



SARAS Institute - Activity Report 2018

Cover photo: CafeARTing installation - December 2018, SARAS Institute

Layout: Silvana Juri



Calle Los Teros y Cardenales,
Bella Vista, Maldonado - Uruguay
Email: info@saras-institute.org
Web: www.saras-institute.org



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1. ABOUT SARAS INSTITUTE

SARAS Institute is a joint initiative of Wageningen University (The Netherlands), Resilience Alliance (United States), University of the Republic - Udelar (Uruguay), Ministry of Education and Culture (Uruguay), and Municipality of Maldonado (Uruguay).

The governance structure and direction of SARAS Institute consist of three bodies: Advisory Board, Administration Board (part of the SARAS Foundation), and the Executive Team, as well as associates, and honorary fellows.

The South American Institute for Resilience and Sustainability Studies (SARAS) is an interdisciplinary research institute aimed at contributing substantially to the production of knowledge and capacity building in processes and mechanisms that determine the sustainability of ecosystem services, key to determining human well-being.

The Institute's building, as well as its operations, encourage and support networking and collaboration, by providing the space and facilities for workshops, courses, and other academic activities. The first phase of SARAS construction project in Bella Vista was completed in 2015 with funds from the Ministry of Education and Culture (MEC, acronym in Spanish) and the Municipality of Maldonado. Initially, MEC provided the basic financial support until 2016. Since 2017, the Ministry of Housing, Territorial Planning and Environment (MVOTMA, acronym in Spanish) covers most of the baseline budget.

SARAS Members in 2018:

Advisory Board: Marten Scheffer (Chair of the Advisory Board, Wageningen University, The Netherlands), Laurie Beth Clark (Co-Chair of the Advisory Board, University of Wisconsin- Madison, USA), Patricia Balvanera (National Autonomous University of Mexico, Mexico), Matilda Baraibar (Stockholm University, Sweden), Ricardo Ehrlich (University of the Republic, Uruguay), Esteban Jobbágy (National University of San Luis, Argentina), Stefan Gelcich (Pontifical Catholic University of Chile,

Chile), Jesse Lee Kercheval (University of Wisconsin-Madison, USA), Jorge Marcone (Rutgers University-New Brunswick, USA), Mariana Meerhoff (University of the Republic, Uruguay), Henrik Österblom (Stockholm Resilience Centre, Sweden), Eduardo Viola (University of Brasilia, Brazil) and Cristina Zurbriggen (University of the Republic, Uruguay).

Administration Board: Mariana Meerhoff and Ricardo Ehrlich (on behalf of the Advisory Board), Juan Cristina and Néstor Mazzeo (on behalf of the University of the Republic), Jorge Céspedes (on behalf of the Municipal Government of Maldonado), Marisol Mallo (on behalf of the MVOTMA) and Álvaro Soutullo (on behalf of research associates).

Executive Team: Néstor Mazzeo (Executive Director), Micaela Trimble (Research and Cooperation Coordinator), Paula Bianchi (Head of Communications), Ana Fierro (Secretary), Silvana Juri (Communications Assistant), Virginia Lucas (Artist associate), Mariana Meerhoff (member of the Advisory Board), Matías Piaggio (Research associate), Juan Carlos Rocha (Research associate), Manfred Steffen (Research associate) and Cristina Zurbriggen (member of the Advisory Board).



SARAS Institute headquarters in Bella Vista, Maldonado - Uruguay

VISION

SARAS generates critical insights allowing South America to build sustainable futures characterized by resilience and the capacity for transformation.

It produces such insights through the integration across a broad range of knowledge using innovative approaches, ranging from mathematical models to the arts.

In its atmosphere, minds meet to find peace to think deeply. At the same time, the kind and intense interaction at SARAS shapes a new generation of broad visionary thinkers and creators. The design and place of SARAS building provide the essential context essential for such innovative synthesis.

2. THEME OF THE YEAR

2.1. SARAS 8th Public Conference

“Ecosystem services: knowledge development and decision-making”

The 8th SARAS Public Conference revolved around ecosystem services and their management for sustainability. As such, it represented the main academic event on the topic of conservation and use of ecosystem goods and services developed by SARAS Institute in 2018.

The activity sought to bring together the academic sector, civil society organizations, students, decision makers and the general public, with the aim of analyzing and sharing key aspects regarding the understanding and management of ecosystem services sustainability in the region.

The event was attended by national and international researchers, as well as representatives from various institutions and sectors. The audience comprised students from different disciplinary areas of Latin America, artists specializing in art-science interaction topics, and the public with an interest in the subject.

The activity was organized in two main parts; firstly, a panel consisting of academics specialized in the subject contextualized the state of knowledge and management of ecosystem services. In the second part, there was a science-policy dialogue table focused on the analysis of challenges for the current management of ecosystem services and their inclusion in decision making. Both parts included question-and-answer sessions where the audience was able to share their ideas.

More than 120 participants attended the conference which was held at SODRE's National Auditorium with the aim of offering a space to learn and share opinions on relevant topics for all of society, one of the objectives promoted by SARAS Institute. In addition to the participants present in the room, the conference was followed live through the Institute's website and social networks.

The term "ecosystem services" is defined as the set of goods and services that human societies obtain, directly or indirectly, from ecosystems. They are classified as supporting services (primary production, nutrient cycling, soil formation, etc.); regulating (climate regulation, air purification, flood control, quality and quantity of water, disease control, etc.); provisioning (food, wood, fiber, fuel, etc.); and cultural (recreation, tourism, spiritual, educational).



Patricia Balvanera delivering the keynote conference

Welcome and keynote conference

Marten Scheffer (University of Wageningen, SARAS Advisory Board Chair) broke the silence and set the stage with a performance with harmonica and strings before the official opening. After a welcome speech offered by the master of ceremonies, Micaela Trimble (Research and Cooperation Coordinator, SARAS), Néstor Mazzeo (SARAS Executive Director, CURE-Udelar), and Henrik Österblom (Stockholm Resilience Center and SARAS Institute) as member of the organizing committee, the activity began with a keynote presentation by Patricia Balvanera (SARAS Advisory Board, National Autonomous University of Mexico and Vice President of the Scientific Committee of the Program on Ecosystem Change and Society - PECS).

Balvanera's presentation was entitled "Biodiversity, ecosystem services and human well-being: evolution of paradigms and approaches" and focused on giving a general contextualization on the subject by presenting different approaches and ways of working based on four projects. Among the main messages, she stressed the importance of dialogue and collaboration between the academic and political spheres, for the advancement of the study of the problems related to biodiversity and nature in general, and its link to human well-being. She pointed out that an openness to listen and respect during teamwork with colleagues from other disciplinary areas is necessary, in order to develop work that can resonate better with the people involved. She also highlighted the importance of obtaining information and useful tools to improve such interface.

SARAS 8th Public Conference was held on December 5th, 2018 at SODRE's National Auditorium - Hugo Balzo Room, Montevideo, Uruguay. This activity was open and free-of-charge.



The video recording of the whole event is available on our YouTube channel:
<https://www.youtube.com/user/sarasinstitute>



Panel on ecosystem services: state-of-the-art at different scales

The panel of experts began with the presentation of Matilda Baraibar (Stockholm University and SARAS Institute), who spoke about the political economics of agricultural change in Uruguay and provided an overview of the situation, both in the region and in the world. Baraibar explained how the development and expansion of agricultural and livestock products in Latin America, and specifically meat and soy in the Southern Cone, have been the main determinants of changes in land use. With this, she said, a series of environmental, social and economic impacts were unleashed, especially in relation to land ownership, which determined responses from the businesses and governments of each nation, which have not been unaware of the fluctuations of global markets. In this sense, she concluded that despite the answers given by Uruguay more recently, through land use and management plans and the Agroecology Law, for example, it is necessary to promote dialogue and ask ourselves about the kind of country we want, and in what direction we shall strengthen the development of the nation.

The second speaker was Esteban Jobbágy (National University of San Luis and SARAS Institute) who spoke about the agricultural expansion in Argentina and its environmental impact, which led to a more

in-depth analysis on the issues raised in the previous presentation. Jobbágy reflected from the point of view of the South and based on his experience working with the communities from the Pampas and the Espinal Chaco region. After pointing out that "never in history has agriculture left such a large footprint, but it has never been so invisible to humanity", he invited us to understand the extensive development of production in the region from a perspective of stinginess, where the focus is not on the extent of land. The main message focused on the need to understand the problems from a perspective that seeks to understand what are the issues that really matter to the region and discuss what are the paths to follow in the future.

Next, Álvaro Soutullo (University of the Republic and SARAS Institute) focused on two Uruguayan case studies that involved ecosystem services as an integrated or strategic approach to territorial planning. Soutullo highlighted planning as a strategic instrument that allows to detect the benefits to be obtained from ecosystems, understanding that the use of the territory implies many layers or levels that go beyond mere production and creation of economic value. Understanding the complexity of the problem of managing the inhabited territory, meaning the space where we perform different activities as human beings, requires changing the type of problems with which we work, which he identified as "wicked problems". He said that it is necessary to look for



new exploratory paths, that do not aspire to find optimal and unique solutions, but transitory ones, to understand what to do, where and for what reasons, while being immersed in the complexity of the issues.

Opposite page: Participants in the panel on Ecosystem services, state-of-the-art at different scales: Matilda Baraibar, Esteban Jobbágy, Álvaro Soutullo and Albert Norström.

Below, left to right: Henrik Österblom delivering his closing thoughts; Patricia Balvanera; Albert Norström - view from the public.

Albert Norström (Program on Ecosystem Change and Society - PECS, Stockholm Resilience Center) closed the panel session and spoke about the role of ecosystems for human development in the context of the Anthropocene, the era in which human beings emerge as the main changing force of the planet. Norström talked about his work experience in Sweden and the lessons learned which transcend that region and are linked to initiatives being developed around the world. His main message, a summary of the ideas that were raised in the previous presentations, reinforced the need to understand the problems from a social-ecological approach, considering the interaction between human beings and nature (with its positive and negative aspects). He also stressed the importance of working towards the coproduction of knowledge, which implies leaving the comfort zone of disciplinary domains to approach dialogues with all the players involved in a region or problem. It is at the interface between academia, community and decision-makers where the most interesting lessons and the most powerful and desirable decisions for all will occur, he added.





Science-policy dialogue roundtable

In the second part of the activity, the dialogue roundtable on science and policy was held, with the participation of: Marisol Mallo (National Directorate of the Environment, MVOTMA), Gabriela Pignataro (Climate Change Division, MVOTMA; Technical Interinstitutional Group on Ecosystem Services), Walter Oyhantçabal (Unit of Sustainability and Climate Change, OPYPA-MGAP), José Paruelo (National Institute for Agricultural Research, INIA) and Matías Piaggio (Environment for Development - CATIE).

After several questions that sparked a discussion moderated by Néstor Mazzeo, the issues raised included aspects such as the inclusion of ecosystem services management within institutional management, like MVOTMA or INIA for example, scientific perspectives, the interaction with different areas of knowledge and with civil society, the challenges and knowledge gaps on mitigation and adaptation to climate change and variability, and the contributions to sustainable management of natural resources that an economic perspective could make, among others.

Top: participants in the Science-policy dialogue roundtable.

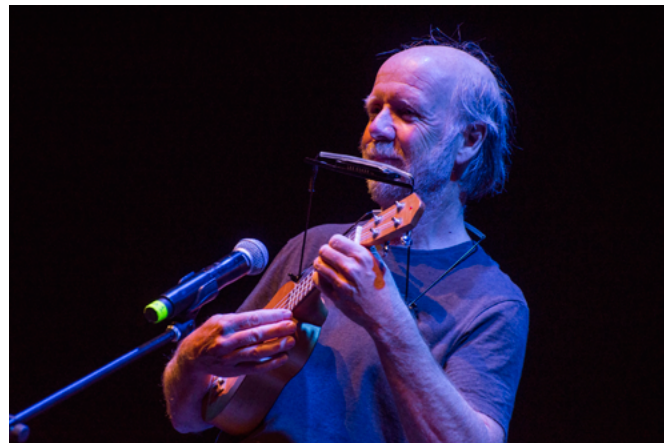
Opposite page, left to right: view of attendants during coffee-break; Marten Scheffer performing the opening music; Esteban Jobbágy, Álvaro Soutullo, Albert Norström; view of the event's agenda and notebooks.



Summary and final thoughts

During the closing of the conference, Henrik Österblom reflected on the different topics that were addressed throughout the afternoon. He indicated that the concept of ecosystem services allows us to have a common language to talk about the challenges and crises we face, and especially, to strengthen collaboration between different disciplinary domains, knowledge areas and players. Österblom stressed the idea of a social contract that science must acquire, referring to a quote by Jane Lubchenco, where scientists devote their talent to the most pressing problems, communicating clearly and exercising good judgment above all. He said that it is necessary to have more spaces that articulate this type of approach to science, mentioning SARAS Institute as an example, that enable to interact and connect experiences happening all over the world.

Néstor Mazzeo added his final thoughts on the importance of breaking disciplinary fragmentations, especially the old division between art and science, where the promotion of art can play a role to address current problems in a more creative way, while opening greater opportunities to put these concepts into practice and look for other solutions and uses.



The conference entitled "Ecosystem services: knowledge creation and decision making" was organized by SARAS, together with the University of the Republic (Udelar), Stockholm University, the Stockholm Resilience Center (SRC), and the Program on "Ecosystem Change and Society" (PECS), which has its headquarters in the Stockholm Resilience Center. It was supported by the National Directorate of Environment (MVOTMA), the Sectorial Commission for Scientific Research (Udelar), and the Basic Sciences Development Program (Udelar). It was sponsored by the Ministry of Education and Culture of Uruguay (declaration of cultural interest), the National Commission of Uruguay for UNESCO (Organization of the United Nations for Education, Science and Culture) and SODRE National Auditorium.

2.2. International postgraduate course



"An introduction to social-ecological systems research in Latin America"

A postgraduate course developed within the context of SARAS 2018 Public Conference "Ecosystem services knowledge development and decision making".

As part of an intense week of activities at SARAS Institute's headquarters, this course took place from December 2nd to 6th and was targeted at international postgraduate students and early young career researchers from Latin America.

The course sought the following main goals: a) to present conceptual frameworks and work methodologies for the study of social-ecological systems; b) to present methodologies that allow answering the different questions that arise when doing research on social-ecological systems; and c) to explore the role played by the sciences, the arts and the humanities in the investigation of social-ecological systems.

Students were selected from a call within SARAS members to nominate doctoral students or professionals starting their research or artistic careers working on or interested in social-ecological dynamics, resilience and sustainability.

The cohort was formed by a group of 17 candidates from different backgrounds and areas of work, coming from a variety of universities and research centers located in Argentina, Australia, Brazil, Canada, Chile, Colombia, Costa Rica, Spain, Peru and Uruguay which included: Interdisciplinary Center for Aquaculture

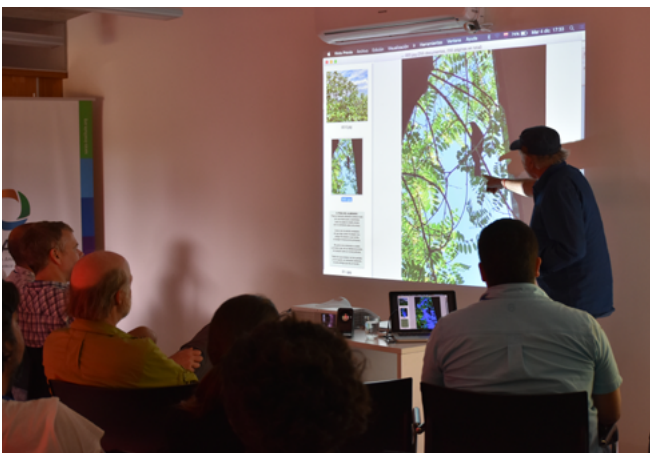


Research (INCAR), Catholic University of Uruguay (UCU), Pontifical Catholic University of Peru (PUCP), University of Waterloo (UW), University of the Republic (Udelar), Federal University of Rio Grande do Norte, University of Buenos Aires (UBA), National Patagonic Center of Puerto Madryn (CENPAT-CONICET), Technological University of Sydney- Australia, University of Rosario, University of Salamanca, Tropical Agricultural Research and Teaching Center (CATIE), and National University of Coastline (UNL).

The course was delivered by a teaching staff coming from different scientific and artistic fields and with ample experience doing inter and transdisciplinary work and research, together with members of SARAS. The group was comprised by Marten Scheffer (Wageningen University), Laurie-Beth Clark (University of Wisconsin-Madison), Patricia Balvanera (National Autonomous University of Mexico), Albert Norström (Program on Ecosystem Changes and Society-PECS), Jorge Marcone (University of Rutgers-New Brunswick), Virginia Lucas (Artigas Institute -IPA), Francisco Gazitua (Artist), Angela

Leible (Artist), Cristina Zurbriggen (University of the Republic), Henrik Österblom (Stockholm Resilience Center), Stefan Gelcich (Pontificia Universidad Católica de Chile), Micaela Trimble (SARAS Institute), Therese Lindahl (Beijer Institute), Matías Piaggio (Tropical Agricultural Research and Higher Education Center), Magnus Nyström (Stockholm Resilience Center), Esteban Jobbágy (National University of San Luis - CONICET), Eduardo Viola (University of Brasilia), Matilda Baraibar (Stockholm University), and Juan Rocha (Stockholm Resilience Center - Beijer Institute). The course was led by: Juan Rocha, Albert Norström, Henrik Österblom and Matilda Baraibar.

As a result of the work and interactions developed by students throughout such an intense week, a network entitled “Socio-ecological Network of Co-creation for Latin America” (RESACA -Spanish acronym) was conformed. The expectation is that this network can contribute to transdisciplinary collaborations for the development of further work from a social-ecological perspective with a vision that can be anchored in the South.



Opposite page: View of students and course-leader Juan Rocha. On this page: various views of classroom dynamics, CaféARTing sessions and a photo of the whole group of students and teachers.

3. RESEARCH

3.1. Research projects carried out

This section lists the main research projects developed by SARAS during 2018. Each case includes information on team conformation which consist of researchers that are members of our institute (Advisory Board, Executive Team and Associates), as well as independent researchers.

“Analysis of Vulnerability, Resilience and Climate Change Adaptation of Uruguay’s Productive Sectors”

(2017-2018; completed)

Team: Néstor Mazzeo, Micaela Trimble, Cristina Zurbriggen, Matías Piaggio, Miguel Carriquiry, Guillermo Sena, Rafael Terra and Mercedes Berterretche. Funded by: Food and Agriculture Organization of the United Nations (FAO). Letter of Agreement with SARAS within the framework of the National Plan of Adaptation to Climate Change and Variability for the Agricultural Sector.

“Contribution to OSE’s Water and Sanitation Plan for the Department of Maldonado, Uruguay”

(2017-2018; completed)

Team: Néstor Mazzeo, Micaela Trimble, Lydia Garrido, Paula De Tezanos, Rafael Terra, Cristina Zurbriggen, Hugo Inda, Cristina Crisci, Juan Pablo Pacheco, Lucía González-Madina, Paula Levrini, Isabel Gadino, Manfred Steffen and Paula Bianchi.

Funded by: Obras Sanitarias del Estado – Unidad de Gestión Desconcentrada de Maldonado (OSE-UGD, water supply company in Uruguay).

“Strengthening Ties between Science and National Government for the Development of Climate Policies in Latin America (LatinoAdapta)”

(2018-2020)

Team: Néstor Mazzeo, Micaela Trimble, Cristina Zurbriggen, Francisco Rosas, Ana Lía Ciganda and Paula Santos.

Funded by: International Development Research Center (IDRC).

Regional Coordinators : Paula Ellinger (Avina) and Enrique Maurtua (FARN). Leading institutions in Uruguay: SARAS and ORT University.



Closure meeting for FAO's funded project, at MGAP offices.

3.2. Participation in research projects

“Prediction for water quality management: harmful algal blooms in Laguna del Sauce”

(November 2018 - October 2019)

Funded by: National Research and Innovation Agency (ANII, acronym in Spanish). Leader: Carolina Crisci.

Participant: Néstor Mazzeo

Scenarios 2050 for the basin of the Maggiolo Reservoir and the San Francisco stream, Minas, Lavalleja.

(2014-2018)

Leader: Mariana Meerhoff

Agreement on technical and scientific cooperation entered into between the National Directorate of the Environment (DINAMA, MVOTMA) and the Easter Regional University Centre (CURE, University of the Republic), aimed at exchanging information on phosphorus dynamics in buffer areas of Paso Severino reservoir, as well as putting forward alternatives to reduce phosphorus from diffused sources in order to improve the quality of water in Santa Lucía river

(2018-2020)

Leader: Mariana Meerhoff

“Imagining Africa’s Futures” (IAF)

(2018-2020)

Funded by: OCP Foundation (Morocco). Leader: Riel Miller (UNESCO). Participant: Lydia Garrido.

4. EDUCATION AND CAPACITY BUILDING

4.1. Courses

Postgraduate course on “[Social-ecological systems: structure, dynamics and management](#)”, aimed at postgraduate students, as well as officers from government agencies (April – July, SARAS, Bella Vista, Uruguay).

Leading instructors: Néstor Mazzeo and Micaela Trimble. Invited lecturers: Patricia Balvanera, Paula Bianchi, Hugo Inda, Lydia Garrido, José Paruelo, Marten Scheffer, Manfred Steffen and Cristina Zurbriggen.

Intensive course on “[Climate policies and Global Energy](#)”, aimed at postgraduate students from Uruguay and other Latin American countries, as well as government technical officers (September 10 - 14, SARAS, Bella Vista, Uruguay).

Leading instructor: Eduardo Viola. Invited lecturers: Lydia Garrido and Néstor Mazzeo.

Intensive workshop: “[Using the future to re-think development](#)”, advanced training on Futures Literacy applied to territories, aimed at public sector practitioners, co-organized between the UNESCO Chair on Sociocultural Anticipation and Resilience and the National Council for Innovation and Development (CNID, acronym in Spanish) from Chile (October 16 - 19, Santiago de Chile, Chile). Leading instructor: Lydia Garrido.

Course on “[Monitoring inland aquatic resources: contributions and insights obtained from remote sensing](#)”, jointly organized with CURE and the University of Cantabria (Spain), aimed at technical officers from government agencies, graduate and postgraduate students (October 29 - 31, SARAS, Bella Vista, Uruguay).

Leading instructors: José Barquín Ortiz, Ana Silió-Calzada and José Manuel Álvarez-Martínez from the Environmental Hydraulics Institute (IHCantabria) and Néstor Mazzeo (SARAS - CURE).

“[An introduction to social-ecological systems research in Latin America](#)”, co-organized with the Stockholm Resilience Centre (SRC) and the Future Earth Programme on Ecosystem Change and Society (PECS), aimed at young researchers and artists from Latin America (December 2 - 6, SARAS, Bella Vista, Uruguay). Leading instructors: Juan Rocha (SRC), Albert Norström (PECS), Henrik Österblom (SRC) and Matilda Baraibar (Stockholm University).

4.2. Other on-site activities

Lecture-workshop “[Untangling resilience: Between memory and oblivion](#)”, as part of Green June initiative in Piriápolis (June 29, SARAS, Bella Vista, Uruguay).

Speaker: Néstor Mazzeo. Facilitator: Silvana Juri.

Interactive workshop “[Bingo! Sustainability at stake](#)”, as part of the 8th Festival “Música de la Tierra” (November 24, Montevideo, Uruguay).

Facilitators: Silvana Juri, Virginia Lucas and Manfred Steffen.



Intensive course on "Climate policies and Global Energy" delivered by Eduardo Viola

4.3. Internships

Manuela Teruggi, postgraduate student of "Economics of environment, culture and territory", University of Turin, Italy. She visited SARAS from March to July, and worked on the fieldwork for her final thesis "Analysis of the vulnerability of artisanal fisheries to climate change in Uruguay". Supervisor: Micaela Trimble.

4.4. Webinars

"What rhymes with resilience? Humanities get acclimated" (May 8).
Speaker: Jorge Marcone (Rutgers University).

"Fundamentals of social-ecological systems (SES) management and governance", open class which was part of the postgraduate course (June 25).
Speakers: Patricia Balvanera (National Autonomous University of Mexico) and José Paruelo (INIA).

"Today I'm gonna think something I have never thought before. I wonder what that will be" (July 13).
Speaker: Marten Scheffer (Wageningen University).

"Human and non-human animals in the jungle, the river, culture and climate change" (July 25).
Speaker: Francisco Bustamante (University of the Republic).

"Language's trap: when our words mean something else" (October 23).
Speaker: Andrea Casals (Pontifical Catholic University of Chile).

"Shapes of the natural: new paradigms for the global city" (November 27).
Speaker: Gisela Heffes (Rice University).



To visit the Webinars section, please go to:
www.saras-institute.org/index.php/en/activities/webinars

5. CONFERENCES AND SEMINARS

5.1. Events organized by SARAS

Seminar: "Alternatives for the internal management of lakes and reservoirs in relation to the restoration of eutrophic systems", jointly organized with CURE (March 5, CURE, Maldonado, Uruguay). Speakers: Nigel Trial (Manager for Latin America and Europe at Phoslock International), Patrick Van Goethem (expert on surface water management), Nicolás Vidal (Udelar) and Néstor Mazzeo (SARAS-CURE).

Seminar: "Challenges when managing water basins ecosystem services in Uruguay and Argentina" (May 2, SARAS, Bella Vista, Uruguay).

Speakers: Esteban Jobbágy (National University of San Luis), Miguel Pascual (National Patagonic Center) and Néstor Mazzeo (SARAS-CURE).

"Sustainable Meal Hackathon" carried out during the event "The Agroeco Prospect: The Politics of Integrating Food and Farming with Values and the Land - Annual Meeting of the Agriculture, Food, and Human Values Society with The Association for the Study of Food and Society" (June 13 - 16, Madison Wisconsin, United States). Organized by: Laurie Beth Clark.

Workshop for a dialogue aimed at bringing together science and policy to discuss climate change adaptation in Uruguay, as part of the LatinoAdapta project (July 24, ORT University, Montevideo, Uruguay).

Colloquium "Climate Policy: Challenges and perspectives", jointly organized with Konrad Adenauer Foundation Montevideo (September 13, Faculty of Social Sciences, Udelar, Montevideo). Speakers: Eduardo Viola (University of Brasilia and SARAS Institute) and Cristina Zurbriggen (Udelar and SARAS Institute).

Workshop: "Opening plural food futures: exercising our collective imagination using the future", during the 6th Latin American Food Design Meeting (October 16, University of Technology - INACAP, Santiago de Chile, Chile). Coordinated by Silvana Juri and Lydia Garrido.

Event: "Transforming the future - Anticipation in the 21st Century", to launch the UNESCO Chair on Anticipation and Resilience (October 26, Torre Ejecutiva, Montevideo). Speakers: Lydia Garrido (SARAS), Riel Miller (UNESCO), Ramón Méndez (Municipal Government of Montevideo) and Néstor Mazzeo (SARAS-CURE).

Workshop: "PECS/SARAS visioning", jointly organized with the Future Earth Programme on Ecosystem Change and Society (PECS) (December 6, SARAS, Bella Vista).

SARAS 8th Public Conference - "Ecosystem services: knowledge generation and decision making".

Activity jointly organized with the Stockholm Resilience Centre and PECS. (December 5, National Auditorium of SODRE, Montevideo)



Event & book launch: "Transforming the future - Anticipation in the 21st Century" - Montevideo.

5.2. Participation in other events

This section lists some of the activities in which the Institute has participated, both nationally and internationally, throughout the year.

EVENTS IN URUGUAY

Workshop: "Update and foresight of water resources in Uruguay", organized by INIA (March 8, Las Brujas). Participant: Néstor Mazzeo.

UNESCO Chairs annual meeting, organized by the National Commission for UNESCO in Uruguay (COMINAL), MEC (June 6, Montevideo). Participants: Néstor Mazzeo and Micaela Trimble. Presentation of progress report on UNITWIN Network on Climate Change and Decision Making and the proposal for the creation of the Chair on Sociocultural Anticipation and Resilience.

Dialogue on National Environmental Plan for Sustainable Development, organized by CURE (August 11, CURE Maldonado). Participants: Néstor Mazzeo, Micaela Trimble and Paula Bianchi.

Latin America and the Caribbean Week (LACCW 2018) (August 20 - 23, Montevideo) Participants: Néstor Mazzeo, Micaela Trimble and Paula Bianchi.

Workshop on agricultural sector analysis - Technical cooperation between Germany (GIZ) and Uruguay for the management of the Laguna del Sauce basin, organized by the National Directorate of the Environment, with the technical support of Arnold Quadflieg (October 16, Bella Vista). Participant: Néstor Mazzeo.



Workshop: "Opening plural food futures: exercising our collective imagination using the future"- Santiago de Chile

EVENTS ABROAD

"Sustainability, preservation and resilience: Post-conflict strategies", organized by the University of Rosario (March 14, Bogotá, Colombia).

Participants: Néstor Mazzeo and Cristina Zurbriggen. Title of the presentations: "Contributions to land-use planning from a perspective of space arrangement of ecosystem services and resilient thinking" (Mazzeo); "Social transformation as a response to environmental challenges: contributions for thinking in post-conflict Colombia" (Zurbriggen).

Erasmus-CARE Project Final Conference (Empowering climate resilience), organized by the Pontifical Catholic University of Chile (September 24 - 28, Santiago de Chile, Chile).

Participant: Paula Bianchi. Presentation: "Urban sustainability from a resilient thinking approach".

Annual meeting of the Iberoamerican network on prospective - RIBER (acronym in Spanish) (October 10 - 11, Santa Cruz, Bolivia).

Participant: Lydia Garrido. Title of the presentation: "UNESCO chair on sociocultural anticipation and resilience".

Workshop "Futures Literacy Lab: challenges on future in territories", organized by Riel Miller (UNESCO) and the National Council for Innovation and Development from Chile (October 22 - 23, Santiago de Chile, Chile).

Participant: Lydia Garrido.

Prela International Seminar: from knowledge to the restoration of aquatic ecosystems, Trafquintun kimun (November 27, Contulmo, Chile).

Participant: Néstor Mazzeo. Title of the presentation: "Knowledge obtained from the mechanical harvesting of *Egeria densa* in Laguna del Diario (Uruguay)".

24th Conference of the Parties to the United Nations Framework Convention on Climate Change (COP24) (December 3 - 14, Katowice, Polonia).

Participant: Paula Bianchi (LatinoAdapta Project, Regional Center for Climate Change and Decision Making).



6. COOPERATION AND NETWORKING

6.1. Collaboration with other institutions in Uruguay

Laguna del Sauce-basin commission, convened by DINAMA-MVOTMA.

Technical Advisory Board of the Regional Center for Sanitation Technologies (CERTS, acronym in Spanish), convened by DINAGUA-MVOTMA.

Local Fisheries Council, convened by the National Directorate of Aquatic Resources (Ministry of Livestock, Agriculture and Fisheries).

Working group on biodiversity and ecosystem services, as part of the Advisory Technical Commission for the Protection of the Environment (COTAMA, acronym in Spanish), convened by DINAMA-MVOTMA.

Working group on satellite imagery, inter-institutional group convened by the spatial data infrastructure, Presidency of the Republic.

Certification program of enjoyable and sustainable educational facilities, led by the division of environmental education, Education Directorate, Ministry of Education, in collaboration with MVOTMA.

6.2. UNESCO Chairs established at SARAS

UNESCO Chair in Socio-cultural Anticipation and Resilience (approved in September 2018).

Leader: Lydia Garrido. Co-leader: Cristina Zurbriggen.

UNITWIN Network on Climate Change and Decision Making (under agreement entered into in December 2018). www.cambioclimaticoydecisiones.org

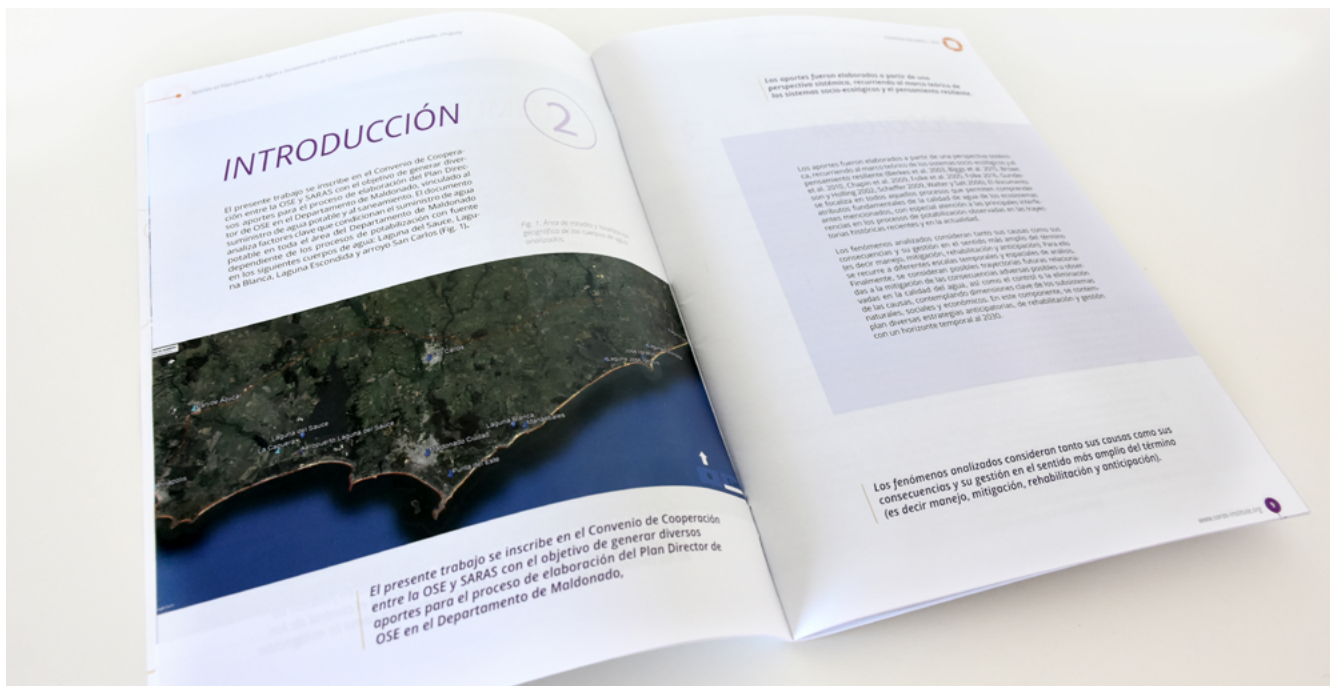
6.3. Other cooperation efforts

Stockholm University: meeting held with Astrid Söderbergh Widding (President) and other representatives of this University, aimed at exploring cooperation agreements with SARAS (April 12, Buenos Aires, Argentina).

Stockholm Resilience Centre and PECS: collaboration organizing various activities (course on social-ecological systems, public conference on ecosystem services and SARAS-PECS workshop).

Global Water Partnership - GWP South America: appointment as partner organization.

7. PUBLICATIONS



ARTICLES PUBLISHED IN PEER-REVIEWED JOURNALS

Doing Food, Doing Climate

Performance Research 23(3): 37-46.

Clark L.B., Peterson M.

External drivers and internal control factors that determine the vulnerability and response capacity to drought of cattle producers in the Sierras del Este Region of Uruguay

Journal of Agricultural Science 10(1): 190-203.

Díaz I., Achkar M., Mazzeo N.

Drought vulnerability assessment of cattle producers in the Sierras del Este-Uruguay: Interactions between actors and agents

Outlook on Agriculture

Díaz I., Achkar M., Mazzeo N.

Drivers of cyanobacteria dominance, composition and nitrogen fixing behavior in a shallow lake with alternative regimes in time and space, Laguna del Sauce (Maldonado, Uruguay)

Hydrobiologia

González-Madina L., Pacheco J.P., Yema L., de Tezanos P., Levrini P., Clemente J., Crisci C., Lagomarsino J.J., Méndez G., Fosalba C., Goyenola G., Mazzeo N.

Quantifying resilience of humans and other animals

PNAS 115(47): 11883-90.

Scheffer M., Bolhuis E., Borsboom C., Buchman T.G., Gijzel S.M.W., Goulson D., Kammenga J.E., Kemp B., van de Leemput I.A., Levin S., Martin C.M., Melis R.J.F., van Nes E.H., Romero L.M., M.G.M. Olde Rikkert.



Climate Report from Uruguay

Meerhoff M., Bernardi R.
Performance Research 23(3): 56-58.

Using Ostrom's principles to assess institutional dynamics of conservation: Lessons from a marine protected area in Brazil

Marine Policy 88: 174–181.
Tebet G., Trimble M., Medeiros R.P.

Participatory evaluation for adaptive co-management of social-ecological systems: a transdisciplinary research approach

Sustainability Science
Trimble M., Plummer R.

Participatory evaluation in times of governance transition: The case of small-scale fisheries in Uruguay

Ocean and Coastal Management 161: 74–83.
Trimble M., Plummer R.

Laboratorios de Transformación para un Futuro Sostenible

Cuadernos del Centro de Estudios en Diseño y Comunicación 83: 127-143.
Zurbriggen, C., González Lago M., Mancilla García M., Gatica S.

BOOK CHAPTERS

The Future of Science in Society

In: Transforming the Future: Anticipation in the 21st Century (Ed. R. Miller). UNESCO-Routledge, pp. 118-131.
Cagnin C., Garrido L.

Using the Future for Local Labor Markets

In: Transforming the Future: Anticipation in the 21st Century (Ed. R. Miller). UNESCO-Routledge, pp. 131-139.
Nosarzewski K., Garrido L.

Communication and culture for development: contributions to small-scale fishers' wellbeing in coastal Uruguay

In: Handbook of Communication for Development and Social Change (Ed. J. Servaes). Springer.
Santos P., Trimble M.

¿Qué es la eutrofización?

Chapter 1 in "Aportes para la rehabilitación de la Laguna del Sauce y el ordenamiento territorial de su cuenca" (Contributions towards the recovery of Laguna del Sauce and the land-use planning of its basin), SARAS Institute, pp. 25–31.
Bianchi P., Taveira G., Goyenola G., Fuentes M., Steffen M., Mazzeo N.

¿Cuáles son los principales usos del suelo actuales y tendenciales en la cuenca de Laguna del Sauce?

Chapter 3 in "Aportes para la rehabilitación de la Laguna del Sauce y el ordenamiento territorial de su cuenca", SARAS Institute, pp. 47-59.
Taveira G., Bianchi P., Díaz I., Inda H.

Ordenamiento y planificación territorial en el contexto de la Gestión Integrada de Cuencas

Chapter 5 in "Aportes para la rehabilitación de la Laguna del Sauce y el ordenamiento territorial de su cuenca", SARAS Institute, pp. 81–97.

Gadino I., Barindeli N., Goñi A.

Estrategias de rehabilitación de Laguna del Sauce desde la perspectiva del ordenamiento territorial

Chapter 6 in "Aportes para la rehabilitación de la Laguna del Sauce y el ordenamiento territorial de su cuenca", SARAS Institute, pp. 25–31.

Bianchi P., Taveira G., Goyenola G., Fuentes M., Steffen M., Mazzeo N.

Avances, desafíos y oportunidades en el actual sistema de gobernanza

Chapter 7 in "Aportes para la rehabilitación de la Laguna del Sauce y el ordenamiento territorial de su cuenca", SARAS Institute, pp. 111–117.

Steffen M., Inda H., Bianchi P., Puente R., Taveira G., Teixeira de Mello F., Goyenola G., Méndez G., Lagomarsino J.J., Clemente J., Nin M., Mazzeo N.

FINAL PROJECT REPORTS

Aportes al plan director de agua y saneamiento de OSE para el departamento de Maldonado, Uruguay (convenio OSE-SARAS)

Mazzeo N., Trimble M., Garrido L., De Tezanos P., Terra R., Zurbriggen C., Inda H., Crisci C., Pacheco J.P., González-Madina L., Levrini P., Gadino I., Steffen M., Bianchi P.

SPECIAL EDITION IN ECOLOGY & SOCIETY

Seeking Sustainable Pathways for Land Use in Latin America

Rocha J.C., Mazzeo N., Piaggio M., Carriquiry M. (Eds.)



8. KEY CONCEPTS

Among the tasks developed by the Communications Team during 2018, it is important to highlight the creation of a new page within the research sections of our website that sought to give more visibility and provide better ease of access to the material linked to our key concepts.

At the same time, the presentation format was re-designed to resemble a glossary or manual, where each key concept was re-structured in their images and contents. Currently, each concept is identified by a seal and it offers a brief introduction to the topic, from an overview to the details. Finally, a box including key references is offered so that readers can deepen and broaden their knowledge on each of these concepts. During 2019, the team will continue working on the integration of a new set of key concepts.

KEY CONCEPTS CURRENTLY AVAILABLE



Alternative regimes



Resilience



Adaptive cycles and panarchy



Rigidity or poverty traps

SARAS Institute grounds its theoretical approach from the study of social-ecological systems (understanding the interactions and interconnections between natural, social, economic and cultural systems as a complex whole) and resilience thinking.

To contribute to the understanding of the concepts upon which these perspectives are rooted from, is that we offer a section devoted to clarify the key concepts that support our vision.



To visit the Key Concepts sections, please go to:
www.saras-institute.org/index.php/en/research/key-concepts-2



SARAS Institute

Calle Los Teros y Cardenales
Bella Vista, Maldonado - Uruguay
Email: info@saras-institute.org
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