

IAI Directorate Report
to the
Twenty Fifth Conference of the Parties,
for the period of July 2016 - May 2017

Directorate Initiatives and Events

Some progress has been made towards the implementation of the **tripartite agreement**. A valid framework agreement was signed with Argentina's MINCYT to regulate the operations of the Science-Policy Liaison Directorate. A new host country agreement may be required in the future. The host country agreement with Brazil remains in its 2016 impasse, but there is a readiness to initiate collaborative activities between IAI and Rede Clima, re-enforced by the potential think tank networking resulting from the November 2016 meetings involving Argentina, Brazil, Chile and potential European Partners (below).

In September 2016, the Executive Director met with ICSU and CODATA, initiating IAI participation in developing an **open data platform for Latin America**. The initiative is led by ICSU and chaired by Jorge Tezon of Argentina's CONICET. September meetings with France's Future Earth hub and with representatives of the IDDRI and BC3 Think Tanks have resulted in participation of BC3 in the October CRN meeting and plans for future collaborations, that are also linked to IAI's presence at the UNFCCC 2016 COP (see below).

In October 2016, a meeting of land, water and climate service CRNs was held in Mar del Plata, co-sponsored by the Province of Buenos Aires and with participation of national government representatives from Argentina, Paraguay and Uruguay. Outcomes include a process to establish collaborations between IAI-sponsored scientists and national emergency services. The initiative is led by the Science-Policy Directorate.

In November 2016, the Executive Director initiated the accession of the IAI to the **Belmont Forum**, at its annual meeting in Doha. The IAI membership was approved by vote, and will be implemented pending IAI participation in a Belmont call and the contribution to the Belmont Forum's core operations. An opportunity for a joint call may arise with a new small grant program. A draft for the IAI call text is part of the COP documents. There has been a suggestion that IAI may host part of the Belmont Forum operations as an in-kind contribution, to which the host nation, Uruguay, has shown a generally positive response. A decision and formal offer are pending.

Also in November, SPAC member Brigitte Baptiste and the Executive Director presented IAI experience in transdisciplinary science or sustainable development at a Workshop in the Rockefeller Foundation's Bellagio Centre. The event was co-sponsored by the UK's NERC and with future follow-ups aims at shaping strategies for global science funding.

In February 2017 the Executive and Capacity Building Directors presented IAI strategies at a transdisciplinarity workshop organized by ICSU/ISSC in Paris. This was followed up by the Science-Policy Director at a subsequent workshop in Chile. As a result, the IAI's substantial practical expertise in transdisciplinary research can now be shared with new initiatives by ICSU and the Belmont Forum in collaboration with European institutions which bring a more theoretical approach to TD.

In April 2017, The Executive Director made presentations to the Argentine Network of Cities on Climate Change and at the launch of a new program on sustainability science (CITIDES) initiated by Argentina's MINCYT.

Capacity building (coordination: Marcella Ohira)

Assessment of the IAI Training Institute Seed Grant (TISG) Program (November 2011-March 2016): The TISG program was an effective and innovative capacity building program. It allowed participants to continue engagement with the IAI beyond the Training Institutes and fostered the development of 11 interdisciplinary networks involving 68 professionals from 53 institutions in 15 countries: Argentina, Bolivia, Brazil, Canada, Chile, Colombia, Dominican Republic, Ecuador, Guatemala, Mexico, Panama, Paraguay, Peru, Uruguay, and the US. Seed grants improved the participation of professionals from small countries, and also improved the capacity to administer international grants in several institutions. The seed grants have been cost-effective while achieving multiple goals. The IAI spent a total of \$687,000 of the original grant of \$820,000 and leveraged \$178,995 in new financial resources and in-kind contribution for the 7 training events. Seed grant teams also leveraged an additional \$124,043 in new financial resources and in-kind contributions.

To assess the seed grant program, interviews with 37 PIs and key informants were conducted in addition to the analysis of 25 project reports and publications: participants reported knowing no other program that

- 1) engage young researchers with decision makers and other professionals from the Americas,
- 2) provide training in cutting-edge methods and concepts for transdisciplinary research,

- 3) expose young researchers to the team science process,
- 4) focus on achieving both scientific and applied policy results, and
- 5) provide funding to develop projects to apply the knowledge and tools imparted from the training.

IAI's approach encompasses all these elements with considerable impact, and fills a gap in training in interdisciplinary and transdisciplinary methods on the continent. For many researchers and professionals in the Americas, the program provided their first experience with ID and TD science. Each funded team could develop their own internal process for working together, which allowed participants to conduct transdisciplinary team science through experiential processes. Many noted that this experience was one of the most valuable experiences of the Capacity Building program. The participants were free to navigate the challenges and opportunities of teamwork on their own, but always had the support and mentorship from the IAI when needed. This approach allowed teams to self-organize and innovate in their team science endeavors, but also helped them overcome obstacles or to take advantage of emerging opportunities, such as leveraged additional funding. An important feature of the seed program was the experience of learning and practicing key elements for successful team building, co-framing of research questions, the development of transdisciplinary projects, and communicating and collaborating with stakeholders from start to end. This experience will encourage these professionals to engage in future ID and TD research.

Several participants, co-organizers and IAI collaborators recommended that IAI continue funding similar seed grant programs. It was suggested that this model can strengthen the IAI research programs. The seed grant model could be used as a platform on which new teams can be trained in the integrated GC research that IAI, and other GC institutions are interested in. Most importantly, seed grants contributed to collaboration across scientific disciplines and between the science and policy making communities at the regional scale with important outcomes:

- the development and continual improvement of the ID and TD training and team building over the 4 years of the grant as the IAI learnt from its implementation;
- the results of seminars and projects on different policy relevant global change themes; the diversity of professionals and institutions;
- the participation of different sectors, academia, government and NGOs, from many countries in the Americas.

Current IAI Capacity Building Program (2016-2019): The positive experience of the past TISG program in building multinational networks, applying training contents to real problems, and linking science with policy has fed into the design and development of a new series of IAI training events. Two Professional Development Seminars (PDS) were developed in 2016. These seminars have been expanded into two more in 2017. Ten interdisciplinary networks involving 48 professionals from 42 institutions in 16 countries: Argentina, Bolivia, Brazil, Canada, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, Guatemala, Jamaica, Mexico, Peru, Uruguay and the USA have been established in these IAI seminars. The networks have been working between seminar sessions for approximately 10 months to develop research projects and transdisciplinary proposals without funding provided by the IAI.

PDS on *Managing ecosystem services from Tropical forests*: the first part of the seminar was held in July 2016 in Costa Rica. The second part was held in May 2017 in Chile. IAI's partners and collaborators were Canada's University of Alberta (PI of CRN3025), the U.N. Economic Commission for Latin America and the Caribbean (ECLAC), Costa Rica's Ministry of Environment and Energy, Universidad Nacional de Costa Rica, and its National Forest Financing Fund (FONAFIFO). Twenty-one participants from 9 member countries came from universities, government agencies, non-governmental organizations and the private sector. Six collaborative groups were established at the PDS in Costa Rica. A senior mentor was assigned by the IAI to each group to support the work of the teams. These groups developed projects on ecosystems services from July 2016 to May 2017:

Team 1: "What do we know about legislation and application of ecosystem services in Argentina, Bolivia and Costa Rica? A comparative study"

Team 2: "Ecosystem services: an assessment and economic valuation of carbon sequestration in the forests of the Guanacaste Conservation Area in Costa Rica"

Team 3: "Implications on the Ecosystem Services of the Amboró National Park, Bolivia, under deforestation scenarios up to 2050, sharing experiences"

Team 4: "Impacts of change and climate variability (El Niño) in the mangrove of Tumbes (Peru) and Esmeraldas (Ecuador)"

Team 5: "Ecosystem services and well-being: a literature review"

Team 6: "Conservation strategies based on cattle ranchers' perceptions of ecosystem services."

FONAFIFO is interested in using the methodology and the information produced by one of the projects to discuss payment of ecosystems services with cattle ranchers in Guanacaste, Costa Rica. The IAI CRN Principal Investigator from the University of Alberta, Arturo

Sanchez, is working with the teams to publish Latin American experiences in managing and paying for ecosystems services. Three policy briefs on trans-boundary management of mangroves developed by one team will be shared with the Ministries of the Environment of Ecuador and Peru. All participants of the seminar jointly elaborated a declaration with take-home messages from the Costa Rica 2016 and Chile 2017 sessions, and the 10-month collaborations, available at:

<http://www.iai.int/wp-content/uploads/Declaraci%C3%B3n-Seminario-Final.pdf>

One open session of the PDS, hosted by ECLAC, was attended by some 60 policy makers, scientists, students, and representatives from the civil society. It was an opportunity for the IAI and invited speakers to share results and discuss climate change and water policies. Amongst others, lectures were given by Chile's IAI country representative, Gladys Santis (Ministry of the Environment) and the IAI Executive Director. The entire PDS was transmitted live. Webinars and interviews are available at <http://www.iai.int/?p=22322&lang=en>

Future IAI training seminars will also be transmitted as webinars to reach a wider audience.

Participants evaluated the entire experience of the 10-month process of 2 seminars and remote and highlighted: discussions between participants from different disciplines and sectors provided substantial insight into the process of developing transdisciplinary skills and understanding, the development of transdisciplinarity was a 2-step process: following a multidisciplinary integration, a joint vision developed towards application and user value. Although the issue of different languages between disciplines and confusion about goals and contents at the beginning of the capacity building process was brought up in discussions, there was a perception that a common language "was found" during the seminar in a process of co-learning, rather than being "taught" as a new skill. To some degree, the production of TD papers and policy briefs just "happened" through these interactions, without additional process or steered interactions. One useful tool to bring disciplines together is GIS in which different experts prepare their data for a shared system. The process of TD training, with its introductory week, team interactions during 10 months and final synthesis workshop was seen to provide a "conditioning to share", which includes a willingness to contribute to improving other sciences, and participate in community building. Several participants see TD facilitation as a process of personal growth, rather than just skill building. The impact of this professional growth clearly also related to the outreach to stakeholders and society implicit in transdisciplinarity: "As a scientist, I never related science to surrounding societal concerns. The IAI experience generated a willingness for engagement including in youth education."

This desire to carry the message further may provide future opportunities to engage in training educators in GC science-society interactions and with decision-makers.

Professional Development Seminar on *Interdisciplinary Approaches to integrating Policy and Science for Sustainability*: the first part of the seminar, attended by 27 participants, was held in November of 2016 with the Dominican Republic's Ministries of Environment and Agriculture (with national representatives to the IAI Zoila Gonzalez, Environment Vice-Minister, Pedro Garcia, Head of the Climate Change Division), Juan Mancebo (Ministry of Agriculture), Carol Castro (Dominican National Climate Change Council). Scientists, decision makers and representatives from the public and private sectors and civil society from 15 countries participated. Four teams were established which worked on TD proposals to be submitted to national and international funding agencies on the themes of : Water governance in Latin America: A transdisciplinary assessment based on IPBES framework; Improving livelihoods and promoting resilience of cocoa producers in Latin America: The case of the Dominican Republic and Colombia; Strategies for Coping and Adaptation in Caribbean and South America Coupled Human-Natural Systems; and Native grassland sustainability for biodiversity conservation and livelihood security: a socio-ecological analysis. Teams have been working virtually since December 2016 under the guidance of a senior mentor assigned by the IAI. One team has obtained funding for meetings and activities of the Chilean case study.

The final part of the PDS will be held 3-7 October in Calgary and Banff, Canada. It will be hosted and co-funded by the University of Calgary's Education Department, Office of International Affairs, the Latin American Research Center, and the Banff International Research Station (BIRS). This acceptance is a great accomplishment as BIRS is a prestigious research center and the joint UC-IAI sponsorship proposal was approved in a very competitive process. This approval also indicates the interest of important research institutions in TD science. It is worth noting that the University of Calgary is very interested in developing research collaboration with the IAI and Latin America in multinational and multidisciplinary research networks.

FAPESP supported scientists from São Paulo state to participate in several IAI seminars. In August of 2016 the IAI collaborated with the University of São Paulo Center of Nuclear Energy in Agriculture (CENA) in the development of the School of Advanced Science on Nitrogen cycling, environmental sustainability and climate change which was funded by the São Paulo Research Foundation (FAPESP, an Associate of the IAI). Over 100 graduate students participated in the School. The IAI Executive and Capacity Building Directors, and

scientists from Brazil's National Institute for Space Research, the University of Brasilia and CENA (CRN team) contributed to the program with lectures and hands-on exercises.

The Executive and Capacity Building Directors participated in a workshop to advance capacity building for Transdisciplinary Research organized by the International Council for Science (ICSU) and the International Social Science Council (ISSC) on 14-17 February 2017 in Paris, France. Representatives from 15 organizations, from all over the world, with experience in TD research discussed ways to build and advance collaborative relationships, develop capacity building strategies and outlining elements of training for TD research that can be taken into IAI activities in the future.

The University of Arizona Office of Global Initiatives held a Conference on Science Diplomacy and Policy with focus on the Americas (22-24 February, Tucson, USA) where diplomats, scientists and government officials discussed the role of science diplomacy for developing environmental policies. IAI Director for Capacity Building gave a keynote talk and chaired a panel session with Lidia Brito, UNESCO Director for Latin America and the Caribbean, and Roman Macaya Hayes, Costa Rican Ambassador to the U.S. The conference was an opportunity for the IAI to showcase CRN projects as a mechanism to promote multinational collaboration.

Upcoming capacity building events and activities

The São Paulo School of Advanced Science on Climate Change: Scientific basis, adaptation, vulnerability and mitigation will take place from 03 to 15 July 2017 at the University de São Paulo (USP), São Paulo, Brazil. The School is organized by the INterdisciplinary CLimate INvestigation cEnter (INCLINE) and the Inter-American Institute for Global Change Research (IAI). It is sponsored by the São Paulo Research Foundation (FAPESP), Pró Reitoria de Pesquisa/University of São Paulo (PRP/USP), IAI and Banco Santander. The objective is to contribute to the training of graduate students on advanced knowledge on climate change science and related topics. The school will foster the exchange of knowledge from many disciplines and sectors, and will promote collaborative networks to gather a critical mass of young scientists interested in climate change and its impacts on ecosystems and society. Over four hundred applications from 59 countries were received, of which 130 from 34 countries were accepted to attend the School. The Director of Capacity Building will provide coordination and introduction, and the outgoing IAI Executive Director will conduct a session on the Paris Agreement: Are 1.5°C a reasonable limit? - a debate initiated at the IAI Conference of the Parties in June of 2016. Further information: <http://www.iai.int/?p=18544>

IAI has been invited to participate in the upcoming Science Diplomacy & Leadership Workshop (10-16 September 2017 – Washington, DC) organized by AAAS. The Director for Capacity Building will share IAI's experience in Science Diplomacy and through capacity building. <https://www.aaas.org/scidip-leadership-2017>

The IAI will hold a workshop session “On speaking a transdisciplinary language: Pathways for knowledge integration in socio-ecological change research” at the II Conference of the Programme on Ecosystem Change and Society (7-10 November 2017, Oaxaca, Mexico) which focuses on place-based transdisciplinary research for global sustainability. This workshop is a joint initiative of the Universities of Calgary and California, with TSIG co-PIs Dr. Gabriela Alonso and Dr. Lily House-Peter, and the IAI Director for Capacity Building.

Several planning meetings have been held between the IAI Executive, capacity Building and science-Policy Directors and representatives of the Universidad Nacional del Litoral (UNL)/Facultad de Ingeniería y Ciencias Hídricas (FICHI), and the Secretary of Water Resources of the province of Santa Fé, Argentina to prepare a formal for credit graduate course on Integrated Risk Management of Water Resources, Climate and Terrestrial Ecosystems. The interdisciplinary course will be part of the graduate program (Master and PhD) of UNL. IAI aims to integrate part of its capacity building with inter and transdisciplinary approaches into formal graduate programs. IAI staff and CRN investigators will serve as lecturers. The course, planned for 2018, will be open to graduate students, and also to professionals from the public and private sectors from several IAI member countries. This activity is being coordinated with the office of Science-Policy Liaison in Buenos Aires.

Meeting with country representatives and other authorities

the IAI Deputy Executive Director and Director for Capacity Building met some IAI country representatives to the IAI and other government officials:

Chile: Gladys Santis, Ministry of the Environment at the Professional Development Seminar on Managing ecosystem services from Tropical forests, May 2017, Santiago, Chile

Bolivia: Karen Udaeta was a participant at the PDS on Managing ecosystem services from Tropical forests. She is currently serving as adviser to the Vice-Minister of the Environment, Biodiversity, Climate Change and Forest Development in Bolivia. Ms. Udaeta has informed Vice-Minister Cynthia Silva Maturana about the IAI and there is an interest of the Vice-Minister to become one of Bolivia's representatives to the IAI.

Dominican Republic: Zoila Gonzalez, Vice-Minister for Environmental Management, Ministry of Environment and Natural Resources Pedro Garcia, Head of Climate Change

Department, Ministry of Environment and Natural Resources, and Ernesto Reyna, Executive Director, National Climate Change Council, December 2016.

Costa Rica: Roman Macaya Hayes, Ambassador of Costa Rica to the USA, first learned about the IAI at the Conference on Science Diplomacy in Arizona. After this initial contact with the IAI and learning about the CRN Tropi-Dry project work in Costa Rica, Ambassador Macaya connected Roberto Dormond Cantú, Costa Rica's Ambassador in Canada with Dr. Arturo Sanchez, of IAI CRN Tropi-Dry project at the University of Alberta. Ambassador Dormond and Dr. Sanchez are discussing collaboration between Canada and Costa Rica. February 2017

Science Programs and Funding

The *Third Collaborative Research Network Program (CRN3)* was initiated in November 2012 and is intended to run through 2019 (projects closing on October 2018). 17 PIs and 95 co-investigators and 90 institutions from 15 of the IAI's 19 member countries work in 17 international research networks addressing global change phenomena in their societal context in multi-country, multidisciplinary collaborations, while fostering closer links between science and decision making. During the last period, 239 students received scholarships from CRN3 projects, 73 of those funded by IAI. CRN3 researchers mentor these students. 371 students participated in courses promoted by CRN3 projects.

CRN3 comprises two sets of projects:

Ten major networks funded with between US\$ 700,000 and US\$ 1,000,000 that resulted from two CRN3 initial calls. They cover a broad range of climate-related atmospheric, terrestrial and marine global change issues thorough the continent. Seven smaller "Science Integration" projects funded with between US\$ 98,000 and US\$ 180,000 for 1 to 3 years of research were implemented in 2014 to address specific gaps in competences for developing interdisciplinary global change science. All projects are listed and described on the IAI page:

http://www.iai.int/?page_id=4114

Four and a half years into CRN3 research work, this effort has resulted in research networks having achieved a level of transdisciplinary knowledge integration which opens substantial new insights, applications and policy relevance, and significantly fills gaps in the science-policy interface by integrating government agencies and other actors into the knowledge generation. This is an important achievement.

A principal achievement of the CRN program over the past 1-2 years has been to generate an accessible body of knowledge that responds to priority questions and needs in the region. The

2014 WCRP (World Climate Research) conference for LACC had noted in its synthesis report that "the most appropriate way to support ... effective climate services were ... knowledge-networks ... to ... co-produce useful climate information". Several of the Collaborative Research Networks have achieved this. Amongst the most important knowledge gaps, the WCRP conference noted the need to better understand large scale climate drivers, such as ENSO impacts, Atlantic variability; to understand regional processes, develop sub-basin hydro-climate diagnostics, land surface-atmosphere interactions and ocean-atmosphere interactions. The conference also highlighted the need for "data availability for climate monitoring including data exchange, data rescue, homogenization, archiving and quality control of existing data" with the aim to "understand and represent climate extremes and their variability" and their connection with different socio-economic relevant areas focusing on key questions from a portfolio of "user" community". The CRNs are providing this now. A further outstanding characteristic of the best projects is that they not only combine disciplines in a transdisciplinary way, but that this has resulted in crossing environmental boundaries: understanding of Ocean-Atmosphere, Land-Atmosphere and Land-Water boundary processes is greatly advancing. Several projects have developed user friendly interfaces and automated routines to integrate knowledge, greatly facilitating stakeholder involvement.

One important observation on the IAI's strategic development of research capacities is that all those projects that have achieved higher level of integration, outcomes and relevance are guided by scientists who have been engaged in past IAI programs. "Newcomers" on the other hand, even in year 4 of the program, are generally still struggling with the complexity of international transdisciplinary projects.

CONICET-IAI projects. The Argentinean Scientific Research Council (CONICET) established a fund of US\$ 200,000 to supplement the research activities of the Argentinean teams involved in CRN3 networks over 4 years. The IAI received 9 proposals, and applied criteria of scientific excellence and social relevance to select the best 7 projects addressing specific relevant issues on marine, terrestrial and atmospheric global change issues not included in the CRN3s proposals. The IAI monitored the first year of activity of these projects during 2015. The second installment is currently being processed by CONICET, so that CONICET-IAI work plans are expected to be resumed soon.

List of CONICET-IAI projects:

CONICET-IAI CRN3005 “Network capacity building in the Americas: theoretical and practical applications of human impact on N cycling in Argentina”. PI: A. Austin. IFEVA-CONICET.

CONICET-IAI CRN3094 “Evaluación del sistema de los carbonatos en el contexto de la acidificación oceánica en la serie de tiempo EPEA (Mar Argentino)”. PI: V. Lutz. INIDEP-IIMYC.

CONICET-IAI CRN3056 “Articulación inter-redes para la producción de conocimiento estratégico. Transponiendo las fronteras del Cambio Ambiental Global desde las ciencias sociales”. Joint-PIs: P. Mussetta and F. Martin. INCIHUSA-CONICET.

CONICET-IAI CRN3038 “Influencias climáticas y antrópicas en los lagos de la cuenca del río Senguer: hacia soluciones consensuadas con los actores sociales y toma-dores de decisión”. PI: G. Perillo. IADO.

CONICET-IAI CRN3070 “The relative ecosystem service of frontal areas in the South West Atlantic Large Marine Ecosystem”. PI: A. Piola. SHN and UMI-IFAECI.

CONICET-IAI CRN3035 “Elaboración de índices de excesos/déficit hídricos orientados a la actividad agropecuaria, basados en la humedad del suelo”. PI: A. Saulo. CIMA.

CONICET-IAI CRN3095 “Tipos funcionales de socio-ecosistemas: una alternativa para la zonificación del territorio en procesos de planificación y ordenamiento”. PI: J.M. Paruelo. LART-IFEVA-CONICET.

The IAI proposal for small grants was approved by the National Science Foundation on March 2017. It takes up themes of adaptation and ecosystem services in response to CoP22 resolutions and the resulting UNFCCC statements. An innovative program design capitalizes on lessons learned in science integration, including IAI-provided capacity building modules for aiding interdisciplinarity, team building and networking in the first stages of project development. The launching of this program is expected shortly.

The Directorate continued driving the initiative of the *Inter-American Forum for Cooperation in Global Change Research*, aimed at linking national funding agencies amongst each other and with the IAI in a multilateral funding mechanism that incorporates components of the Belmont Forum Agreement. The goal is that the Inter-American Forum offers program options that parallel and expand the current, largely NSF funded IAI grants, and the new small grants call is to be a first funding initiative of this IAI-Forum cooperation. An agreement text was shared with the funding agencies of the IAI member countries for analyzing feasibility within their administrative systems, and several of them are available for signing.

Science-Policy Liaison (Ana M. Murgida, MINCYT, Buenos Aires)

The IAI mission requires active and efficient links between science, decision-making and policy. These are generated using the IAI's increasingly transdisciplinary scientific production aimed at decision-making. Since 2015, the Science Policy Liaison Directorate (SPLD) in Buenos Aires has been working to make IAI's impact measurable through various actions according to the mission and final objective of consolidating the science-policy dialogue throughout the IAI. The analysis of inter-institutional relations in IAI projects and activities that link the Institute with decision making processes are an important part of this process.

To this end the SPLD,

- 1) facilitates SPAC activities and acts as its secretariat.
- 2) systematizes and analyzes the impact of IAI scientific programs in both scientific and decision-making environments.
- 3) contributes to the synthesis of science directed towards management.
- 4) establishes regional networks of science-policy liaison between scientists and decision makers at different levels and sectors.
- 5) participates in the organization and development of inter and transdisciplinary capacity building activities organized by the IAI and collaborating governmental institutions.
- 6) promotes and stimulates the network of IAI young researchers and professionals.

1) facilitate SPAC activities.

Working in close dialogue with the SPAC Chair, the (SPLD) served as secretariat of the Science-Policy Advisory Committee (SPAC) at its meetings, in individual interviews and consultations. The sustained dialogue resulted in the SPAC meeting agenda and priorities in 2016. In 2017, the EC adopted the SPAC's proposal to involve country representatives in a dialogue with members of the advisory committees in order to review policy contributions to and from the Institute activities on the basis of the science-policy dialogue developed by the SPLD.

The activities of SPLD take into account the AAAS suggestions contained in the 2007 report, as well as those of CoP21 (June, 2013), the mandates of CoP23 and 24, EC36 and 37: the aim is to improve the understanding of IAI science impacts on the continent, not only in terms of global change knowledge and its link with non-academic institutions, but also in terms of their influence on decision-making. In science applications to risk and emergencies, we are working with the representatives of Argentina, Uruguay and Paraguay.

Several lines of action followed by the SPLD were initiated in a dialogue with the SPAC: (a) to identify the processes of science-policy interaction in IAI projects; (b) show the impacts of IAI science on the continent; (c) improve tools for communicating IAI results; (d) identify issues relevant to global change policy.

2 - Systematize and analyze the impact of IAI scientific programs in both scientific and decision-making environments.

The SPLD has implemented an IAI science impact analysis program. Based on the initial analysis presented to CoP 24 in Chile, several countries, among them Argentina, Brazil, Canada, Uruguay, and the USA, requested and received detailed data on networking and impacts to be used in their own assessments of scientific production. These results have been updated during the year and complemented with a diagnosis of the contribution of IAI-funded science to national and regional policies. This information will be synthesized for the IAI 25 year white book. With this purpose, follow-up Program of Impacts and Contributions of IAI projects to Institutions and Stakeholders has been designed.

In all these analyses, scientific methodologies are being used, with the participation of students and in consultation with professionals from Argentina, Canada and Chile, the University of Buenos Aires, Arturo Jauretche National University, University of Waterloo, the University of Salvador, Latin American Faculty of Social Sciences and the team of the IAI-NSF project CRN3102.

In 2015, an update and quality control process of the research publications database was initiated. In the process, problems were identified and corrected in the system being used and in the available data. As a result of these improvements which continued into 2017, the detailed information of each publication such as authors, publishers, title, year, project, etc. can now be linked and analyzed with the database of researchers, fellows and collaborators of all projects with their status, country, institution and area of expertise. In the process, the open international repository CiteULike, used by reference management programs, was also updated.

The results up to 2017, show that the United States, Canada and Argentina produced most publications, and IAI researchers in these three countries (followed by Brazil), collaborated directly with most of the countries in the Americas. This networking position has increased importance because of it facilitated contacts between researchers from other countries for the exchange of scientific knowledge and training. Increased participation in IAI-funded publications from small member countries (such as Guatemala, Panama, Uruguay, Costa

Rica) indicates the flow of knowledge and methodologies that enrich scientific production even when the cadre of national researchers is small.

The 1990s CRN1 program was marked by a majority participation of researchers from the natural sciences, while during CRN2 the inclusion of the disciplines of engineering and social sciences was higher. The third program, CRN3, achieved a much better representation of social sciences with interdisciplinary integration from the onset, and new insights beyond natural sciences extending to analysis of social vulnerabilities, forms of adaptation, and landscape management to reduce risk. The program also included analyses of policies that are part of the forcing factors of natural changes and vulnerabilities as well as those that contribute to better adaptation.

For the analysis of the impact of science on decision-making, the science-policy interface, and the dialogue between researchers and decision-makers, an innovative set of methods was employed, including surveys, social network analysis and qualitative interviews with project researchers. Analytical categories identified were: types of interaction; types of capabilities; and the value and impact of scientific processes on policy and society. A relational database was built based on the reporting from fourteen projects, from the interviews and the documentary survey, together with matrices of projects, researchers, countries, institutions, themes, and types of information.

In general, there was a high level of reciprocity between research projects and stakeholders, as information, data, capacity, logistical support and other key forms of support for research and management were exchanged both ways. Governmental institutions at the national, provincial and local levels, account for almost three-quarters of the interactions, followed by NGOs involved in the territorial processes of investigations. The greatest contribution of projects is data useful to the institutions, followed by methodology, training and advice. At the national level, the bridge-forum function of the projects is highlighted, which allowed the connection and exchange between different new actors through their relationships with projects and transfer of methodologies. At the local level, the most important contribution is through training and technology transfer.

The contributions of institutions to projects is most important at the local level, providing information and logistical support. At national level, the contribution of official data and logistic support is remarkable. These contributions represent significant in-kind support the NSF-IAI funded research effort. At provincial and regional supranational levels fewer contributions are seen.

The networking data showed the potential of exchanges and collaborations between non-academic institutions from different countries based on their relationships with different IAI projects. This analysis showed strong linkages between countries, greatest in the southern part of South America and in North America. Mexico, Argentina, Brazil and Uruguay combine both great academic participation and much field work (i.e. research objects) in their territories. Closest networking between governmental institutions was seen at intraregional levels. We plan to continue with these analyses.

A remarkable result is that the networks to which the IAI contributes, are not only between scientists, but between scientific and governmental institutions. The contributions of science extend beyond the temporality of projects, for example in cases of modification and creation of public policies, or their impact in areas such as the legislative and the technological ones.

3 - Contribute to the synthesis of science directed towards management

In December 2016, the IAI scientific meeting "Global Changes and Integrated Landscape Management for Environmental Risk Management: Synthesis and Science-policy prospective" was held in Mar del Plata, Argentina. It was co-organized as an inter-institutional conference on Science - Policy Interaction to respond to the challenges of climate change by the IAI SPLD and the Provincial Agency for Sustainable Development - OPDS of Buenos Aires province. Combining perspectives and interests from public management and science from the IAI collaborative projects, participants included government officials from Uruguay, Paraguay, Argentina and Canada, as well as researchers from Argentina, Uruguay, Paraguay, Ecuador, Mexico and Peru, and a representative of the think tank BC3 of Bilbao, Spain.

The workshop was the first step in a process of exchange, synthesis and regional science-policy prospective among scientists, students, government decision-makers at the local, provincial and national level. The dialogue took place around issues with potential for contribution to decision making and management:

- 1) Health and disease. Vectors, interactions climate - soil cover and surface water.
- 2) Use and land cover. Effect on waters in landscapes (scarcity, excess, flood, drainage, ground water).
- 3) Forecasting and applications to early warning and intervention in emergencies. Accurate mapping of extreme events in time and space.
- 4) Coast and sea, fisheries, coastal and marine ecosystems management for fishing; health indicators of marine ecosystems.

5) Urban: monitoring of factors affecting public health, institutional interactions, and citizen science experiences.

Presentations from scientists and public office holders reflected collaboration among institutions and outcomes that are realistic and useful for the regional management of socio-environmental and sustainable development problems. The dialogue allowed the identification, with decision makers and technical personnel, of existing research lines and new studies to be promoted collaboratively by the IAI and institutions from different levels of government. The SPLD prepared a synthesis and prospective based on the results of the meeting, and is organizing a follow-up to translate results into actions, and to explore possibilities for future workshops led by the science-policy office during 2017-2018.

4 - Establish regional networks of science-policy liaison between scientists and decision makers at different levels and sectors

Meetings were held with the UNESCO LAC Director and with the head of the Regional Center for Climate Change and Decision-Making (UNESCO, AVINA) to analyze global change issues highlighted by South American decision-makers; to identify training needs; to review the ways in which the science-policy dialogue takes place and how it contributes to management. Key issues have been social vulnerability, climate change risk and capacity building. The main interests shown by policymakers concern adaptation measures that improve resilience as well as mitigation measures associated with general public works and energy generation.

Support was provided from the SPLD for preparatory activities for CoP 22 in Morocco, by organizing a Working Group in Buenos Aires with governmental actors to jointly explore the most successful levels of political organization to conduct the dialogue between science and decision making. The SPLD director gave a presentation at the IOM in Foz do Iguaçu, Brazil, which presented scientific results on the relationship between population displacements, social changes and the availability of resources under the effects of global change. The results of the analysis carried out in the Buenos Aires Office on the impact of IAI on science and institutions in the Americas were presented in a side event in Morocco.

Dialogues were initiated with networks of local governments in Argentina, and it is planned to extend this dialogue to other similar networks of the continent. At the National Meeting of Local Governments organized by the RAMCC, a presentation on "Learning in the science-management dialogue" was given.

A lecture was also given to the group of Government Administrators of Argentina, made up of career government officials, to present IAI's experiences and how the Institute conducts impact analysis. This provided the basis for a round-table discussion on the experiences of scientific, technical, cultural and governmental links and their impact on political agendas.

5 – Participation in the organization and development of inter and transdisciplinary capacity building activities organized by the IAI and collaborating governmental institutions.

The December 2015 CRN meeting in Buenos Aires emphasized interdisciplinary processes and initiated discussions on articulations with social and governmental organizations. This was further developed by the SPLD for the following CRN meeting in December 2016, which reviewed IAI research and initiated a dialogue between scientists and decision-makers on landscape and risk management in the region.

In March 2017 in Valparaíso, methodologies and results used by the SPLD, were presented to academic and science management institutions to explore the impact of global change science on national and regional institutions more broadly. We are following up the activity to link with transdisciplinary institutions on the continent.

The Seminar “Transdisciplinary approaches to integrate science and policies for sustainability” was organized in collaboration between the Capacity Building and Science-Policy Directors in December 2016, in Puerto Plata, Dominican Republic, to be concluded with a second professional development seminar in October 2017 in Banff, Canada.

In Buenos Aires, activities were developed with the host government to develop analysis of the best experiences of collaboration between science and policy. Representatives from different government and production sectors from Argentina participated, as well as representatives from Uruguay.

6 - Promote the network of young researchers and professionals of the IAI.

The SPLD leads, together with researchers from the Argentine Institute of Oceanography, the construction of a network of young scientists, which contributes to the visibility of the Institute's activities, and promotes the science of global change among young professionals and scientists. The first meeting took place in August 2016 in Bahía Blanca, Argentina. The IAI executive director presented his vision of a network of young scientist that could develop innovative, transdisciplinary modes of collaboration and communication. This first group of young scientists comes from several cooperative research networks working on water issues.

The group established the objectives, organization and plan for the first activities aimed at creating the Graduate Student and Postdoctoral (GSP) Association. The initial GSP management team consists of volunteers from each of the IAI projects present at the meeting: M.Cecilia Filipello (CRN 3094, ANTARES), Ignacio Gianelli (CRN 3017, VOCES), Martín Kazimierski (CRN 3102) and Carina Seitz (CRN 3038, SAFER). The mission of the IAI GSP is to establish a cooperative process among young scientists, to develop professional training and to improve the skills on communication of science.

Based on these results, the SPLD is proposing an engagement and outreach program taking into account identified priorities of the IAI and its member countries. Following the mandate of the tripartite agreement and in consultations with the Director for Finance and Administration, members and regional institutions, the SPLD is exploring possibilities of a regional science–policy synthesis including prospective meetings and follow-up analyses that should include national focal points of the IAI-linked International Conventions.

Global Conventions, Outreach, and Initiatives (Ione Anderson liaison with UNFCCC, UNCBD, SDGs)

Raising awareness of IAI’s experience and knowledge in UN processes is important to build scientific legitimacy, international visibility and promote enhanced engagement of IAI member nations. Knowledge generated by IAI-funded research on the potential risk and impacts resulting from global change processes affecting societies must reach decision-makers and stakeholders. IAI’s mission to provide information so that policy decisions can be made based on the best available science is relevant for delegates of multilateral international negotiations. This is why over the last 11 years IAI has continued to share its experience with these Conventions.

In 1993, the Convention on Biological Diversity (CBD) entered into force, its sister Convention, the UN Framework Convention on Climate Change (UNFCCC) in 1994. Twenty-five years ago, scientists began to compile further scientific evidence of the global environmental changes affecting the world. The agreement that established the IAI by 12 nations in 1992 sought “to achieve the best possible international coordination of scientific and economic research on the extent, causes, and consequences of global change in the Americas, with the objective of significantly expanding the frontiers of knowledge and serving as an effective interface between science and the policy process.”

The current reporting period was a productive year, IAI participated at the: the 22nd Session of the Conference of the Parties (COP-22) to the UNFCCC in Marrakech, Morocco in November 2016, the 13th Meeting of the Conference of the Parties to the CBD, held in Cancun, Mexico in December 2016 and the 44th and 46th sessions of the UNFCCC Subsidiary Body for Scientific and Technological Advice (SBSTA) held in May 2016 and 2017 in Bonn, Germany.

At the UNFCCC SBSTA-44 Research Dialogue (RD8), former PI and current SAC Chair Edwin Castellanos (Guatemala) presented results of his SGP-CRA2060 project on how capacity-building combining local and scientific knowledge increases adaptive capacity to global changes for farmers in Mesoamerica. As noted by the Chair in the RD8 Summary Report,

(http://unfccc.int/files/science/workstreams/research/application/pdf/researchdialogue_2016_2_summaryreport.pdf) the current global and regional changes, including climate change are bigger than anything experienced in the past. Science must be communicated to stakeholders" at different levels, which imposes a communication challenge to scientists: each stakeholder group may need a particular communication strategy, scientists may do not have the communication skills needed, and often do not have the time to do both science and communication. Thus scientific teams must work together with communication specialists and this additional expense should be supported by funding organizations.

The IAI presentation to RD8 "Connecting Science to People" highlighted the important role that funding agencies have in recognizing these communication needs. Ione Anderson cited the network led by Dr. Castellanos as a successful example of scientists engaging a variety of stakeholders impacted by multiple stressors. She encouraged UNFCCC delegates to communicate their research needs to IAI member country representatives so that IAI can better assist its countries to identify regional concerns that require integrated natural and social science research to solutions. The report also included reference to IAI's potential role in co-funding research with national funding agencies on the impacts of a 1.5 °C temperature increase and on feasible economic and technical pathways to stay within this limit.

The free IAI Massive Open Online Course (MOOC) on the Impacts of Climate Change in Latin America was launched at the Climate Change Studio at COP-22 on November 7th 2016 in Marrakech, Morocco. The course is taught in Spanish by 21 scientists to raise awareness of current climate change science and climate change impacts on biodiversity, ecosystem services and the economy. The course has participation of the former CBD Executive

Secretary Braulio Dias and an introduction by Christiana Figueres, former Executive Secretary of UNFCCC.

The Development Bank for Latin America (CAF) was a valuable partner as co-sponsor of the MOOC. IAI also worked with the Recycled Orchestra of Cateura in Paraguay who collaborated with music for the promotional videos. All partners and both Conventions were active in the promotion of the MOOC on social media. As of May 24th, the MOOC had 6,524 registered participants.

The response to this online course has been overwhelming and reveals both the potential and existing gap for this kind of IAI outreach products. Among some of the positive feedback received are an email from the director of a national park in Bolivia, who wants his park rangers to take the course. A High-School in Puerto Rico that will use the MOOC as part of its curriculum. A SEMANART employee in Mexico indicates interest to have certification available to employees of that government agency. In addition, many COP-22 delegates visited the IAI Exhibit Booth in Marrakech and asked that the course be offered in other languages (English and French) as well.

At COP-22, IAI co-organized a side-event on ‘Urgencies in Fundamental Climate Research following the Paris Agreement’, with the International Council for Science (ICSU), the Scientific Committee on Antarctic Research (SCAR), the World Climate Research Programme (WCRP), where panelists addressed the most-urgent and challenging questions from the Paris Agreement to the scientific community, such as how to move forward to limit warming to well below 2°C. Tropi-Dry PI Arturo Sanchez-Azofeifa discussed the lack of existing information on Latin America’s carbon cycle responses to climate change, and the challenges related to the generation of regional estimates.

Biodiversity changes are just as important as climate change. With the intent to promote biodiversity related global change research by various stakeholders, the IAI co-organized a Science Forum on at CBD 13th Meeting of the Conference of the Parties (COP-13), in collaboration with the National Commission for Knowledge and Use of Biodiversity of Mexico (CONABIO), the International Union of Biological Sciences (IUBS), the CBD Secretariat, Future Earth and other partners. Over 300 scientists, practitioners and decision-makers participated in the Science Forum (<http://www.iai.int/?p=17245&lang=en>). Findings from the Forum were made available to delegates in a CBD document available at: <https://www.cbd.int/doc/meetings/cop/cop-13/information/cop-13-inf-44-en.pdf>.

Issues addressed by COP-13 included mainstreaming biodiversity in sectors such as agriculture, forestry, fisheries, health and tourism. IAI provided recommendations on behalf of the Science Forum to the COP plenary. Four main contributions from science to strengthen mainstreaming where further research is needed and will benefit from close collaboration with decision-makers and civil society are: assessing and monitoring the ways in which biodiversity changes affect human well-being in the short- and long-term, such as food security; recognizing the synergies and trade-offs among the different values of biodiversity held by individuals and society; ensuring policy coherence within and across production sectors towards the conservation and sustainable use of biodiversity, such as planning at the landscape scale, appropriate incentives; partnerships between different stakeholders and scientists to co-generate knowledge that can foster transformative change.

The IAI attended the UNFCCC SBSTA-46 and its Ninth Research Dialogue (RD9) on May 10th, in Bonn, Germany. Peruvian co-PI Sara Purca of CRN3070 “Variability of Ocean Ecosystems around South America (VOCES)”, presented how this research helps to map the relationship between the physical and biological variability, from primary production to fisheries in the Humboldt Large Marine Ecosystem after 2015-2017 El Niño. Evidence suggests that decadal oscillations of marine ecosystems are correlated to such climate variations. Through international cooperation and coordination, knowledge generated by this project on the physical, biological and bio-geochemical mechanisms that regulate these complex ecosystems have helped guide political decision-making in the region. Their research contributed to the inter-ministerial initiative led by the Ministry of Science and Technology in Argentina that resulted in the Promar Law in 2016.

IAI will co-host a side-event with the United Nations Development Programme (UNDP) during the UN Ocean Conference to be held at its headquarters in New York from June 5 to 9 2017 on “Current scientific knowledge on the response of oceans to climate and human-induced changes towards implementation of national action plans”. At this side-event, scientists from the IAI VOCES and conference delegates will discuss current scientific knowledge, technological development and funding gaps and they relate to potential contributions to Sustainable Development Goal 14 on Oceans.

Communications, Website and Social media (Paula Richter, UBA, Buenos Aires)

The look and feel of the website was renewed to celebrate the 25th anniversary of the Institute. An 25 year anniversary logo and a new layout was implemented to improve user experience and optimize publishing and outreach efforts.

Maintenance, security and updating of the website are very time consuming and standardizing and automating some of the processes involved will allow the Communications Officer to devote more efforts to generating new dissemination products. One of the improvements to the website is that any post can now be shared directly on the social media, by any user. Posts can also be included in the electronic newsletter with practically no additional manual design requirements.

As part of the objective of facilitating access to information, the content of the Twiki website was migrated to the IAI website. Twiki was used to publish the information for CoPs and EC meetings, as well as all the information related to capacity building activities, which had low visibility on that platform. Currently, institutional meeting (EC-CoP) documents can be accessed with a password. The decision of disclosing those documents or determining which information resulting from such meetings should be made public remains with the CoP.

The Twiki migration was made with the help of a part-time junior professional hired for 3 hours/day for seven months. This kind of help is fundamental to contribute to the satisfactory functioning of the website. On the other hand, the assistants of the Executive Director and Capacity Building were trained in the use and technical procedures of website postings and now they are able to update the information corresponding to their areas in consultation, but independently from the Communications Officer.

The website continues to be updated in English and Spanish with the aim to reach the widest audience possible in the Americas and worldwide. One of the achievements is that both sites work independently from each other and contain the same information (although not all the information is translated because of time and funding constraints).

Following the global trend towards audiovisual communication, the IAI and project researchers are producing documentaries, brief informative videos and webinars (IAI capacity building). These materials can be found on the Institute's YouTube channel and on the website. Some examples are on meat production in dry forests, the synthesis of the project on biodiversity and climate change in the Tropical Andes - a project that was funded by the MacArthur Foundation and managed by the Director for Capacity Building. The latter video was entirely produced by the communications area of the IAI. Several CRN3 projects have also produced films, such as New River, or Here we are forest and water.

Efforts are under way to unify the institutional look of the IAI, so that the Institute can be recognized through its presentations and submissions to different fora, both graphically and through edited contents that mark IAI's quality and identity.

Likewise, a protocol will be set up for the generation of related websites for specific IAI activities (online courses, IAI managed projects) so that information is not lost and continues to be available once the funding of such activities ends.

The number of followers in IAI's social media (Facebook, Google+ and Twitter) continues to grow. At present we have over 2400 followers in Facebook and above 450 in Twitter. Google+ is the least developed network, although we have active subscribers there. A diverse set of platforms allows reaching different and new audiences.

Technical arrangements are being completed to make periodical submissions of the electronic newsletter of the IAI to the more than three thousand subscribers in the mailing list. Several different mailing lists are included in that subscriber list, so, the number of people who actually receive our information is much bigger and includes, researchers, journalists, government and education institutions, NGOs and general public. Anyone can subscribe to the list; the link is available on the IAI homepage.

The Biennial Report for 2014-2016 is planned to be finished by the last quarter of 2017.

As always we invite country representatives to follow us in the social media and in turn invite their followers to do so, in order to expand the outreach of IAI activities and results. We also welcome your suggestions and comments.