stable and strategic resources. An endowment would provide the Institute with a stable source of funding to support high-impact projects and programs with small windows of opportunity and no other obvious source of funding. An endowment would also provide the Institute with the capacity to absorb changes in funding streams without the necessity of increasing the level of voluntary contributions of member states. The DIR, with guidance and support of the CoP, EC, SAC, and FAC, is urgently encouraged to move forward with this.

The ERC also recognizes that extensive fund raising is beyond the scope of any existing IAI position and requires a special skill set. The DIR, under the guidance of the CoP, is encouraged to determine the feasibility and requirements of creating a development position to help meet institutional funding needs.

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[46] Information supplied by the IAI DIR, available upon request.

[47] Audit of Inter-American Institute for Global Change Research, Sao Jose dos Campos, Brazil, National Science Foundation Office of Inspector General, September 30, 2004, OIG 04–2–007, www.nsf.gov/oig/IAI-GCR.pdf, 4.

[48] *2003–2004 IAI Annual Report*, 73.

[49] These efforts, at times, have not been recognized by other CoP member nations. While acknowledging that other member countries had provided in-kind contributions and leveraged other resources for scientific research, the NSF OIG report did not take into account the dollar value of these reported contributions, and thus may have overstated the disproportionate nature of NSF's contribution. There is concern among the ERC that the nonrecognition by the NSF OIG audit of these in-kind or leveraged contributions by a number of CoP member states may have implied that these efforts of other CoP members did not matter. Audit of Inter-American Institute for Global Change Research, Sao Jose dos Campos, Brazil, National Science Foundation Office of Inspector General, September 30, 2004, OIG 04-2–007, www.nsf.gov/oig/IAI-GCR.pdf, 2, 6.

[50] Article XIII, Section 3, in the IAI's founding Charter reads as follows: "The Executive Council, with the assistance of the Director, will propose to the Conference of the Parties, for its approval, the establishment of an endowment fund which would generate income through an interest-bearing arrangement, as well as options to obtain resources through other means."

[51] www.iai.int/files/communications/publications/institutional/agree_en.pdf, Article XIII, Section 3.

[52] *Semi-Annual Report of the OIG*, Chapter 2, March 2005, available at http://nsf.gov/pubs/2005/oigmarch2005/pdffiles/chapter2.pdf, 24.

# Chapter 6 – Operations and Governance: Detailed Findings and Recommendations

**FINDING 1:** **While the IAI's broad goals, established 13 years ago in the founding Charter, are still valid, the Institute lacks the metrics to evaluate its effectiveness in fulfilling its mission.**

Historically, the IAI has been evaluated externally by the metric of CoP member nation engagement, the degree to which the CoP member nations are meeting the agreed-upon voluntary financial commitments, and the nature and the state of the funding base.[53] Internal evaluation of the IAI's progress has been measured in terms of the successful implementation of its science and capacity-building programs.[54] However, it is important to note that the aforementioned evaluations do not have formal metrics.[55] Metrics concerning institutional activities of synthesis, analysis, communication, and outreach of IAI science to policymakers are lacking.

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**FINDING 2:** **The annual CoP meetings are not regularly attended by representatives from all member states, and this spotty attendance diminishes the effectiveness of the IAI's governing body.**

Attendance at the annual meeting of the CoP, from the fourth meeting until the present, has varied from 17 member states participating in the 5th and 11th annual meetings to a low of 11 member states participating in the 7th and 13th annual meetings (table 6).

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**FINDING 3:** **The SAC has operated largely as a review body for IAI science projects, although according to the IAI's founding document, the SAC should be doing more.**

While the Scientific Advisory Committee (SAC) is charged with the responsibility for assessing IAI science results,[57] the ERC found limited evidence of such assessment. The ERC observed that the SAC's current activities regarding science assessment are limited to the evaluation of proposals for funding purposes. The committee feels that the SAC needs to address this expectation in a systematic fashion.

| CoP Member | CoP 4 | CoP 5 | CoP 6 | CoP 7 | CoP 8 | CoP 9 | CoP 10 | CoP 11 | CoP 12 | CoP 13 |
|---|---|---|---|---|---|---|---|---|---|---|
| Argentina | X | X | X | X | X | X | X | X | X | X |
| Brazil | X | X | X | X | X | X | X | X | X | X |
| Canada | X | X | X | X | X | X | X | X | X | X |
| Chile | X | X | X | — | X | X | X | X | X | — |
| Colombia | — | — | X | — | X | X | X | — | X | X |
| Costa Rica | X | X | — | X | X | X | X | X | X | X |
| Cuba | X | X | X | X | X | X | — | X | X | X |
| Dom. Republic | — | X | — | — | — | — | — | X | — | — |
| Ecuador | — | X | X | — | X | — | — | X | — | — |
| Guatemala | — | — | — | X | — | — | — | X | X | — |
| Jamaica | — | X | X | — | X | X | X | X | X | — |
| Mexico | X | X | X | X | — | — | X | X | X | X |
| Panama | X | X | X | X | X | X | X | X | X | X |
| Paraguay | — | X | — | — | — | — | — | X | X | — |
| Peru | X | X | X | — | X | — | — | — | — | — |
| Uruguay | X | X | X | X | X | X | X | X | — | — |
| U.S.A. | X | X | X | X | X | X | X | X | X | X |
| Venezuela | X | X | — | — | X | X | — | X | X | X |
| Total Members in Attendance | 12 | 16 | 13 | 10 | 14 | 12 | 11 | 16 | 14 | 10 |

**Table 6: Participation in the 4th through 13th annual meetings of the CoP, by member state. X = present; — = absent.**[56]

Per the IAI founding agreement, the SAC has the responsibility for making recommendations to the EC and, ultimately, the CoP regarding the science agenda, the annual program, and the long-term vision of the Institute.[58] In interviews with the ERC, past and current members of the SAC indicated that the SAC is being underutilized by IAI senior leadership. In particular, some interviewees felt that the SAC's role in setting the strategic scientific vision for the organization was undercut, and, as a result, they had been reluctant to participate in long-term planning. This is an interesting finding in light of the expressed desire by members of the DIR and the EC that the SAC needs to be the intellectual driver of the Institute.

**FINDING 4: The DIR often needs prompt advice on operational matters that arise between meetings of the CoP but there is no clear mechanism in place to provide this advice.**

In ERC interviews, IAI senior leadership expressed concern about the slow pace at which the IAI operates as an institution.[59] The IAI's annual (CoP) and biannual (SAC/EC) meeting schedule is similar to that of other large international institutions. However, the DIR is particularly concerned that the Institute is unable to respond rapidly to operational issues that are not of enough significance to convene the CoP but are beyond the mandate of the DIR.

**FINDING 5: The IAI lacks a long-range strategic plan, and this is likely to cause serious difficulties in the coming decade.**

In the Institute's Charter, the EC and the SAC are tasked with making recommendations to the CoP regarding creation of a scientific and programmatic strategic vision for the Institute.[60] Currently, no such plan is in place, but the Charter's omission in creating a specific process and time line for such planning makes it difficult to assess where a lapse in duty occurred.

The current chairs of the SAC and the EC have enlisted their members to begin development of a strategic plan. Significant progress was made during the 24th meeting of the SAC in Cuernavaca, Mexico (December 6–7, 2006) and presented in detail at the 23rd meeting of the IAI EC in Panama City, Panama (December 9–10, 2006).[61]

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**RECOMMENDATION 1: While the IAI should continue to adhere to its long-term vision as set out in the founding Charter, the CoP should lead efforts to clearly define metrics to evaluate the Institute's progress relative to this vision. Of increasing importance are metrics that demonstrate the synthesis, analysis, communication, and outreach of IAI science to policymakers.**

In setting a future vision for the Institute, the IAI should consider maintaining the guiding scientific principles that have served it well in the past 13 years and that remain valid for the next decade of global change research. As the Institute continues to mature, metrics need to be in place to provide a benchmark against which the efficacy of the IAI can be demonstrated to all key stakeholders.

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**RECOMMENDATION 2: Given the essential role of the CoP as the IAI's central governing body and its role as a representative of the member states, the ERC encourages full participation by representatives that (1) are sufficiently empowered by their respective governments to make or influence resource commitments; (2) have strong links to the national scientific organizations; and (3) are able to relate the IAI to other international conventions.**

The ERC believes that full representation of CoP member states at the annual CoP meetings is critical for the future success of the Institute. Equally important is having representatives from member states that are empowered to act on behalf of their countries.

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**RECOMMENDATION 3: Under the direction and guidance of the CoP, the SAC should take on the additional advisory tasks originally articulated in the Institute's Charter. These include (1) making recommendations to the CoP regarding the scientific agenda, long-range plans, and annual program of the Institute; (2) directing the peer review system of the Institute; (3) establishing scientific panels for particular issues; and (4) assessing the scientific results of the Institute. The CoP should also consider the possible role of the SAC in undertaking regional assessments.**

The SAC should transition from a body that primarily evaluates and reviews science proposals to a body that sets the science agenda of the Institute. With the SAC's reassuming leadership of science agenda setting (see Recommendation 2 above), it will be imperative that the SAC reflect the broad goals of the Institute, namely, a vision that includes the relevance of science to policy. The CoP might consider adding one to two consultants from the policy community to the SAC to help ensure that this vision guides the work of the Institute.

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**RECOMMENDATION 4: The EC should provide rapid advice on urgent operational matters when requested by the DIR.**

Given the limitation of the DIR's mandate for making operational decisions and near-term priority setting, and the many demands for CoP representatives' time, the ERC suggests that the DIR consult with the EC on an as-needed basis regarding advice on urgent operational matters and priority-setting issues that arise. These consultations should be structured to minimize bureaucracy and maximize efficiency of effort on the parts of both the EC and the DIR.

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**RECOMMENDATION 5: As articulated in the Charter, the EC should appoint a working group to initiate a strategic-planning process.**

The continued support of key local, national, and regional stakeholders is crucial to the future of the IAI, both financially and in terms of the regional reputation of the Institute. Consequently, these stakeholders should be invited to participate and be actively engaged in all stages of the strategic planning process.

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[53] Audit of Inter-American Institute for Global Change Research, Sao Jose dos Campos, Brazil, National Science Foundation Office of Inspector General, September 30, 2004, OIG 04-2-007, www.nsf.gov/oig/IAI-GCR.pdf.

[54] Disclosed during interviews with IAI DIR staff in March 2007.

[55] Ibid.

[56] Information supplied by the IAI DIR, available upon request.

[57] Article VII, 4(e).

[58] www.iai.int/files/communications/publications/institutional/agree_en.pdf, Article VII, 4(a).

[59] Disclosed during interviews with IAI DIR staff in March 2007.

[60] Founding Charter, Article VI, 4(c), and Article VII, 4(a).

[61] These observations were made in discussions with the current SAC chair. Evidence of progress also can be found in a PowerPoint presentation developed by the SAC that was presented to the EC in Panama in December 2006. It is available from the DIR upon request.

# Chapter 7 – Communications and Dialogue: Detailed Findings and Recommendations

**FINDING 1: There has been a surprising lack of awareness about the IAI in both the science and policy communities within and outside many CoP member countries.**

Part of the IAI's mandate, as communicated in its founding Charter, is to "improve public awareness and provide scientific information to governments for the development of public policy relevant to global change."[62] The ERC found, however, that there is surprisingly little knowledge of IAI or its work throughout the Americas, despite significant achievements in regional scientific capacity building in recent years. Of particular concern to the ERC is that few interviewees who were heavily involved with the advancement of science in a number of CoP member states—even those from large, internationally recognized institutions focused on environmental research—had much, if any, knowledge of the IAI.[63]

While the DIR is responsible for communications, the ERC believes that, presently, it is difficult for the Directorate to simultaneously implement its programs, effectively promote the Institute, and communicate its successes. Recently, the bulk of the DIR's energy has been spent administering and implementing the science program, in addition to reorganizing aspects of the DIR that were functioning below reasonable expectations. Communications have not, until recently, been a top priority. However, there is evidence to suggest that as the DIR continues to strengthen and stabilize, communications are improving.[64] Steps have been taken by the DIR to distribute the responsibility of communicating the message and actions of the IAI by involving all sectors of the Institute. Interviews with the Director, as well as his recent editorials, indicate that a new emphasis has been placed on sharing the responsibility of communications among all organs (DIR, CoP, SAC, EC) of the IAI.[65]

Adding to the problem of lack of awareness about the IAI across the region has been the lack of clarity regarding the expectations of roles and responsibilities among the different organs of the Institute. Many of the SAC, CoP, and DIR members that the ERC interviewed expressed frustration at the lack of communication regarding expectations for their posts. For example, a former SAC member said it took him nearly six months to determine what duties he was expected to perform.

Also contributing to the lack of regional awareness of the IAI is the fact that, as an international organization, the IAI must rely heavily on interaction through electronic media. The IAI website and IAI TWiki websites,[66] however, are not effective as informational gateways to the Institute. In reviewing the main IAI website for information about the Institute and its funded projects, the ERC found that the layout of the website does not easily allow a visitor to access relevant information. To find details of the types of activities funded through the IAI, for example, users must be willing to click through multiple intermediate pages, assuming they know exactly where to look. Many visitors will not take the time to explore the site and will leave the site frustrated. Web traffic statistics (see table 7a and table 7b), suggest that this happens often on the IAI main website: 78 percent of users leave the site in under 30 seconds, and only 13 percent remain on the site for more than two minutes.

| 7a. | IAI | TWiki |
|---|---|---|
| Unique Visitors | | |
| Sep–06 | 6,513 | 266 |
| Oct–06 | 7,656 | 859 |
| Nov–06 | 8,316 | 317 |
| Dec–06 | 4,724 | 318 |
| Jan–07 | 5,599 | 623 |
| Feb–07 | 6,509 | 392 |
| Mar–07 | 7,185 | 650 |
| Average Monthly Unique Visitors | 6,643 | 489 |

**Table 7a: Number of unique visitors per month to the IAI website, September 2006–March 2007.**[67]

| 7b. | IAI | TWiki |
|---|---|---|
| Visit Duration (as of 3/07) | | |
| ‹ 30 sec | 77.9% | 53.3% |
| ‹ 2 min | 87.2% | 57.6% |
| › 15 min | 3.6% | 28.9% |

**Table 7b: Duration of visits to the IAI and TWiki websites.**[68]

However, the Web statistics also reveal that the IAI TWiki website, which includes the Data Information System (DIS), captures visitors for much longer periods: 42 percent stay for more than 2 minutes, and an impressive 29 percent are on the site for more than 15 minutes. However, the TWiki website receives far fewer visitors: on average, 490 unique visitors per month compared with the main IAI website's 6,643. While fewer visitors may be interested in the metadata available on the DIS, a large part of the discrepancy may be that the DIS is not given enough prominence on the IAI main website. As our ERC interviews revealed, many of the people, even those intimately involved with IAI, were not aware of DIS's existence (see Science and Research Program, Finding 4).

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**FINDING 2: Policymakers across the Americas have had difficulty translating the results of the Institute's science into informed action.**

Serving as a bridge between the science and policy communities, as is expected of the IAI, is a formidable task. The Institute, led by the DIR, has taken some steps to link the two communities, as evidenced by the creation of "science to policy"[69] and the recent publication of a well-written policy brief.[70] It is also noted that the IAI is one of only two organizations working with the United Nations Framework Convention on Climate Change Subsidiary Body for Scientific and Technological Advice (UNFCC SBSTA) on this topic.[71]

Over much of its history, however, the Institute has struggled to get clearly stated and societally relevant science into the hands of policymakers. This has limited the degree to which IAI science has been used by policymakers to improve the lives of people in the region. The Institute's increasing engagement of social scientists may help address this issue.

One of the largest hurdles for better relations between science and policy is enticing policymakers to join in the dialogue. In interviews with the ERC, diplomatic personnel from many CoP member states expressed concern about ineffective communication with the IAI. Part of the problem is the sporadic nature of the communication. One interviewee observed that unless the IAI had a standing meeting with each CoP member state diplomatic corps, it would be difficult to improve the Institute's visibility, and thus political support for it, within the CoP member governments.[72]

Also hindering effective dialogue is the uncertainty about who is responsible for communicating the IAI's messages with member governments. Some interviewees reported that they knew about the IAI but had not received information about the status of the institution through their CoP representative, and most did not know the identity of their nation's CoP representative or the national government body responsible for the IAI.[73]

Another hurdle for effective dialogue between scientists and policymakers is ensuring that communications are targeted at the appropriate audience. Many of the foreign service personnel interviewed said the information materials they received about the IAI, especially the fact sheets, were not user friendly for a decision-making audience; they suggested that the IAI rework these documents and develop new material after consulting with end users.

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**RECOMMENDATION 1: The CoP or its designee should develop a comprehensive, robust communications and marketing strategy to effectively disseminate the scientific results, science syntheses, policy assessments, and outreach activities of the Institute to relevant government, NGO, and scientific bodies.**

The ERC suggests that the Institute develop a regional communications strategy that considers ways in which existing and new communication vehicles might be best employed to reach targeted audiences. The plan should consider the following suggestions:

- Conduct an evaluation of the effectiveness of IAI communications mechanisms, including websites, newsletters, fact sheets, and policy briefs. The plan should consider how existing and new communications vehicles might be best employed to reach targeted audiences.
- Encourage CoP members to serve as "information ambassadors" for the IAI, promoting the Institute not only in their own country but throughout the region.
- Develop relationships between the IAI and the premier scientific organization in each member nation (academy of sciences, scientific societies, etc.) to facilitate dissemination of information about IAI activities, opportunities, and results.

Following on the success of the project management manual that the DIR created in 2005 for all PIs and their institutional administrators, the ERC recommends that the Institute consider developing orientation packages for all Institute participants and personnel. These packages should clearly communicate the terms of reference, expectations, rights, and privileges associated with the post. In developing these packages, the IAI should refer to the Institute's founding documents and incorporate the lessons that have been learned over the past 13 years.

The DIR also should consider revising the structure of the IAI website, after consulting with current and targeted end users to ensure the relevance and accessibility of Web content to a variety of audiences. Improvements might include the following:

- Clearly illustrating IAI's achievements in a prominent location (i.e., "The IAI" section with an "IAI Achievements" heading). This may be as simple as pulling illustrative examples from annual reports.
- Creating site maps or audience-specific pathways for various visitors (i.e., policymakers/government officials; industry; science professionals and students) that highlights the contents and sections most relevant to a given audience. For example, policy briefing documents should be highlighted for the policymakers, while links to the DIS would play more prominently on the science professionals path.

The ERC also recommends website revisions that include increasing the visibility of the IAI TWiki. This can be accomplished through the following:

- Increasing links to the TWiki from the IAI website.
- Including information about the DIS and TWiki in offline IAI communication vehicles.
- Developing a presentation about the DIS and TWiki to be presented to the CoP, EC, and SAC, and used at future training workshops and institutes.

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**RECOMMENDATION 2: The DIR should partner with CoP member states to develop a set of dialogue events with regionally relevant policymakers and decision makers to help (1) shape the IAI science agenda; and (2) facilitate the communication of IAI science to the policy community.**

The language, objectives, procedures, and needs of the scientific and the policy communities are quite different, making true dialogue between science and policy a challenging endeavor. Such dialogue is crucial, however, to make the IAI science agenda more relevant and useful to the member countries, ensure continued support from these nations, and improve regional well-being.

The ERC suggests establishing an annual information-sharing event, hosted by governments of CoP member nations on a rotating basis. The event would provide an opportunity for senior leadership from the DIR, EC, and SAC, along with local IAI-funded scientists and students, to update government representatives on the latest IAI science and capacity-building efforts. The ERC recommends that the kickoff event be held in Washington, D.C., where there is strong embassy representation of most CoP member nations, and that future events be hosted in the capital cities of member nations.

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[62] IAI Charter, Article II, Section F.

[63] Result of interviews conducted during the 2006 Annual Meeting of Interciencia in Santiago, Chile.

[64] As evidenced in the *IAI Newsletter*, 2006/2 edition, the IAI Policy Brief published in late 2006 (www.iai.int/files/policy_brief/Policy_Brief.pdf), and the increased number of public presentations about the IAI in large international plenary sessions such as the 2006 Academy of Science for the Developing World (TWAS) meeting in Angra dos Reis, Brazil.

[65] These editorials by the new Director appeared in the 2006/2 issue of the *IAI Newsletter* as well as in the *2004–2006 Biennial Report*, and the Director expanded on these ideas in interviews.

[66] TWiki is a structured wiki. Wikis are shared whiteboards that allows users to add, remove, or otherwise edit content very quickly and easily. TWikis are typically used to run a collaboration platform, knowledge or document management system, knowledge base, or any other shared application. For more information, see http://en.wikipedia.org/wiki/TWiki; http://en.wikipedia.org/wiki/Structured_wiki.

[67] Information available upon request from the IAI DIR.

[68] Ibid.

[69] IAI-IHDP Global Environmental Change Training Institute on Globalization and Food Systems—Scientific Workshop and Science-Policy Forum, Nicoya, San Jose, Costa Rica, 2004.

[70] www.iai.int/files/policy_brief/Policy_Brief.pdf.

[71] From discussions with the IAI Director.

[72] Interview took place in Washington, D.C., July 2006.

[73] It was not just foreign service personnel who were unclear about IAI channels of communication. Surveys of participants from a number of IAI workshops and training institutes indicated that a majority of the participants from CoP member nations did not know who their CoP representatives were. The ERC found that information about responsible government agencies and appointed representatives is not clearly presented on the IAI website.

# Appendices

# Appendix I – ERC Interview Questions[74]

**Set of Retrospective Questions** ***(as taken from the IAI ERC terms of reference and modified with the guidance of the ERC, especially G. McBean)***

## Institutional Development

1. Does the IAI have mechanisms to evaluate and, as appropriate, modify the terms of the IAI Agreement in the context of the changing global and national circumstances? How many times has this been tried? Did such attempts meet with success or failure?

2. Does the IAI have mechanisms to undertake an analysis of its strengths, weaknesses, opportunities, and threats, both internal and external, and to develop and implement a strategic plan?

3. Does the IAI have a "legacy" vision? What will be the long-term implications of its programs and activities with respect to infrastructure, people, research results, and sustained attitudes?

4. How has country participation evolved?
- Has the number of countries who are IAI members changed? If so, why?
- What is the level of participation by member countries in the IAI, in terms of financial support, participation in the IAI executive organs and research meetings, and research programs?
- What is the level of activity relative to the IAI within countries? For example, are there national committees? Is there participation of the private sector, universities, and other levels of government in IAI activities?
- Why do you think participation has evolved in some countries and not in others?
- Has the IAI developed links with countries that are not members? Have flexible arrangements, such as associate membership, been considered?

5. How has the IAI promoted cooperation among research institutions within the region and in other regions?

6. How effective have the IAI executive organs been (Conference of the Parties, Executive Council, Scientific Advisory Committee, and Directorate)? What are their accomplishments?
- Are the meetings of the IAI executive organs as effective as they could be? Is the frequency of meetings and decision-making processes appropriate and effective? Has the participation of members evolved?
- In this context, do the IAI Articles need revision? If so, how?

7. Has the funding base for research and activities been expanded, and are the present programs or their expansion sustainable? How have nongovernmental sources of funds—such as international agencies, private sector funding agencies, etc.—become involved in providing support for the IAI?

8. Are the IAI program management, administrative, and physical arrangements appropriate for the evolving situation? Is there capacity for lobbying, pursuing funding opportunities, and examining different financial mechanisms, such as endowments and revolving (e.g., pass-through) funds?

9. How effective are the mechanisms for communication and dissemination of results? Consideration of effectiveness should include how the results are being used in public and private sectors. The review should consider the private sector—such as utilities, insurance companies, and natural resource companies—as well as governments.

## Programmatic Development

1. How are programmatic priorities established and what are the mechanisms for project evaluation? How are scientific and regional relevance decided and evaluated?

2. What are the improvements in scientific capability and research infrastructure in member countries? How many scientists have been trained, and where and how are they now employed (development of sustained human capacity)?

3. Is there a plan to ensure the long-term benefits of the IAI DIS and its ability to foster standardization, collection, analysis, and exchange of relevant global change scientific data?

4. What are the measures of scientific productivity of the supported research, and how can its output be measured in terms of provision of relevant information to policymakers and decision makers? Is the IAI making the transition from a focus on natural sciences to a balanced agenda with natural, social, engineering, and medical sciences all participating?

5. How successful has the IAI been in terms of network development? Have these networks become self-sustaining, or is there a plan toward this objective?

**Set of Prospective Questions** ***(as developed during the July 12–13, 2006, meeting of the IAI ERC)***

1. Why isn't the IAI more important to member countries?

2. What is the trajectory of the IAI? What are its goals for innovation and relevance?

3. What new mechanisms could the IAI develop to increase policy relevance (e.g., set of subregional synthesis activities)?

4. What ideas can be put forward to expand the IAI funding base?

5. How can the IAI as a multilateral institution better contribute to international treaties and conventions?

**External Review Committee Interview Questions to the CoP** *(as developed by the ERC Leadership)*
Prospective Questions to be directed to Country Representatives to the Conference of the Parties of the Inter-American Institute for Global Change Research (IAI)

### Science and Research Program

**Q.** How can the IAI promote greater cooperation between the natural and social sciences in projects funded by the IAI to make these efforts more relevant to the decision-making communities of governments, the private sector, and nongovernmental organizations (NGOs)?

### Capacity Building

**Q.** Is it realistic to establish apprenticeships for young scientists within institutions of government, the private sector, and NGOs?

### Communications and Dialogue

**Q.** How can the IAI best engage CoP members as ambassadors of information about the accomplishments of the Institute?

### Funding

**Q.** Where possible, please suggest ways the IAI can access public-private partnerships for the funding of IAI activities.

### Planning for the Future

**Q.** Within the overall vision of the IAI, what topics would you, as the country representative to the Conference of the Parties of the IAI, most like to see the IAI focus on over the next decade?

### Final Question

**Q.** Do you care to provide the External Review Committee with any additional information and/or feedback for its consideration as part of the external review of the IAI?

**External Review Committee Interview Questions to the SAC** ***(as developed by the ERC Leadership)***
Prospective Questions to be directed to Science Advisory Committee of the Inter-American Institute for Global Change Research (IAI)

### Science and Research Program

**Q.** How can the IAI promote greater cooperation between the natural and social sciences in projects funded by the IAI to make these efforts more relevant to the decision-making communities of governments, the private sector, and nongovernmental organizations (NGOs)?

**Q.** What do you think is the best mechanism to evaluate the scientific output of the IAI?

### Capacity Building

**Q.** Is it realistic to establish apprenticeships for young scientists within institutions of government, the private sector, and NGOs?

### Communications and Dialogue

**Q.** How can the IAI best engage CoP and SAC members as ambassadors of information about the accomplishments of the Institute?

**Q.** How can the IAI best use its Data and Information System to provide the Institute's relevant science to the region?

### Funding

**Q.** Where possible, please suggest ways the IAI can access public-private partnerships for the funding of IAI activities.

### Planning for the Future

**Q.** Within the overall vision of the IAI as stated in the Charter, what topics would you, as the members of the IAI SAC, most like to see the Institute focus on over the next decade?

### Final Question

**Q.** Do you care to provide the External Review Committee with any additional information and/or feedback for its consideration as part of the external review of the IAI?

[74] At their July 2006 meeting, the ERC members discussed the topics and types of questions that should be pursued in the general interviews. Many of the questions we agreed upon were derived from the terms of reference given to the ERC by the CoP. The questions were designed to help the ERC understand the quality and effectiveness of the IAI as a regional, interdisciplinary, and cooperative intergovernmental scientific enterprise that plays a role in promoting the use of its science to improve social well-being

# Appendix II – Interviewees and Their Affiliations

**Interviews**

To date, interviews have been conducted with more than 100 persons who have had an association with IAI in some scientific or policy capacity (listed below) or who are well positioned in related professions with an intimate knowledge of the region. Particularly important were the interviews of the CoP and SAC members with a focus on a small set of issues including (1) ways of improving IAI's effectiveness at promoting the use of its science to improve social well-being in IAI member countries, and (2) ways of broadening IAI's funding base. Below is a list (by major category) of persons contacted for interviews by the ERC.

### General

Prof. Jorge Allende, vice president, Third World Academy of Sciences, and director, Institute of Biomedical Sciences, Cellular and Molecular Biology Program, School of Medicine, University of Chile

Dr. Colette Ansseau, ACFAS delegate to Interciencia, Canada

Prof. Paulo Artaxo, University of São Paulo, Brazil

Dr. Jorge Babul, president, Council of the Scientific Societies of Chile

Dr. Michel Beland, Canadian member of the IAI Council in recent years

Dr. Michel Bergeron, president, Interciencia Association, and director of Science and Technology, Organization of American States

Dr. Luiz Bevilacqua, Laboratorio Nacional de Computacão Científica (LNCC), Brazil

Mr. Lars Bromley, senior program officer, AAAS, Washington, D.C.

Mr. Federico Garcia Brum, Nacional Sobre el Cambio Global (CNCG), Uruguay

Dr. Mercedes Bustamante, University of Brasilia, Brazil

Mr. Max Campos, Radiografica Costarricense S.A. (RACSA), Costa Rica

Prof. Rodolfo Alfonso Carrasco, secretary of the Section of Scientific Potential, Cuban Academy of Sciences, Cuba

Mr. Juan Carlos Castrillon, consejero, Embassy of Ecuador, Washington, D.C.

Dr. Eduardo Charreau, president, CONICET of Argentina

Mr. Roberto Chavez, lead urban specialist, Transport and Urban Development Department, World Bank, Washington D.C.

Mr. Marcelo Cima, minister, Embassy of the Argentine Republic, Washington D.C.

Dr. Robert W. Corell, senior policy fellow, American Meteorological Society

Prof. Pedro Depteris, University of Cordoba, Argentina

Ms. Barbara DeRosa-Joynt, Foreign Affairs Office, U.S. Department of State (DOS), Washington, D.C.

Dr. Maria Assuncao F. S. Dias, director, INPE CPTEC, current IAI EC chair, Brazil

Mr. Paulo D'Oliveira, INPE CPTEC, former IAI Financial Advisory Committee member, Brazil

Prof. Howard Epstein, associate professor, University of Virginia, U.S.A.

Ambassador Raul Estrada-Oyuela, minister of foreign relations, the Argentine Republic

Dr. Lelio Fellows, head, Technical Advisory Board, Centre for Strategic Management and Studies (CGEE) Brasilia, Brazil

Dr. Olga Fernandez Rios, professor of social and political philosophy and former first secretary of the Cuba Interest Section in Washington, D.C, now with the Cuban government

Ms. Christiana Figueres, Clean Development Mechanism, Costa Rica

Mr. Jose Figueres, former president of Costa Rica, Costa Rica

Dr. Saulo Freitas, research scientist, INPE CPTEC, Brazil

Dr. Roland Fuchs, director, START, U.S.A.

Dr. Carlos Gay Garcia, Universidad Nacional Autonoma de Mexico (UNAM), Mexico

Dr. Santiago Gasso, Goddard Earth Science and Technology, NASA GSFC, U.S.A.

Dr. Lynne Zeitlin Hale, director, Marine Initiative, The Nature Conservancy, U.S.A.

Dr. Mike Hall, National Oceanic and Atmospheric Administration (NOAA), U.S.A.

Dr. Luiz Horta, LBA DIS manager, Brazil

Dr. Barbara Idalmis Garea Moreda, Ministerio de Ciencia, Tecnologia y Medio Ambiente (CITMA), Cuba

Dr. Michael Keller, LBA-ECO principal investigator, U.S.A.

Dr. Jose Ruben Lara, Centro de Investigacion Cientifica y de Educacion Superior de Ensenada (CICESE), Mexico

Prof. Deborah Lawrence, associate professor, University of Virginia, U.S.A.

Dr. Karla Longo, research scientist, INPE CPTEC, Brazil

Mr. MacDowell, Ministerio da Ciencia e Tecnologia (MCT), Brazil

Ms. Mercedes Meneses, Environment, Science and Technology Assistant, Embassy of Chile, Washington, D.C.

Antonio Divino Moura, former director general, International Research Institute for Climate Prediction, Columbia University, New York, U.S.A.

Dr. Carlos Nobre, IGBP chair, INPE

Ms. Ana Raquel Para, assistant to the editor of Interciencia Miguel Laufer, Venezuela

Mr. Luciano Parodi, counselor, Embassy of Chile, Washington, D.C.

Dr. Celso Pinto de Mello, vice president, Sociedade Brasileira para o Progresso da Ciencia, Brazil

Dr. Eduardo Posada, president, Colombian Association for the Advancement of Science, Colombia

Dr. Patricia Ramirez O., Comite Regional de Recursos Hidraulicos (CRRH), Costa Rica

Dr. Osvaldo Sala, director, Environmental Change Initiative, Center for Environmental Studies, Brown University, U.S.A.

Dr. Oris Sanjur, president, Panamanian Association of the Advancement of Science, Panama

Dr. Wesley Sechrest, research scientist, IUCN, Washington, D.C., U.S.A.

Prof. Hank Shugart, Corcoran Professor, University of Virginia, U.S.A.

Mr. Pedro Simpson, consultant for the Brazilian Ministry of Environment

Dr. John Stewart, past interim director, IAI, and editor-in-chief, SCOPE, Canada

Ms. Mayra de la Torre, secretary, Interciencia Association, and representative of Conacyt of Mexico

Ing. Augusto Sanchez Valle, Bolivian Association for the Promotion of Science, Bolivia

Mr. Mike Vezzetti, U.S. State Department, U.S. Embassy, Brasilia, Brazil

Dr. Reynaldo Luiz Victoria, past interim scientific officer, IAI, and professor, CENA, University of São Paulo,

Brazil

## IAI Directorate

Holm Tiessen, director
Gerhard Breulmann, scientific officer
Marcella Ohira, Training, communications and outreach officer
Silvio Bianchi, administrative and financial officer
Ione Anderson, program manager
Luis Marcelo Achite, information technology manager
Anita Soares, financial assistant
Claudia Fernandes, assistant to the AFO and TCO officers
Luciana Queiroz Ribeiro, assistant to the IAI Director
Roseli Luz, Assistant to the scientific officer
Antonio de Oliveira, IAI driver
Fabio Henrique Siqueira, computer programmer

## Member-Country Representatives to the CoP[75]

Argentina – Carlos Eduardo Ereno
Bolivia – Oscar Paz Rada
Brazil – Maria Assução Silva Dias
Canada – Brian Gray
Chile – Vivian Heyl Chiappini
Colombia – Carlos Costa Posada
Costa Rica – Paulo Manso
Cuba – Bárbara Garea
Dom. Rep. – Max Puig and Zoila González
Ecuador – Bernardo Creamer
Guatemala – Hugo Figueroa
Jamaica – Anthony Chen
Mexico – Adrián Fernández
Panama – Zoila Aquino
Paraguay – Constantino Nicolás Guefos Kapsalis
Peru – Pablo Lagos
Uruguay – Mariano Arana
U.S.A. – Paul Filmer
Venezuela – Marlene Yadira Córdova

## Scientific Advisory Committee Members[76]

Vicente R. Barros
Mike Brklacich, Chair
Rana A. Fine
Silvia L. Garzoli
Luiz Fernando Legey
Rene Pablo Capote Lopez
Luis Jose Mata
Walter Fernandez Rojas
Telma Gloria Castro Romero
Juan Valdes

[75] These names were provided to the ERC by DIR staff in March 2007 in response to questions concerning clarification of information posted on the Web or provided in the *2004–2006 Biennial Report*. All of these persons were contacted by the ERC via e–mail and provided with specific questions of a prospective nature about the IAI.

[76] These names were obtained from the *2004–2006 Biennial Report*. At the recommendation of the SAC chair, they were contacted by the ERC via an e–mail distribution list for the members of the SAC and provided with specific questions of a prospective nature about the IAI.

# Appendix III – Documents Conslutled for the Review

The retrospective component of the review is partially based on the ERC's analysis of a large set of IAI documents compiled over the course of the review. A list of these documents appears below.

### IAI Documents


Agreement Establishing the Inter American Institute for Global Change Research www.iai.int/files/communications/publications/institutional/agree_en.pdf

IAI *Annual Report 1999–2000* www.iai.int/files/communications/publications/institutional/ar19992000.pdf

IAI *Biennial Report 2000–2002* www.iai.int/files/communications/publications/institutional/ar20002002.pdf

IAI *Annual Report 2003–2004* www.iai.int/files/communications/publications/institutional/ar20032004.pdf

IAI *Biennial Report 2004–2006* www.iai.int/files/communications/publications/institutional/Biennial_Report_2004_2006_EN.pdf

Audit of Inter-American Institute for Global Change Research, Sao Jose dos Campos, Brazil, National Science Foundation Office of Inspector General, September 30, 2004, OIG 04–2–007 www.nsf.gov/oig/IAI-GCR.pdf

Standing Rules of the Conference of the Parties of the Inter-American Institute for Global Change Research (May 2005) www.iai.int/files/communications/publications/institutional/cop_strules_en.pdf

Standing Rules of the Executive Council of the Inter-American Institute for Global Change Research (June 1998) www.iai.int/files/communications/publications/institutional/ec_strules_en.pdf

*The First Ten Years of IAI: Observing, Measuring, Understanding and Documenting Changes in the Environment of the Americas* (June 2004) www.iai.int/files/communications/publications/institutional/10years_English.pdf

*IAI Newsletter*, Issue 24 (Nov 2000 – Feb 2001) www.iai.int/files/communications/newsletter/issue24.pdf

*IAI Newsletter*, Issue 25 (March – June 2001) www.iai.int/files/communications/newsletter/issue25.pdf

*IAI Newsletter*, Issue 26 [broken link]

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IAI Newsletter, Issue 31 (April–June 2003) www.iai.int/files/communications/newsletter/issue31.pdf

*IAI Newsletter*, Issue 32 (July–September 2003) www.iai.int/files/communications/newsletter/issue32.pdf

*IAI Newsletter*, Issue 33 (October–December 2003) www.iai.int/files/communications/newsletter/issue33.pdf

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*IAI Newsletter*, Issue 36 (September–December 2004) www.iai.int/files/communications/newsletter/issue36.pdf

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IAI Infosheet: Regional El Nino Workshops (April 1998) www.iai.int/files/communications/infosheets/

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IAI Infosheet: IAI Continues to Build Capacity in the Americas (June 2000) www.iai.int/files/communications/infosheets/IAI_ID_11_2000_Build_Capacity.pdf

IAI Infosheet: The IAI–University of Miami Summer Institute on Interdisciplinary Science in the Americas (2002) www.iai.int/files/communications/infosheets/IAI_ID_15_2002_Summer_Institute.pdf

IAI Infosheet: IAI Has Invested over $10 Million in Research and Network Building: The Collaborative Research Network Program (CRN) (2002) www.iai.int/files/communications/infosheets/IAI_ID_17_2002_CRN.pdf

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IAI Infosheet: The IAI Science Agenda (November 2003) www.iai.int/files/communications/infosheets/IAI_ID_24_E_2002_Science_Agenda_REV_2003.pdf

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IAI Infosheet: The IAI Data and Information System (March 2004) www.iai.int/files/communications/infosheets/IAI_ID_26_E_2003_IAIDIS.pdf

IAI Infosheet: El Sistema de Datos e Información del IAI (March 2004) www.iai.int/files/communications/infosheets/IAI_ID_26_S_2003_IAIDIS.pdf

IAI Small Grants Program Call for Human Dimensions Proposals https://iaibr3.iai.int/twiki/pub/IAI/IaiServicesReception/IAI_SGP_HD_Call4Proposals.pdf

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How to Improve the Dialogue between Science and Society: The Case of Global Environmental Change. www.iai.int/files/policy_brief/Policy_Brief.pdf

### The following documents were made available to the ERC from the IAI DIR and are available from the DIR upon request.

Inter-American Institute for Global Change Research Ad Hoc Committee on Relations with Member States, First Meeting, Sao Jose dos Campos, February 5–6, 2004, CRMS_background.doc

List of Country Representatives to the IAI EC/CoP from late 2005

Country Ratification.xls

IAI External Review Committee Terms of Reference Draft; Terms of Reference.doc

ECXXII & CoPXIII, May 22–24, 2006, Venezuela EC Agenda

ECXXII & CoPXIII, May 22–24, 2006, Venezuela CoP Agenda

ECXXII & CoPXIII, May 22–24, 2006, Venezuela Minutes of the EC XXI

ECXXII & CoPXIII, May 22–24, 2006, Venezuela Minutes of the CoP XII

ECXXII & CoPXIII, May 22–24, 2006, Venezuela Informe del Presidente del Consejo Ejecutivo

ECXXII & CoPXIII, May 22–24, 2006, Venezuela Report of the Director and Scientific Officer

ECXXII & CoPXIII, May 22–24, 2006, Venezuela Report of the Standing Committee on Rules and Procedures

ECXXII & CoPXIII, May 22–24, 2006, Venezuela Annual Program

Summary of Member Countries' Priorities Regarding Global Change (RWMS-mar04/Letter_Authorities/RepliesPRIORITIES.rtf)
IAIDIR–079/06 Communication to EC from DIR re: IAI TWiki Website, October 20, 2006
IAIDIR–012/06 Communication to EC from DIR re: IAI TWiki Website, April 7, 2006
AAAS–2006.07.12.ppt from Dr. Paul Filmer's Presentation to the ERC, July 12–13, 2006
SAC24_EC23_Rpt_Dec06.ppt
Country Summary Reports:
Argentina–2page.doc
Bolivia–2page.doc
Brasil–2page.doc
Canada–2page.doc
Chile–2page.doc
Colombia–2page.doc
Costa-Rica–2page.doc
Cuba–2page.doc
Ecuador–2page.doc
Guatemala–2page.doc
Jamaica–2page.doc
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USA–2page.doc
Venezuela–2page.doc
CRN_II_Compose.xl
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CRN_II_Institutions by Project & by Country.xls
CRN_II_Summary_Investigators.xls
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Draft chapters of the SCOPE Report from Ubatuba Meeting: Foreword
Draft chapters of the SCOPE Report from Ubatuba Meeting: Legal Frameworks and Biodiversity-related Projects: Ownership and Control of Biodiversity and the Impact on Science and its Objectives
Draft chapters of the SCOPE Report from Ubatuba Meeting: Institutions as Initiators and Users of Science: Historical Context for Science-Institution Interdependence
Draft chapters of the SCOPE Report from Ubatuba Meeting: Stakeholders and GEC Science
Draft chapters of the SCOPE Report from Ubatuba Meeting: The Challenge of Steering Research towards Policy Relevance: Lessons Learned from 10 Years of the Inter-American Institute for Global Change Research (IAI) Projects
Draft chapters of the SCOPE Report from Ubatuba Meeting: Chapter 4, Delivering Global Environmental Change Science to the Policy Process
Draft chapters of the SCOPE Report from Ubatuba Meeting: Chapter 5, Communicating Science to the Media, Decision Makers and the Public
IAI Infosheets IAI_ID_5_E_1998_IT_Workshop.doc

**The following information was supplied by the NSF to the ERC with the permission of the IAI and is available upon request from the IAI.**

Below are notes pertaining to the contents, followed by a complete listing of the files in hand.

Country Ratification – an Excel file with the relevant dates of countries' joining the IAI
CRMS_background – a Word document with materials prepared for a 2004 meeting of an IAI committee to improve relations with member states
IAI Agreement – a PDF file with the text of the IAI Agreement, to which the countries sign on to join the IAI
Infosheets – a folder with PDF files of "Infosheets" prepared by the IAI Directorate; distribution mechanism unknown
Newsletter – a folder with PDF files of recent issues of the *IAI Newsletter*, from Issue 24 (February 2001) through Issue 36 (December 2004) and the renumbered Issue 1 (2006)
PI Lists – a folder with PDF files listing principal investigators (PIs) involved in a subset of IAI programs (CRN–1, PESCA, and ISP–1, –2, and –3). Unfortunately, the IAI database system currently does not have the reporting ability to cover older and current programs in this format.
Project Reports – a folder with PDF files of all Interim, Annual, and Final Reports submitted through NSF's

electronic reporting system.* The reports cover the following:

Core grants, representing the U.S. contribution towards the IAI Core Budget from 1999 through 2005, supporting the operations of the Directorate and the Scientific Advisory Committee (SAC). Some of these awards are single-year awards, some are multiple-year awards.

CRN1, or the first round of the Collaborative Research Network, active from 1999 to 2003

CRN2, the second round, from 2005 and currently active

PESCA, or the Program to Enhance Scientific Cooperation in the Americas, a program to add one year of collaborative work with then-existing CRN1 projects. Two final reports were submitted with #2 representing the collation of all subreports. #1 was submitted for NSF deadline purposes. Active from 1999 to 2004.

SGP1, or the first round of the Small Grants Program, active from 2002 to 2004

SGP2, the second round of the Small Grants Program, active from 2003 to 2006

Terms of Reference – for the ERC
Core00–01 Annual Report.pdf
Core01–02 Annual Report.pdf
Core02–03 Annual Report.pdf
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Core99–00 Annual Report.pdf
Core99–02 Final Report.pdf
CRN1 Annual Report 1.pdf
CRN1 Annual Report 2.pdf
CRN1 Annual Report 3.pdf
CRN1 Annual Report 4.pdf
CRN1 Annual Report 5.pdf
CRN1 Annual Report 6.pdf
CRN2 Annual Report 1.pdf
ISP3 Final Report.pdf
PESCA Annual Report 1.pdf
PESCA Final Report 2.pdf
PESCA Final Report.pdf
SGP1 Final Report.pdf
SGP2 Annual Report 1.pdf
SGP2 Annual Report 2.pdf
SGP2 Final Report.pdf
CRN_PI_CoPI.pdf
ISP1_PI_CoPI.pdf
ISP2_PI_CoPI.pdf
ISP3_PI_CoPI.pdf
PESCA_PI_CoPI.pdf

# Appendix IV – Report on Site Visits to IAI Directorate

IAI ERC project director Robert Swap made a site visit to the IAI Directorate during the period August 24–29, 2006. During the visit, he interviewed the entire Directorate staff. He also gathered a set of documents concerning the operations of the IAI and made observations of the organizational dynamics of the Directorate.

Given the proximity of the Directorate to the location of the current chair of the IAI EC, Swap also visited and interviewed Dr. M.A. Silva Dias at CPTEC.

Information gained during this visit was compiled and distributed to all members of the IAI ERC as part of the background material for the December 2006 meeting in San Francisco.

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