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**IAI Strategic Planning**

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Draft Report on the development of the IAI strategic plan.  
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## PREAMBLE

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 IAI developed a Science Agenda to guide its work, stating that it should be dynamic and should evolve to permanently incorporate new scientific priorities and to address changes in the needs of the region's countries. Accordingly the Conference of the Parties (CoP) has regularly asked the Directorate to review the science program taking into account the current research program and the science achieved to date.

In 2007, an External Review Committee appointed by the American Association for the Advancement of Science (AAAS) found that over the past 13 years, the Institute has largely proven its worth and has had notable achievements.

*“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. .... 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”.*

Good communication between scientists and decision makers is extremely difficult to achieve. All governments in the Americas list such cooperation as one of their own important challenges and regularly call upon their own ministries and educators to find means of improving it. Thus for the external review to issue a similar challenge that “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”, is an indication of need. Improved dissemination of research results to decision makers, and formulation of research results that are more actionable are needed to gain the interest and support of end users. To date there has been no consensus among governments as to how this might be achieved.

This initial success of IAI in overcoming national and institutional prejudices and dogmas, and to develop a coherent effective program has been achieved to a large extent with 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. Methods of collaboration were often quite different among projects and all successful projects proved capable of adjustment to fit specific project and science objectives. All of this work was achieved while maintaining financial controls that have stood up to international scrutiny. It should not be surprising that examples of successful collaboration in some IAI projects show great diversity. The interdisciplinary and international efforts by scientists in these programs were characterized by a marked expansion of comprehension of the scientific issues and their societal and natural contexts. It would be extremely difficult to specify rules for interaction between social

and life scientists and decision makers. Instead one can document examples of successful cooperation from several projects and distinguish techniques that have worked in specific cases.

The IAI Scientific Advisory Committee has concluded that the science agenda does not require revisions but that its implementation and the needed interaction with decision makers needed further development. Attention therefore must be focused on the methodology and manner in which the agenda is implemented.

#### SCIENCE INPUT TO DECISIONS

##### Institutional Experience

Experience over 5 to 6 years with the first Collaborative Research Network (CRN I) program provided valuable experience to the Directorate showing that cooperation among scientists and institutional decision makers could be strengthened and stimulated. Therefore, when implementing the second network CRN II, IAI Directors were very active in stimulating and amplifying comprehension of scientific cooperation and ensuring stronger institutional participation, understanding, decision making and management. GEC science requires qualities in scientists and university or institutional administrators that increase their capacities to appreciate necessary interaction and cooperation. Those who understand and write acceptable and fundable GEC proposals have already been able to broaden their scientific understanding and interact with different disciplines without losing focus in their own area. Similarly administrators at many institutions that have experience with GEC management issues, have greater international and collaborative experience.

IAI Directors have found that more consultation and internal program reviews allow comprehension and interaction with decision makers to expand. Programs under this mode of operation are not fixed from the start. Interaction with decision makers is expected from project formulation and throughout the project. Regular workshops and assessments keep interaction among all participants active and current. All of this activity encourages interaction with decision makers and should lead to informed decisions.

##### IAI Scientific Program Experience

The SAC's recommendation that the existing wording of the Science Agenda was still valid in today's context was made in full realization that the basic understanding of GEC Science has greatly improved and expanded and is quite different from that when IAI started in 1994. In summary form it can be stated that currently there is a much better understanding of the connectivity within earth system process (ESP) and between ESPs and human systems. GEC monitoring technology has advanced, providing a better understanding of changes in land use, air and water quality.

Similarly GEC science co-ordination is becoming routine and sophisticated, and is essential for understanding regional through global environmental processes that transcend national boundaries. Decision makers (e.g. governments, private sector, small stakeholders) all have attempted to monitor and predict environmental change with partial success towards mainstreaming GEC into decisions.

Following major reports such as the Millennium Ecosystem Assessment (MA 2007) and a major study on Food Sustainability ( IAASTD, 2009), the range of stakeholders has increased (not just the domain of GEC science) with the result that there are greater

demands for research and funds. Recent studies confirm GEC will stress geopolitical relations (e.g. IAASTD 2009, MA 2007, IPCC 2008). Moving beyond identifying GEC issues to developing solutions (amelioration through to adaptation) will inevitably require local through hemispheric collaborations. As, GEC science is increasingly integrated with other societal concerns, it competes for funds with other science themes.

#### Specific examples of IAI Development

As already outlined in the AAAS report, IAI has been remarkably successful on many fronts including:

Developing the capacity of young scientists and creating a viable GEC informed network throughout the region by means of training institutes (including forums for decision makers). Thus, as well as improving scientific capacity in several GEC areas with increasing international recognition of this science, the IAI network has developed a trust and confidence amongst researchers and institutions that allows for early sharing of findings, techniques and instrumentation. For instance, researchers studying functional changes in South American terrestrial ecosystems as a result of land-use and climatic changes have developed LechuSA a web based arena for the identification monitoring and understanding of these transformations ([www.lechusa.UNSL.edu.ar](http://www.lechusa.UNSL.edu.ar)). This will allow more effective integration of knowledge and ideas on ecosystem changes to guide South American societies in their decisions.

Developing a culture of scientific collaboration among researchers and different institutions throughout the region has for example included the monitoring of strong phenological signals provided by grasslands and tropical dry forests in the Americas to provide unique information on the long-term response of these ecosystems to GEC. The phenology tower monitor developed for one CRN project has been shared with other IAI projects looking at agricultural and other land use systems. This network of networks will help develop a unique capacity building in the IAI countries involved (Mexico, Costa Rica, Brazil, Uruguay and Argentina). The work conducted, using the phenology and environmental monitoring instruments as tool to characterize ecosystem response to climate change, will expose all participants to advanced techniques for environmental monitoring via Wireless Sensing Networks.

Workshops have played a critical role in training the next generation of GEC scientists that can readily engage in interdisciplinary research and assessment (social/natural sciences). Of particular importance in this regard have been the Dahlem type assessment workshops (SCOPE 2007, 2008) that bring together social and life scientists to fully understand the implications of project results.

Already some of the scientific results have been incorporated into decision-making (e.g. several examples including the incorporation of results from biodiversity research in the UN Convention on Biodiversity, the acceptance of IAI-Tropidry remote sensed maps for legally binding landuse decisions in Costa Rica, or the integration of ecological knowledge into the new Chilean Forestry code.

In an important recent development, IAI has successfully coordinated teams from social and natural sciences with diverse support from several National and International agencies and funding organizations to provide research and policy advice in the La Plata region. The La Plata Basin, the fifth largest basin in the world, presents a large diversity of challenges, from its vulnerability to notable positive trends in precipitation and stream-flow, to the management of hydropower production and use of land for food production and recreation. The scientific community is thus confronted with challenges of significant magnitude, since important natural resources and the quality of life of a large population are at stake.

### Strategic Plan Purpose and Definition

The purpose of the Strategic Plan is to ensure IAI continues to be well placed to lead GEC science over the next 15 years given that the “GEC landscape” has evolved substantially since the mid-1990s. However a danger here is that if the mandate becomes too specific and too prescriptive, it could exclude important innovative action. Given the range of potential effects of GEC science it might be counterproductive to get too detailed and confine potential areas of research. The present definition “To develop the capacity of understanding the integrated impact of present and future global change on regional and continental environments in the Americas and to promote collaborative research and informed action at all levels” allows more participation.

Societal and policy relevance of science is determined by attributes that should be learned through a dialogue between science, society and policy sectors. Multiple entry points will be required. 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. Special opportunities exist for the IAI to lead global change research by communicating its scientific results through the regional and other international assessments.

GEC science must continue to be the highest caliber since this is IAI’s greatest asset and must not be compromised. GEC science remains the lens through which all other issues are seen. IAI must maintain institutional flexibility and use a variety of integrative approaches to improve the societal relevance of GEC science both during and after the project operation. For example, training institutes have been successful in engaging new participants working on interdisciplinary problems: can this sort of mechanism be expanded to senior policy makers dealing with complex problems?

IAI has developed a set of very effective techniques to advance GEC science (CRNs, institutes, etc.) that are consistent with resources available to IAI and aim to maximize IAI’s impact. It is important that in taking on new GEC challenges that IAI not overreach or become too diffuse over the next 15 years.

The IAI needs to embrace a diversity of views in order to tackle emerging GEC issues in the Americas. Liaison with other agencies should be maintained and expanded as IAI can learn from the diverse ways in which other cultures and institutions address social dimensions of GEC.

The current agenda allows the IAI to continue with understanding the “integrated impact” and “collaborative research” parts of its mission while continuing to concentrate

on “informed action” It is important that IAI must facilitate further development of “informed action” over the coming years but NOT at expense of scientific rigor.

## CONCLUSION

IAI should continue working with the current science agenda, which includes four broadly defined areas. The implementation of this agenda is composed of science programs and funded research plus capacity building activities involving training institutes and focused workshops that assess programs and synthesize results. Workshops assessing amelioration of GEC regional problems should actively share and debate findings with decision makers at all levels prior to, during and at the conclusion of the research program. More decision makers should be involved in all aspects of the research program.

Implementation and management of these activities should continue to develop with greatly increased interaction of ranges of decision makers with a broad range of scientists (e.g., social economic, engineering, health, natural etc). Research teams working on human and ecosystems across the Americas should be encouraged to complement and augment programs by sharing knowledge, scientific techniques and findings.

This means that IAI management of such programs will involve more interaction and guidance by the Directorate, but will still build on the innovation that GEC research participants bring to the program. IAI should plan on the possibility of developing opportunities arising from existing research with complementary research and training, and this should be reflected in budgets and Directorate staff. Specific attempts must be made to have more interaction with senior decision makers in national and civic Governments and Industry.