

## **Background paper for the 20th Conference of the Parties IAI principles of operation on science synthesis and decision making.**

To provide guidance for the decisions on the IAI's future directorate operations, the following delineates rules and objectives from a series of binding agreements, external reviews, and the strategic plan adopted by the Conference of the Parties, as they relate to principles of IAI operations, the mandate for synthesis, integration and communication of its science, and the development of future science directions. There are two lines of arguments in this documentation:

- 1) The need to expand IAI structures and activities towards an enhanced synthesis and integration of scientific results to provide critical knowledge at the science-policy interface derives from fundamental IAI mandates, is re-enforced by external reviews, and confirmed by the strategic plan adopted by the Conference of the Parties. Accordingly, the 19th Conference of the Parties agreed that new positions should be created, based on the opportunities of a tripartite hosting arrangement, to further develop the tasks of science synthesis and integration to provide knowledge for and enhanced integration with decision making and policy, and initiate a dialogue with the users of science towards shaping future science efforts.
- 2) The flexibility, small size, and non-hierarchical, consultative mode of operations of the IAI is critical for the adaptability required to be successful in pioneering capacity building in interdisciplinary, international science for informed decision making.

The text in **green** are quotes from IAI documentation:

The IAI's founding is based on the DECLARATION OF MONTEVIDEO in which "the Representatives stressed that scientific interests should be the driving force in the implementation of the Institute's research programs and the development of specialized facilities within the Institute's network, including its affiliated and associated research institutions." In addition to the first center of excellence established in 2011, at this time, the IAI wishes to establish such specialized facilities within a distributed directorate structure. This has been endorsed by the 19th Conference of the Parties.

In the AGREEMENT ESTABLISHING THE INTER-AMERICAN INSTITUTE FOR GLOBAL CHANGE RESEARCH, "the Parties, CONSIDERING that policy makers are in need of accurate information and sound analyses concerning the causes and the physical, social, economic and ecological impacts of global change; HAVE AGREED" that the Institute shall "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". This implies that the IAI is called upon to process and synthesize the scientific data generated in the projects it funds for the purpose of communication to aid decision making. Integrating scientific data on a continental scale requires scientific, intellectual, modelling and computational capacities that the IAI directorate can only access through collaboration. The coordination of this collaboration is to be the responsibility of the new directorate. The "need for accurate information" implies a feed-back from data analysis to

new data acquisition and future program planning.

The process is guided by the Conference of the Parties which "shall be the principal policy-making organ of the Institute, review periodically and approve, on the basis of recommendations of the Scientific Advisory Committee, the Scientific Agenda of the Institute and to consider and approve its long-range plans... taking into account: The need to integrate research on global issues through cooperation among research institutes, among States and among the different parts of the Inter-American region, and with regional and international global change research programs." The Agreement also established that "the Institute shall have an evolving Scientific Agenda, ... on such regional issues as the Conference of the Parties shall determine." The Agreement thus foresees a broadly consultative process to guide IAI science. Given the IAI's mode of operation based on external grants and open calls, the shaping of science outcomes is an interactive process between existing science projects coordinated by the directorate in consultation with the IAI governing and advisory bodies. No single position or person can take on the complexity of this process.

After the IAI's first 10 years, the American Association for the Advancement of Science was asked to review the IAI program. The AAAS External Review Committee (ERC) has made significant recommendations concerning the need for science synthesis and integration towards policy use.

"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 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." An opportunity for that regional support is provided by the tripartite proposal aiming at improved communication of science outcomes. This requires integration, translation and communication of research program result. The task for the coming months will be to direct that opportunity towards new and effective mechanisms to fulfil the IAI's mandate.

The importance of a broad consensus-building in determining IAI science programs and fulfilling its mandates is emphasized by the ERC: "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." This implies a dialogue that can both communicate science results and provide input towards shaping future science activities.

While the science agenda has stood the test of time, output from the science programs not only needs to be further developed, but also become more measurable: "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". The monitoring of science output and integration into the policy process, and the provision of metrics for success requires increasing directorate staff capacities at a high level of analytical expertise. This is further elaborated:

Based on IAI's "successful process of selecting groups of projects that have international appeal, are regionally relevant, and complement each other", the ERC made the following recommendation: "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". Such integration and synthesis is critical to measure success, as the ERC stated: "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 across-project synthesis has been initiated by the directorate but there is still considerable scope for value-added activities.

Integration and synthesis are seen as critical steps for science dissemination for informed decision making: "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 processes of science synthesis, communication and formal linkages to stakeholders must therefore be closely coordinated. This external review thus recommends a mode of operation by which cross-project syntheses guide science integration and the products of such synthesis and integration be used in a dialogue with member states, stakeholders and scientists. The IAI has over the past 5 years made considerable progress in combining the established practices of open calls based on the science agenda with dialogue and consultations with scientists and stakeholders towards use-inspired science. In addition, the IAI is now asked to develop measures of the successes of its science outcomes.

The AAAS review was followed in 2010 by an unsolicited review conducted on behalf of OECD that explored the functioning of successful international science organizations. Some relevant statements in the OECD review are: "the IAI has the potential to ensure informed policy action. It aims at making science available to decision making. That is to redefine the science, to synthesize it toward a shape and form that can be read and used by decision makers, by civil society, and by social actors."

The new offices aiding the Directorate in this process correspond to the OECD opinion that: "the biggest challenge is that IAI has to be able to present complex findings in an understandable and applicable way. This will enable IAI to communicate information on the decision that is needed, i.e., evaluate trends, communicate risks and the opportunities within this context. Data integration, discovery, and interconnectivity needs to be improved, protocols for data sharing among projects need to be defined; metadata display and visualization tools need to be developed; an interdisciplinary thesaurus should be developed."

The review also foresaw that this task will benefit from involving others beyond the IAI directorate: "the Institute could consider extending its partnerships and collaborate more with complementary organizations to jointly study issues such as risk, vulnerability, and adaptation" in order to fulfil "the IAI's mission, in which the critical point continues to be translating scientific knowledge into informed action."

Following the ERC's evaluations, and on the basis of the IAI's fundamental mandate and mode of governance, the Conference of the Parties approved a Strategic Plan which addresses the questions of determining the science directions and coordinating science output. The Strategic Plan closely links synthesis with science direction and recognizes that "proposals are thematically based on the IAI Science Agenda and their scientific excellence is assessed through a merit-based peer review system. Priority-setting is based on input from a broad cross-section of the science community in member countries, from the IAI Conference of the Parties, its committees including the scientific advisory committee, and from interactions with other international programs and conventions. The formulation of research needs by member countries and through syntheses of science programs provides an opportunity to formulate project themes, which can be used in a top-down approach to calls for proposals. At the same time, the IAI will promote a bottom-up approach of open calls in order to harness the creativity of the Continents' science communities... The Directorate plays an active role in developing science syntheses aimed towards the support of informed policy.... The IAI strengthens the regional relevance of the IAI research portfolio by focusing its science on the topics of exposure, risk, vulnerability, and adaptation to global environmental change and develops new mechanisms to foster collaborations among scientists of the region, such as initiating "across-project" synthesis activities involving both scientists and stakeholders... The efficiency of translation of science to the decision-making process must be further developed."

"The IAI's development of regional problem-oriented and policy relevant science requires innovative integration across disciplines that will be further consolidated in future programs. Modes of interaction must be further developed and rewarded by funding and career evaluations. This requires innovative science governance, which the IAI will further explore with its institutional stakeholders and funding partners. Scientists need to be motivated and provided with incentives for activities beyond pure disciplinary research, while at the same time institutions must be induced to engage in integrated, cross-disciplinary work and support their scientists in innovative policy-oriented approaches to knowledge generation while maintaining and assuring science excellence." There is a "need for an integration of objectives between global change response strategies and sustainable development priorities, and for a better articulation of GEC science with broader development issues including development and equity."

The strategic plan clearly recognizes the importance of consultative process, and rejects a top-down science implementation that would not generate the motivation of the science community to collaborate towards the goals of the IAI: "the success of IAI in developing a coherent, effective program has been achieved to a large extent through the ingenuity of researchers and project managers who found ways to cooperate and conduct their work at

institutions with different modus operandi in different countries.... This management mode will be continued in future programs to foster both creativity and accountability."

Developing the science synthesis and integration further through an expanded directorate supported by member governments and institutions is a key challenge to the IAI: "the Institute has further potential to provide valuable guidance to decision makers at all levels, from high-level government agencies ... to local resource managers and operational agents. Future efforts will benefit from such assessments to facilitate an evolving strategy and implementation plan." The expanded directorate aims at developing durable alliances with users of science that will allow feed-back to IAI's evolving science.

The AAAS ERC recommended to base IAI's program development and implementation broadly, and IAI has taken the necessary steps to decentralize the consultation and decision making processes following that advice: "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 Agreement Establishing the IAI, also, aims at a broad consultation process to govern, direct and conduct the science of the Institute, in which the CoP and SAC play critical roles, and the executive director is responsible for implementation and outcomes. The SAC shall "make recommendations to the Conference of the Parties ... Direct the peer review system ... Assess the scientific results"; while the responsibility for the science program and its application to informed decision making rests with the Director who "shall be responsible for the day-to-day operations of the program of the Institute and the implementation of the policies approved by the Conference of the Parties in accordance with the direction provided by the Executive Council, and to cooperate with the Executive Council in those regards".

The Brazilian proposal for the tripartite Directorate recommends the installation of a new science director with sweeping responsibilities for the planning and conduct of IAI's science, whose job description includes responsibilities of the assistant directors, the director, and in part also of the CoP. This is in profound conflict with the Institute's mode of operation which relies on consensus building and broad consultations with minimal hierarchical structures. It is also in conflict with the Agreement establishing the IAI and subsequent recommendations on governance and decision-making structures.

The Agreement establishes the Directorate as the "primary administrative organ of the Institute" which is "composed of a Director and staff", where the Director shall be the highest executive officer of the Institute". The Directorate is composed of the Director, Assistant Directors for Science, Finance and Administration and Capacity-Building and Managers for Information Technology and Science Programs and assistants. Following the recommendations of a Myers-Briggs Type Indicator (MBTI) team assessment

conducted in early 2009, the Directorate has operated with a management structure of minimal hierarchies, direct communications and streamlined operations. The flexible motivational approach has enabled the organization to effectively harness the skills and competencies of individual staff members and provide a dynamic for staff development. The considerable success of the IAI directorate with its small staff who work over a large geographic and disciplinary reach, critically depends on this management structure and the resulting levels of motivation.

An example of the potential for damage by unsuitable management and direction is provided by the Assistant Science Director who had been hired in October 2009 when the synthesis process for the science programs was first discussed with the scientists. His demands for rigid reporting structures and inefficient hierarchical practices resulted in the duplication of efforts, lack of cohesion in science coordination and unnecessary bureaucratic burdens which led to a series of problems that affected operations well beyond the science program. Outside the brief tenure of this hierarchical model, the Program Manager, for instance, has worked in the science team and also directly with the Director to strengthen effective coordination and enhance rapid decision making for strategic outreach activities that communicate IAI activities to UNFCCC and other UN-related activities. This has resulted in a continued, innovative presence of the IAI at the Convention. It is important that the management structure of the Directorate maintain its cooperative, non-hierarchical, flexible and highly effective form and outlook if the overarching goals of the IAI are to be attained.