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CONFERENCE OF THE PARTIES TO THE INTER-AMERICAN INSTITUTE FOR GLOBAL CHANGE RESEARCH
Twenty-seventh meeting
Brasilia, Brazil, 5 - 6 June 2019
Agenda item 19

Report of the IAI Directorate

Science-Policy

1. This document has been prepared by the IAI Directorate.

Background

2. The preamble of the *Agreement Establishing the Inter-American Institute for Global Change Research* states:

> *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.*

3. Article II, *Objectives*, paragraph (f) of the *Agreement* states:

> *Improve public awareness and provide scientific information to governments for the development of public policy relevant to global change*.

4. The Conference of the Parties, at its 21st meeting (Montevideo, 2013), adopted Decision XXI/13 which states:

The CoP approved the establishment of an Advisory Committee on Science-Policy Liaison. The committee will provide advice to the CoP and the IAI Directorates on how to use and design science for policy and decision-making.

5. The IAI Science Policy Advisory Committee (SPAC), at its joint meeting with the Scientific Advisory Committee on 18 June 2018, which was held back-to-back with the 26th meeting of the Conference of the Parties (Antigua, 2018) (CoP-26), made four recommendations on activities[1] related to science-policy, which were adopted. The Conference of the Parties at its 26th meeting (CoP-26, Antigua, 2018) adopted Decisions XXVI/8, XXVI/9, XXVI/10 and XXVI/11, which state, respectively:

> *The Conference of the Parties directs the Executive Council and the Standing Committee for Rules and Procedures, with the support of the IAI Directorate, to draft rules of procedure for election of the Science-Policy Advisory Committee for consideration at the twenty-seventh meeting of the Conference of the Parties.*
>
> *The Conference of the Parties directs the Scientific Advisory Committee and the Science-Policy Advisory Committee to hold its meetings, physical and virtual, jointly.*
>
> *The Conference of the Parties decided to re-schedule elections to the Science-Policy Advisory Committee to its twenty-seventh meeting.*
>
> *The Conference of the Parties instructs the Directorate, in collaboration with the Science Advisory Committee, the Science-Policy Advisory Committee and interested Parties, to draft a new IAI Strategic Plan for consideration at the twenty-seventh meeting of the Conference of the Parties.*

6. This document summarizes activities undertaken in support of these recommendations as well as other activities.

Activities related to Science-Policy Advisory Committee Recommendations

7. The IAI Directorate drafted Rules of Procedure for the SPAC, contained in document no. IAI/COP/27/9/Annex 2, *Report of the Science Policy Advisory Committee*, for consideration by the 27th meeting of the Conference of the Parties (CoP-27, Brasilia, 2019). The report also describes activities of the SPAC during the 2018-2019 intersessional period including the drafting of a new IAI Strategic plan and its contributions to the updating of the IAI Scientific agenda.

[1] IAI Science Policy Advisory Committee (SPAC), *Report of the 2nd Joint Meeting of the Scientific Advisory Committee and the Science Policy Advisory Committee*, 18 June 2018 (see: http://www.iai.int/wp-content/uploads/sac-spac-2-1-e.pdf)

Science policy impacts from Collaborative Research Network (CRN3)

8. During fall 2018, the IAI's third Collaborative Research Network (CRN3) concluded its projects after six years. This final year was a capstone for the multi-national, transdisciplinary program, and the primary focus of activities was on linking the results of the projects to assist in the development of public policy in the Americas. A summary of project results is available in Annex 2 of this report

Establishing working relationships with multilateral environmental agreements and organizations

9. The approach adopted by the IAI Directorate when undertaking activities is multi-facet and reflects awareness that urgent improvement in the provision of scientific information to governments is needed. It includes, but is not limited to: building on existing collaboration and establishing relationships with multilateral environmental agreements and organizations, where appropriate; working with Parties; raising awareness of the IAI to non-Parties and to Parties not engaged in IAI activities; engaging Parties in capacity building activities; and, partnering with the IAI scientific community, especially, its Principal Investigators, in the planning and implementation of these activities.

10. The IAI Directorate has established cooperation with multilateral framework agreements and mechanisms where decisions relevant to global change are adopted at a global level but impact also at the regional and national levels and reflect national priorities identified by Parties. For example, some IAI Parties take into account decisions under these frameworks and are often articulated by National Biodiversity Strategies and Action Plans, Nationally Determined Contributions, the United Nations Biodiversity Strategic Plan and its Aichi Targets, and the Sustainable Development Goals, among others.

11. The document on agenda item 18, *Report of the IAI Directorate: Global outreach and cooperation* (no. IAI/COP/27/18), describes in detail the working relationships established with multilateral framework agreements and mechanisms including but not limited to: the Convention on Biological Diversity, United Nations Framework Convention on Climate Change, Intergovernmental Panel on Climate Change and the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, among others. It also describes activities of relevance to the provision of information to governments. Parties are invited to take note of that document.

Working with Parties

12. Special efforts were made by the IAI Directorate to assist IAI Parties in enhancing their capacities with regard to processes related to science and policy, and also to involve Parties in IAI related science-policy activities.

13. The document on agenda item 17, *Report of the IAI Directorate: Capacity building* (no. IAI/COP/27/17), describes in detail the role of the IAI Directorate and Parties in these activities and the expected results of these efforts. Parties are invited to take particular note of paragraphs 12 to 30, of this report and recommendations 49 to 50 that aim at strengthening the development of science-policy capacities in IAI Parties, including the development of an IAI Science-Policy Fellowship program.

14. The Directorate notes that work with Parties also provides opportunities to understand the priorities at sub-national levels, including the municipal, local communities level. For example, the IAI Directorate met with and is in the process of establishing a Memorandum of Understanding to partner with the United Nations Office for South-South Cooperation (UNOSSC) on specific activities in Latin America. This evolving partnership focuses on the promotion of enhanced South-South cooperation, and triangular South-South cooperation with developed countries when appropriate. A result of this evolving partnership is the submission, in partnership with the QIAO Foundation, of a project on *International collaborative initiative for decarbonization and climate resilient governance in megacities of South America* which involves the municipalities of Buenos Aires, Argentina, Santiago, Chile and São Paulo, Brazil. The project is described in the publication *South and Triangular Cooperation on Climate Technologies, Regional Perspectives*[2].

Raising awareness of the IAI to non-Parties and to Parties not engaged in IAI activities

15. Special efforts were made by the IAI Directorate to meet with non-Parties and Parties not engaged in IAI activities during the intersessional period. These meetings stressed the role of the IAI in the provision of scientific information to governments for the development of public policy relevant to global change. Discussions also focused on the benefits that membership may provide, including: participation in IAI capacity building and science - related activities; enhancement of their scientific institutions and, by extension, their capacity to provide information to their policy makers; equal participation in a regional scientific and policy oriented community that is enhancing their influence in discussions in meetings and activities of multilateral environmental agreements and organizations; and, articulation of their national concerns and priorities in a regional context.

Recommendation

16. The Conference of the Parties is invited to consider adopting the draft decisions contained in the Annex to the present document.

[2] See: http://www.iai.int/en/post/detail/workshop-on-south-south-cooperation-for-climate-and-sustainable-development-progress-latin-american-and-caribbean-climate-week

Annex 1

Draft decisions of the Conference of the Parties

Science-Policy

Directed to the Parties

XVII/xx. The Parties are invited to establish a process or mechanism by which the IAI focal point would be able to present the outcomes and results of IAI scientific projects to decision makers for the development of public policy relevant to global change.

XVII/xx. The Parties are invited to identify to the IAI Directorate priority areas and research needs for policy and decision making related to global change.

Directed to the IAI Directorate

XXVI/xx. The IAI Directorate is instructed to establish a mechanism to inform Parties, through their focal points, of outcomes and results of IAI scientific projects that may assist in the development of public policy relevant to global change.

XXVI/xx. The IAI Directorate is instructed to assist the Parties in identifying priority areas and research needs for policy and decision making, as appropriate, related to global change and wherever possible, use this when designing and implementing its science program.

Annex 2

Science-Policy Impacts from Collaborative Research Network (CRN3)

CRN3005 on "Nitrogen Cycling in Latin America: Drivers, Impacts and Vulnerabilities" (PI Ometto) provided a broad integrative network to study, document and understand the processes that modify different aspects of the nitrogen (N) cycle using direct measurements and regional modeling techniques. Results of social dimensions analyses may be used to develop the first socioeconomic policies to manage N in the region.

Impact

CRN3005 catalyzed action at the international level (INMS, UNEP/UNEA, the Global Partnership on Nutrient Management, and the SBSTA), and regionally to the Brazilian National Inventory on GHG emissions and the RedeClima activities on Land Use and Land Use Changes. In Colombia, Chile, and Mexico, CRN3005 raised the profile of N and N emissions. In Argentina and Uruguay, the results on nitrous oxide emissions are being considered to manage crops and GHG emissions. Meetings with the Ministry of Agriculture in Uruguay led to establishing emission factors for nitrous oxide in national inventories. In Argentina, frequent meetings with global change and environmental authorities were held to discuss GHG inventories and regional emission factors. A nation-wide network has been formed in Argentina to foster the use of crop rotations with legumes to reduce fertilizers and improve soil quality, now widely accepted by both farmers and policy makers in the region.

CRN3025 "Enhancing knowledge exchange for conservation and management of tropical dry forests in the Americas (TropiDryII)" (PI Sanchez Azofeifa) has spent over six years filling critical information gaps on less-studied tropical dry forests (TDF) in Mexico, Costa Rica, Cuba, Venezuela, and Brazil. Investigators determined which ecosystem service frameworks could be best used by land-use/land-cover institutions in TDFs in the five countries, and worked with local partners to institute monitoring and modeling programs.

Impact

CRN3025 supports the development of policies that recognize cultural diversity, citizen rights, and social inequalities over objective economic and/or biological indicators. Researchers found that the type of protected area (e.g., restricted use versus sustainable use) is a large factor in the effectiveness of land use management. Sustainable use protected areas allow for indigenous/traditional uses and have positive conservation outcomes. Restricted use protected areas lead more often to conflict and illegal uses, thus contributing to deforestation. The group is in direct contact with decision-makers at the Brazilian federal level.

CRN3035 "Towards usable climate science: Informing sustainable decisions and provision of climate services to the agriculture and water sectors of southeastern South America" (PI Hidalgo) coordinated the work of social and natural scientists, in collaboration with government professionals and other stakeholders, to jointly frame, understand and tackle a cross-border issue such as the provision of climate services in Southeastern South America (SESA), facilitating sustainable agriculture and water resource management in four countries in a changing climate.

Impact

CRN3035 contributed to institutional and human capacity and to overcoming barriers for sustainable adaptation to climate variability/change in agriculture and water sectors. Best practices were created to inform design and implementation of national and regional climate services in the target region. As a result of CRN3035, a crop yield forecasting system for maize, wheat and soybean has been employed by Pampean farmers to plan their agricultural practices more efficiently and profitably. Paraguay is looking to implement a similar tool.

CRN3036 on "Land use, climate and infections in Western Amazonia (LUCIA)" (PI Barbieri) focuses on current and future vulnerabilities of selected socioecological systems in the Western Amazonian region to the impacts of coupled Land Use and Land Cover Changes (LUCC) climate change dynamics.

Impact

Because of CRN3036, Ecuador has changed policies regarding mining and has made advances on the implementation of an early warning alarm system to detect deforestation and malaria outbreaks in Ecuador. In Brazil, researchers have identified communities that are vulnerable to poverty and emerging health crises today and in the future. In Peru, results from mercury, anemia, adult lipid panels and micronutrients screening in children were reported back to participating families and their health care providers. During these meetings, the Peru and US teams were interviewed on live TV to describe the research, interpretations, and suggest ways of moving forward.

CRN3038 on "Sensing the America's Freshwater Ecosystem Risk from climate change (SAFER)" (PI Perillo) aimed to understand the influence of freshwater systems on the lives of those living around the basins, and how those people also influence the waterways. Investigators employed freshwater ecosystems as "sentinels" or "sensors" of climate variability and watershed processes.

Impact

CRN3038 SAFER used participatory approaches for guiding decision making around risk and water management issues and in some cases, included the development of policy guidelines. In Chile significant impacts on monitoring policy included: 1) monitoring now includes intact lakes as reference systems; 2) scientific design now includes pairs of large and small lakes and sites along climate gradients to monitor the range of climate drivers; 3) a 20-year update on previous baseline studies; and 4) incorporation of high-frequency sensor data. In Uruguay, the government approved the Management Plan for Laguna de Rocha, a major step in a 20-year process to create a participatory (local and national stakeholders) plan for the protected area. SAFER contributed to the threats assessment and risk analysis; and 4) three additional sites in Uruguay and Argentina are carrying out activities because of convening stakeholders and decision-makers that inform development regarding the interactions of ecosystem, economic and social aspects, including municipal waste-water treatment and lake management plans. Outreach in particular to children and young adults has been particularly successful. Publication of two books will train the stewards of the future.

CRN3056 "Innovative Science and Influential Policy Dialogues for Water Security in the Arid Americas (Aguascapes)" (PI Scott) took a novel perspective on trans-boundary water issues around hydroclimatic and landcover variability, water resource use, and institutional change. In addition to innovative science that integrates disciplines, it fostered influential policy

dialogues around water security in a manner that strengthens global change adaptation in the arid Americas. The Aguascapes project has seen two fundamental shifts in the research conducted by the team and partners, as well as interactions with decision-makers: 1) uptake of policy-relevant research on global change, and 2) modified research design based on decision-making criteria.

Impact

CRN3056 furthered institutional change in urban water management in the Sonora and Chihuahua regions, and Mexican water policies. They were successful in informing policymakers on institutional reform of water management in Mexico, both at the local and national levels, for instance through participation in the Congresses of the National Association of Water Utilities. A survey among researchers and stakeholders assessed the perspectives of desalination of sea water for export in the Gulf of California. Lastly, the team raised awareness about water security and demands of meeting sustainability and adaptation for water management in Mexico.

CRN3070 on "Variability of Ocean Ecosystems around South America (VOCES)" (PI Piola) focused on the mechanisms controlling the exchange of mass and biota between the marine ecosystems spanning the coastal regions of Peru, Chile, Argentina, Uruguay and southern Brazil, between these regions and the neighboring deep ocean, and their impacts on biogeochemical processes and key species. A pilot implementation of the Ecosystem Approach to Fisheries and co-management in the yellow clam fishery in Uruguay helped address ecological, economic and social issues. Projections on the future evolution of large marine ecosystems are dependent on the quality of projections of the low-level atmospheric circulation.

Impact

CRN3070 researchers took part in the report for G7 ministers, *Future of the Oceans and its Seas: a non-governmental scientific perspective on seven marine issues of G7 interest.* Investigators and IAI Directorate participated at the UN Ocean conference entitled *How scientific knowledge on oceans can contribute to the implementation of national action plans on climate and human-induced changes.* Data are also informing possible new marine protected areas and fisheries management under climate change in Uruguay, is one of the first co-management studies on small-scale fisheries in the region. PIs sit on the Scientific Advisory Board of the *Pampa Azul* Initiative, an Argentine inter-ministerial initiative. The project has also contributed to the evaluation and declaration of the Namuncurá/Burdwood Bank Marine Protected Area, declared by Argentina (Argentine Law 26.875, 2013).

CRN3076 on the "Effects of Anthropogenic Habitat Perturbation on Rodent Population Dynamics and Risk of Rodent Borne Diseases" (PI Bausch) evaluates the ecology and societal vulnerability to rodent borne diseases as a consequence of climate change and habitat perturbation in Peru, Ecuador and Bolivia. It aimed at developing low-tech, locally adaptable survey and interview tools to assess real and perceived societal vulnerabilities and risks of local communities associated with rodent borne diseases.

Impact

CRN3076 promoted policy discussions in the Peruvian Ministries of the Environment and Health. A symposium on "Policy Implications of Public Works in Pristine Habitats" for disseminated and shared the results with government policy makers and other stakeholders in Peru, Bolivia and Ecuador.

CRN3094 "Assessment of marine ecosystem services at the Latin American ANTARES timeseries" (PI Kampel) aims at understanding the impact that changes in the ocean have in the regulating and supporting ecosystem services provided by phytoplankton and connecting these ecosystem services with the human populations in the coastal areas of the ANTARES network sites in Argentina, Brazil, Chile, Colombia, Ecuador, Peru, Mexico and Venezuela.

Impact

CRN3094 investigators identified which factors regulate short-term dynamics and yield in several important fisheries. When combined with bioeconomic drivers of fisheries, this information is crucial for managing fisheries in the future. This research can help policy makers understand the limits to fisheries, especially if overfishing and climate change compromise their resilience. Case studies on tourism and fisheries in Ubatuba, Brazil are already guiding policy making at local and regional scales. Investigators are members of more than a dozen science-policy panels, committees and working groups in eight countries.

CRN3095 "Bridging Ecosystem Services and Territorial Planning (BESTP)" (PI Paruelo). The main goal of this project is to make operational the concept of Ecosystem Services (ES) for land use planning in southern South America, generating novel insights on ES theory and on the application of the ES framework for territorial planning. Research problems focus on land use changes (LULC) and ES loss in selected landscapes of Southern South America.

Impact

Designed to inform land and natural resource management decisions in southern South America, CRN3095 researchers worked closely with NGOs, local and national governments and private stakeholders, as well as conservation professionals to develop ECOSER, a tool set for incorporating ecosystem services into decision making. Examples of impact at multiple scales include setting up adaptive management units in commercial ranches with ranchers' associations and the Uruguayan Ministry of Livestock, Agriculture and Fisheries. Researchers worked with Chilean environmental ministers to mainstream ecosystem services in public policy. In Uruguay, investigators lead efforts with the Board of Livestock on Natural Grasslands, comprised of policy makers from natural resource management agencies, to incorporate the ecosystem services framework into sector policies. In Argentina, the deforestation database produced by BESTP contributed to court recommendations and bringing to trial those who are illegally deforesting in Salta.

In addition to the 10 projects listed above, seven smaller projects of shorter duration have previously concluded and provided real, practical guidance to policy makers and to institutions of science governance towards improving the generation and mobilization of knowledge in interdisciplinary problem- and solution-oriented projects:

CRN3097 "Intensive Training Program in Management of Social-Ecological Systems to Support Decision Making" (PI Balvanera). The project developed a short course on environmental research and management documenting the dynamics of establishing transdisciplinarity. A research project was co-designed between course participants, an NGO working in the Monarch Biosphere Reserve and inhabitants of the study area. Combining the understanding of ecosystem function and social vulnerabilities, the design of adaptive management options included sustainable ecosystem management practices, participative communication and education strategies, redesign of some community rules, technical maintenance interventions and bureaucratic (permitting) changes.

CRN3101 “Advancing good practices in building interdisciplinarity: Moving towards user-oriented science” (PI Saguier) aimed to reflect and improve the current practices of knowledge generation, mobilization, and use with respect to the social and environmental impacts of hydropower development and water-energy futures in South America. Fostering dialogue between diverse stakeholders is a crucial part of the process.

CRN3102 “Interdisciplinary science and development integration for adaptation to water scarcity in the Comahue region, Argentina” (PI Murgida) CRN3102 examined the design and progress of an apparently successful interdisciplinary science and development project to document challenges, and how progress is shaped by real problems facing development and adaptation to global change, by creating a practical scheme of interaction and feedback between science and development.

CRN3105 “Interdisciplinary science team skill building through the study of socioecological impacts from bioenergy development across the Americas” (PI Halvorsen) tested hypotheses regarding the effectiveness of transdisciplinary science teamwork skill building strategies in changing scientists’ beliefs about transdisciplinary science teamwork, increasing their self-perceived transdisciplinary efficacy, and creating effective solutions to global change problems. Lessons learned on team building for successful transdisciplinarity resulted in principles, processes, and tools that hold value for other groups beginning to form and manage their own interdisciplinary teams.

CRN3106 “Transferring climate knowledge in the science-policy interface for adaptation to drought in Uruguay” (PI Cruz) identified supply and demand for climate knowledge to support decision making for adaptation to droughts in livestock systems, strengthen communication channels between those who produce climate knowledge and those who can use it in public polices, and consolidate the Interdisciplinary Center for Response to Change and Climate Variability as a reference center for exchange of climate knowledge among science and public policies.

CRN3107 “Interdisciplinary research to improve information provision for decision making” (PI Mueller) set in place a system that provides relevant and useful information, serving the needs of public decision-makers to respond to climate variability and climate extremes. The project helps the Guatemalan government to improve drought response by improved information systems and inter -and intra- institutional cooperation.

CRN3108 “Coping with hydrological risk in megacities: collaborative planning framework for the Mexico City Metropolitan Area” (PI Bojorquez Tapia) developed a collaborative adaptation framework for hydroclimatic risks in the México City Metropolitan Area, by integrating actor-oriented and system-analytic perspectives on vulnerability and adaptation. The initiative provided a platform for social learning that empowers collective action.