



NATIONAL REPORT OF URUGUAY ON ACTIVITIES RELATED TO THE INTERGOVERNMENTAL HYDROLOGICAL PROGRAMME

IHP Uruguay National Committee

1. Activities conducted from November 2018 to March 2021

This report covers activities carried out with the Intergovernmental Hydrological Programme (PHI) in Uruguay by the different governmental institutions, and the Regional Centre for Groundwater Management (*CeReGAS*), the Water and Culture Chair and the Regional Experimental Centre for Sanitation Technologies (*CERTS*) operating in the country under different modalities.

1.1 Structure of the IHP National Committee

The IHP National Committee in Uruguay (CoNaPHI Uruguay) was created in 1976 and actively participates in IHP-LAC activities, and is a member of the IHP Intergovernmental Council. CoNaPHI Uruguay is chaired by the National Water Director from the Ministry of Environment. Uruguay actively participates in the UNESCO Water Family and hosts the Regional Centre for Groundwater Management (*CeReGAS*), Category II, the Water and Culture Chair (University of the Republic) and the Regional Experimental Centre for Sanitation Technologies (*CERTS*), Category II. *CERTS*, supported by UNESCO since October 2019, is the first centre set up in the region for research, technological development, training and outreach of sustainable sanitation technologies focusing on systems suitable for small populations.

The National Water Plan, approved in July 2017, sets out programmes and projects at a national level, which are also applied in planning at basin and aquifer scale, where actions are integrated, co-ordinated, and agreed by the different stakeholders involved in water-related affairs, as a framework that promotes current and future partnerships in IHP-LAC-related issues.

1.1.2 Meetings held

Participated in the XIII Meeting of IHP-LAC National Committees and Focal Points. 23-25 October 2018, Panama.

1.2 IHP activities at a national level

1.2.1 National/local scientific and technical events

As part of World Water Day 2019, IHP-UNESCO Regional Hydrologist Miguel Doria, OSE Milton Chairman and Daniel Greif, National Water Director, explained the management of water resources and access to safe drinking water and sanitation to ensure that "no one is left behind" on the road towards sustainable development. Developments in the National Water Plan were presented at the meeting.

On 22 March 2019, also as part of World Water Day, CeReGAS and the Technological University of Uruguay, Central-South Technological Institute (*UTEC - ITRCS*), co-hosted a technical seminar in the city of Durazno-Uruguay, featuring the expertise of different specialists, to reflect on how to ensure the availability and sustainable management of water and sanitation for all between now and 2030.

On 28 August 2019, the Experimental Centre for Sanitation Technologies (CERTS) 's new headquarters and laboratories were officially opened at the Pando Science and Technology Industrial Site.

The First Regional Meeting of the LAC Network of Water Museums took place on December 4-5, 2019, in Aguas Corrientes, and it was managed by the Historical-Cultural Heritage Committee of the Administration of the State Sanitary Services (*OSE*), Uruguay. It is a regional initiative within WAMU NET to help water museums in LAC improve their capacities and representation within the Global Network. The meeting was organised by IHP-LAC, Water and Culture Chair, IHP-LAC Regional Group on Water Education and Culture. Representatives from museums and museum projects from Ecuador, Brazil, Argentina, Mexico, Colombia and Uruguay assisted.

1.2.2 Participation in IHP programmes and working groups

Uruguay is a member of the ISARM Programme (International Shared Aquifer Resource Management), which aims to better understand the scientific, socio-economic, legal, institutional and environmental problems related to the management of transboundary aquifers. The fact sheets with information and maps of the six transboundary aquifers identified for Uruguay were updated.

UNESCO-IHP has appointed CeReGAS to co-ordinate the Working Group for the ISARM-Americas Programme.

Uruguay participates in the GRAPHIC Programme (Groundwater Resources under the Pressures of Humanity and Climate Change), aiming to better understand how groundwater interacts with the global hydrological cycle and, consequently, assess how it reacts to complex pressures from human activity and climate change. Uruguay and CeReGAS are proposing the Salto Aquifer as a GRAPHIC case study, based on a diagnostic study, so as to evaluate potential tools and methods contributing to its sustainable management, aligned with the National Water Plan.

Uruguay is a member of the Working Group of the La Plata Basin, which aims to promote, develop and pursue studies and research on topics of common interest for integrated management of the Basin's water resources and gather and reconcile the latest findings. Courses, articles and reports relevant to the Basin are promoted, including the following:

- The Subgroup of the La Plata Basin Chapter on "Transboundary Water Cooperation in Latin America (SDG 6.5.2)" is co-ordinated.
- The Water Quality Subgroup is co-ordinated, and progress was made regarding the monitoring network design.
- The Subgroup is appointed to draft an article on the Decision Support System (DSS) and the La Plata Basin Observatory.
- The Sub-Group is co-ordinated around the publication of an IHP-LAC technical series on "Algal blooms in the La Plata Basin."
- Collaboration in the article review on water governance in the La Plata Basin.

Uruguay is a member of the Regional Ecohydrology Programme and the Environmental Flows Network, aimed at supporting the adoption of ecohydrological measures to mitigate the degradation of regional water resources and the loss of biodiversity in Latin America and the Caribbean while promoting the recognition and optimisation of ecosystem services that will benefit society, and increasing the resilience of water systems against an increasing degree of anthropogenic pressures in a global change scenario. Events, courses, projects and publications related to this subject are promoted. A publication is being produced as a Document for the IHP-LAC Technical Series containing lessons learned on regional environmental flows, in which Uruguay participates.

Uruguay is a member of the Working Group on Urban Water, aimed at consolidating the integrated management of urban water in Latin American and Caribbean countries, making progress with a regional action strategy based on scientific and technical knowledge and information and expertise exchange.

Uruguay is a member of the International Sediment Initiative Working Group (ISI-LAC), which aims for a better understanding of the generation, mobilisation, transport, storage, ecology and water and sediment quality and how much sediment is generated locally and regionally to support effective sediment management, improve education, training and cooperation. It organised events and technical meetings accordingly.

Uruguay is a member of the Working Group of the International Flood Initiative (IFI-LAC) aimed at improving data collection and analysis for flood management by expanding the risk-benefit related knowledge base, building and improving institutional frameworks for flood management, developing area-specific adaptation strategies, reducing vulnerabilities, and improving flood forecasting and early warning for urban and rural areas.

Uruguay participates in the Water Education and Culture Programme. Their main functions include promoting water education at all levels, improving the sector's professional, technical and institutional skills, promoting cultural understanding and gender equality around water in the Latin American and Caribbean countries. Four UNESCO Chairs participate in the Working Group: "Water and Education for Sustainable Development" (Argentina); "Water, Women and Development" (Brazil); "Water in the Knowledge Society" (Mexico) and "Water and Culture" (Uruguay).

The Water and Culture Chair serves as the co-ordinating body for the Global Network of Water Museums' regional chapter in Latin America and the Caribbean (WAMU NET).

1.2.3 Supported or sponsored studies and research

Uruguay, together with Argentina, Brazil and Paraguay, is running the GEF Guarani II Project "Implementation of the Guarani Aquifer Strategic Action Program (SAP): Enabling Regional Actions", which will set in motion the technical coordination frameworks and regional management tools foreseen for the SAP allowing for the co-ordinated and aligned implementation of the priority actions defined in the Guarani I Project. The project is implemented by CAF, executed by UNESCO and technically executed by CeReGAS.

As part of the Environmental Engineering course at the Technological University of Uruguay (UTEC-Durazno campus), we participated in an integrated *GIS/STC* project by providing lectures, exchanging information and offering internships. Hence, specialised human resources were trained, and management support products (*GIS*) were generated. CeReGAS also provided technical and financial support for the exchange of students from several regional universities,

such as the Industrial University of Santander (Colombia), the University of Sao Paulo, and the Federal University of Rio Grande do Sul (Brazil).

The Water and Culture Chair provides postgraduate mentoring for water-related theses in Humanities and Social Sciences fields.

1.2.4 Collaboration with other national and international organisations or programmes

We attended the GWP World Assembly held virtually (via teleconference) on 25 June 2019 at Uruguay's GWP offices.

Discussions were held with the Regional Ecohydrology Programme to submit an expression of interest to include the RAMSAR Esteros de Farrapos area as a pilot site for the Programme. CeReGAS, RAMSAR, SNAP and IMFIA are involved in this initiative.

We organised and attended the preparatory meeting for the Guarani Aquifer Project held in Montevideo on 25 and 26 March 2019, in which representatives from Argentina, Brazil, Paraguay, Uruguay, GEF, CAF, UNESCO attended and whose objective was to consider the GEF's feedback on the project document submitted and consider governance issues. This meeting took place within the GEF Expanded Constituency Workshop framework for Latin America and was conducted by CeReGas.

1.3 Training/educational activities

1.3.1 Specific courses held

Online Course: "Water Security and the SDGs." 2018. It was organised by the Water Education and Culture Group, IHP and co-ordinated by the UNESCO Water and Education for Sustainable Development Chair (Argentina). The Water and Culture Chair was entrusted with the video and educational material on water culture.

"International course on wastewater treatment and reuse" that took place from 25 to 29 March 2019 in Montevideo, organised by CERTS through DINAGUA, supported by the Experimental Centre for New Water Technologies (*CENTA*) of Seville, Spain; the Institute of Fluid Mechanics and Environmental Engineering (*IMFIA*) of the School of Engineering - University of the Republic (*Udelar*), the National Agency for Research and Innovation (*ANII*) from Uruguay; the UNESCO IHP; the Water Security Centre of the Mexican Institute of Water Technologies (*IMTA*); and the Spanish Agency for International Development Cooperation (*AECID*) in Uruguay.

Course on "Conflict analysis, prevention and resolution for HR management", held from 7 to 11 October 2019. Institutions involved: Ibero-American Conference of Water Directors (*CODIA*), Spanish Agency for International Development Cooperation (*AECID*), UNESCO-IHP and Inter-American Development Bank (*IDB*), in cooperation with DINAGUA, and others.

Course on "Integrated Groundwater Management, focused on transboundary aquifers", held in Montevideo in two sessions: from 19 to 21 November 2018 and from 25 to 29 November 2019, and in 2020, three webinars were held on 14, 21 and 28 July. Institutions involved: Ibero-American Conference of Water Directors (*CODIA*), Spanish Agency for International Development Cooperation (*AECID*), UNESCO-IHP, the UNESCO Chair Water and Education for Sustainable Development and CeReGAS, Latin American Network of Centres of Excellence in Water Management - RALCEA.

Postgraduate course on "Isotopic Hydrology", held from 9 to 13 December 2019 in Montevideo. The Isotopic Hydrology course was included in the curricular activities of the postgraduate courses of PEDECIBA Geosciences and Environmental Sciences from the School of Sciences and was sponsored and supported by CeReGAS. Professor Didier Gastmans, Geologist and PhD in Geosciences and Environment from the Universidad Estadual Paulista Júlio de Mesquita Filho (UNESP, Brazil) led the course.

Webinars on "Governance of transboundary aquifers". Two webinars (7 and 14 October 2020) were co-organised between UNESCO and CeReGAS. Antonio Embid from the University of Zaragoza-Spain, Pilar Villar from the University of São Paulo-Brazil and Francesco Síndico from the University of Strathclyde-Scotland attended these events.

Online course on "Harmonisation of legal frameworks in water resources planning and management. An approach for Latin America and the Caribbean" took place from 3 to 4 November 2020, organised jointly by DINAGUA IHP-UNESCO, under the CODIA framework.

Course on "Water Anthropology in Uruguay" in 2018 and 2020 from the Water and Culture Chair, addressed to undergraduate and postgraduate university students, School of Humanities and Education Sciences, University of the Republic, Uruguay. The 2020 edition involved students from Chile among Uruguayan students.

1.3.2 Participation in IHP courses

Uruguay attended several IHP courses and webinars during the reporting period on climate variability, sediment, remote sensing, groundwater, urban water, water quality, environmental flows, governance, integrated management, education, legal framework, gender, SDGs, and others. Some of them are mentioned below:

Uruguay participated in the course "Building basin organisations and water governance in Latin America" at the Training Centre in Cartagena de Indias, Colombia. 26-30 November 2018.

Course on "Mathematical Aquifer Modelling", held at the AECID Training Centre in Santa Cruz de la Sierra from 2 to 5 March 2019. Institutions involved: Latin American Network of Centres of Excellence in Water Management - RALCEA, European Commission - EC, Inter-American Development Bank - IDB, the Cooperation Fund for Water and Sanitation - FCAS, the Latin American Network of Capacity Development for Integrated Water Management - LA-WETnet, Capacity Development in Sustainable Water Management Cap Net UNDP, Ibero-American Conference of Water Directors (CODIA), Spanish Agency for International Development Cooperation (AECID), the UNESCO Water and Education for Sustainable Development Chair and CeReGAS.

Uruguay attended the course on "Implementation and Management of Environmental Flows", which took place in Santa Cruz de la Sierra, Bolivia, from 22 to 26 July 2019. The course was jointly organised by the Spanish Agency for International Development Cooperation (AECID), the Conference of Ibero-American Water Directors (CODIA) and the UNESCO International Hydrological Programme (IHP) through the Regional Ecohydrology Programme.

Uruguay attended the Online Open Course on "Water Security and the Sustainable Development Goals". CeReGAS delivered a lecture.

Uruguay attended the Webinar on "Management tools for the water sector in Latin America and the Caribbean to fight against Covid-19" organised by UNESCO and WMO. 2 April 2020.

Uruguay attended the online course on "Approach to integrated water and sanitation management, focusing on health facilities, as a response to the emergency posed by COVID-19." The Chair of Water and Culture delivered a lecture. 17 and 18 September 2020. AIDIS, AECID, CODIA, IHP LAC, WHO / PAHO, AGIS.

Uruguay attended the course on "Water and sanitation technologies focusing on health facilities in the COVID-19 scenario" on 22 and 24 September 2020. Lectures were given by DINAGUA and the Water and Culture Chair. AIDIS, AECID, AGISA, IHP LAC, WHO / PAHO.

Uruguay participated in the Webinar on "Water, Gender and Climate" organised by UNESCO IHP-LAC and the World Water Assessment Programme WWAP. 24 November 2020

1.4 Cooperation with Centres sponsored by UNESCO

Technical cooperation between Uruguay and the Regional Centres and UNESCO Chairs, and among themselves, is ongoing.

On 19 December 2018, a Memorandum of Understanding was signed between the International Groundwater Resources Assessment Centre (*IGRAC*) and the Centre for Groundwater Management in Latin America and the Caribbean (*CeReGAS*) intended to establish a strategic collaboration framework between both centres to achieve their objectives more effectively.

CeReGAS and the Water and Culture Chair from Uruguay are currently drafting a questionnaire and its assessment to contribute to the setting up of a water and education indicator under SDG 6 and a joint research agenda on water education.

An agreement was signed between the Water and Culture Chair and *OSE* to provide advice on the conservation and promotion of the water heritage.

Cooperation between the *IMFIA* School of Engineering and the Interdisciplinary Centre for Coastal Management that holds a UNESCO Chair through collaboration with the Centre's teaching, research, and outreach activities.

1.5 Publications

Taks J. 2018. Prologue to book: Ríos, D. *Agua Potable: Agua Potable: Historia y sensibilidad (Drinking Water: Drinking Water: History and Sensitivity)*. Montevideo: civilesiletrados.

Taks J. 2018. *Water-Worlds: How to Research Under the Umbrella of Sustainable Development Being Aware of Its Multiple Ambiguities?* In: *Sustainable Development Research and Practice in Mexico and Selected Latin American Countries*. Springer International Publishing AG. ISBN: 978-3-319-70559.

Piperno A, Benenati S, Emanuelli C, Cuadrado A, Martíne, J, García P, Alonso D. 2019. *Ciudades resilientes en LAC: aportes desde la gestión de las aguas urbanas en Uruguay (Resilient cities in LAC: contributions from urban water management in Uruguay)*. *Aqua-LAC*, Volumen 11(2), 1-16. doi: 10.29104/phi-aqualac/2019-v11-2-01

Gestión Integrada del Agua Subterránea en Latinoamérica - Casos y experiencias del curso regional Gestión Integrada de Aguas Subterráneas (GIAS) – (Integrated Groundwater Management in Latin America - Cases and experiences of the regional course Integrated Groundwater Management (GIAS)). 2019. Plan Intercoonecta. Editors: Marta Paris, Alberto Manganeli. RALCEA, UNESCO Chair on Water and Education for Sustainable Development, *CeReGAS*, AECID.

Ibero-American Atlas of Shallow Geothermal Energy by RIGS-CYTED. 2019. American Geophysical Union (AGU) Meeting

Alonso J, Quintans F, Taks J, Conde D y others. 2019. Calidad del agua en Uruguay: Actualidad y desafíos (Water quality in Uruguay: Current events and challenges.). In: Calidad del Agua en las Américas: Riesgos y Oportunidades (Water Quality in the Americas: Risks and Opportunities.) 2019. Collaboration between the IANAS Water programme and IHP-UNESCO. ISBN: 978-607-8379-33-0.

Taks J. 2019. Anthropology of socio-natural disasters in Uruguay. In: García Acosta, V. (ed.) The anthropology of disasters in Latin America. London: Routledge. ISBN: 9781138581456.

Taks J y Alzugaray S (eds). 2019. Anthropological contributions for sustainable futures. Research and interventions in the fields of environmental needs, gender equity, human rights and knowledge in South America and the United Kingdom. Montevideo: FHCE. ISBN: 978-9974-0-1675-0. The publication includes six essays on water issues.

Taks J, Clavijo I, Manganelli A y Lucía Samaniego. 2019. “Desarrollo de un indicador dedicado a la educación sobre el agua en el marco del ODS 6 sobre el agua” (Development of a water education indicator under SDG 6 water framework). Research report. Montevideo.

Chreties C, Bidegain MP y García F. (coordinated and co-authored) Chapter about Uruguay in the book: García-Chevesich PA, Pizarro R, Lehmann Ch. 2019. Estado actual de la gestión de sedimentos en nueve países de las Américas (Current status of sediment management in nine countries of the Americas). UNESCO IHP-LAC Technical Documents, No. 39.

Ruz-Vargas C, Samaniego L, Rangel M. 2020. Estado actual del Monitoreo de agua subterránea en América Latina e Introducción al programa GGMN (Current Status of Groundwater Monitoring in Latin America and an Introduction to the GGMN Programme). Aqua-LAC Volumen 12(1), 118-126. doi: 10.29104/phi-aqualac/

Pamoukaghlián K, Pérez A, Samaniego L. 2020. Estudio de calidad del agua del sistema acuífero pérmico en la región noreste de Uruguay (Water quality study of the Permian aquifer system in the north-eastern region of Uruguay). Rev. Soc. Urug. Geol. Nº22, 49 - 63 (2019) Sociedad Uruguaya de Geología ISSN: 2730-485X (online).

Hirata R, Kirchheim R, Manganelli A. 2020. Advances and setbacks of the Guarani Aquifer System diplomacy in South America. Environmental Science and Policy 114 (2020) 384–393

2020 Water Museums in Latin America and the Caribbean. A preliminary guide. Featured at the second meeting of water museums in the region. December 2020.

The following publications under review were also released:

- Potential of geothermal energy in the onshore sedimentary basins of Uruguay. Journal: Geothermics
- Estudo hidrogeológico da bacia hidrográfica transfronteiriça do rio Quaraí, Brasil/Uruguai. Revista Águas Subterrâneas – ABAS
- Propuesta de sitio demostrativo: Esteros de Farrapos, Río Negro, Uruguay (Proposed pilot site: Esteros de Farrapos, Río Negro, Uruguay). Ecohydrology Programme UNESCO.
- Sistemas Acuíferos Transfronterizos de América del Sur. El caso del Sistema Acuífero Guaraní. (Transboundary Aquifer Systems in South America. The Guarani Aquifer System) Chapter within the Water and Cooperation document. UNESCO

- Estudio de Caso del Acuífero Salto (Uruguay) (Salto Aquifer Case Study). Chapter within the “El programa GRAPHIC/UNESCO y sus actividades en Latinoamérica y Caribe” document.

1.6 Participation in scientific events

1.6.1 Events held across the country

Seminar: Indigenous Peoples, Fish and the Political Ecology of Dams: A Comparative Perspective. By Dr Ben Colombi (University of Arizona). Montevideo, University of the Republic, Uruguay. 2018. Water and Culture Chair.

First Conference of the Regional Centre for Groundwater Management in Latin America and the Caribbean (CeReGAS) regarding Groundwater Monitoring, which took place on 30 July 2019, at Uruguay's Technological Laboratory (LATU). Lectures by members of the CeReGAS National Technical Advisory Board covered the following subjects:

- Groundwater monitoring: Introduction and overview - CeReGAS
- Monitoring network design: School of Engineering
- Treatment, sample preservation, suitable protocols based on environmental activity and analytical methodologies: School of Chemistry
- Results analysis and representation: School of Science
- The National Environmental Directorate's control of groundwater monitoring carried out by companies
- Groundwater monitoring within the Water Plan - SAG monitoring: National Water Board
- Monitoring of the Salto Aquifer: Water Department. Northern Regional Centre

Regional Congress. 2nd AUGM Congress on Water, Environment and Energy. Montevideo. The Head of the Water and Culture Chair was a member of the Academic and Organising Committee. 2019.

Water Day 2019 Roundtable. Water quality and human rights challenges. Sponsored by the National Human Rights Institution and Ombudsman's Office and University Environmental Network. 2019. Water and Culture Chair.

Conference on "Evaluation of the feasibility of the domestic use of rainwater: quality, quantity and social acceptance". AIDIS National Congress Environmental Challenges: Comprehensive Strategies and Co-ordinated Actions. 28-29 August 2019. (Authors: Mauro D'Angelo MSc Eng.; María Saravia Architect; Pablo Gianoli, Engineer; Dr Javier Taks; Julieta López MSc Eng.).

1.6.2 Participation in events abroad

Uruguay was a speaker at several conferences at the 8th World Water Forum from 18 to 23 March 2018 in Brasília, Brazil.

XIV Latin American Congress of Hydrogeology in Salta, Argentina, 23-26 October 2018.

CeReGAS attended the "1st Ibero-American Conference on Shallow Geothermal Energy" held from 7 to 10 October 2019 at the University of San Martín, in the city of Buenos Aires - Argentina, organised by the Ibero-American Network on Shallow Geothermal Energy (RIGS-CYTED)

CeReGAS attended the UNESCO International Water Conference, held in Paris - France, on 13-14 May 2019. On such occasion, CeReGAS attended the Side Event: the UNESCO Water Family, introducing the Centre's activities.

CeReGAS attended the International Workshop: "Assessment of impacts on groundwater quantity and quality and their mitigation" from 3 to 7 June 2019, organised by the UNESCO GRAPHIC programme, held in Foz do Iguaçu - Brazil. CeReGAS presented its work.

CeReGAS attended the workshop on "Supporting the implementation of the 2030 Agenda - Cooperation on Transboundary Waters - Follow-up of the implementation of SDG indicator 6.5.2 in Central America and the Caribbean." This workshop intended to achieve results for integrating information related to transboundary waters in future monitoring cycles of SDG 6 indicator 6.5.2 and promoting international cooperation in this area. It was held at the AECID Training Centre in Antigua-Guatemala from 5 to 7 November 2019.

Virtual workshop: designing legal frameworks for transboundary water cooperation. It was organised by UNECE and others. CeReGAS was a panellist for "Substantive content and procedural features" with the topic: Example of substantive and procedural features within a groundwater agreement in Latin America: the Guarani Aquifer case.

Online Conference: "Addressing Groundwater Resilience under Climate Change". Organised by the International Water Resources Association (IWRA), UNESCO-IHP and the International Association of Hydrogeologists (IAH). CeReGAS was a panellist for "Education and Capacity Building in Groundwater."

Online Conference: Transboundary Groundwater Resources. A Global Overview on Transboundary Aquifers Management and Global Experiences. Organised by the World Bank Group/Water. CeReGAS showcased the Guarani Aquifer System case study.

Participation in the series of Virtual Conferences: Learn Geothermal Energy, organised by the Colombian Geothermal Association (AGEOCOL). A lecture was given within the framework of the 15th Virtual Conference on 12 June 2020. Title: RIGS- CYTED Forum: current status of shallow geothermal energy in different Ibero-American countries. Moderator: Mar Alcaraz, Ibero-American Network of Shallow Geothermal Energy (RIGS-CYTED).

Conference "Water culture. Reviewing the concept of water and sanitation guarantee for all in the Latin American and Caribbean region". 2018. CILAC Forum, Panama City, Panama (Authors: Inti Clavijo, Javier Taks)

Conference on "Images of water and development after the landing of the Finnish forestry and cellulose industries in Uruguay. The UPM case". 2018. Paper presented at the 4th Conference of the Global Ecology Research Network. Helsinki. Water and Culture Chair.

Conference on "The modern socio-hydrological cycle and alternative visions". International Seminar: Indigenous Knowledge for Integrated Water Management in the Latin American and Caribbean Region. Manaus, 8-9 August 2019. (Authors: Inti Clavijo; Javier Taks)

3rd Ibero-American Congress on Sediments and Ecology (CISE). 25 November 2020 virtually organised by ISI-LAC, IMTA and III CISE. The ISI-LAC group co-ordinated one of the congress's topics and took part in assessing scientific articles and in the virtual CISE Pre-congress, chairing one of the rooms and collaborating in the organisation of the special session dedicated to the La Plata Basin.

1.7 Other regional activities

1.7.1 Institutional relations/cooperation

Cooperation between the Water and Culture Chair and the Landscape and Cultural Heritage Chair. The University of the Basque Country, in seminars, workshops and research support.

Cooperation between the Water Chair and the Education for Sustainable Development Chair, Universidad del Litoral, Santa Fe, Argentina, in the "Word with Water" short story and poetry contest.

Cooperation between the Water Chair and the Water Resources Management and Culture Chair - University of Perugia, Italy and the Water and Culture Chair on a joint agenda for water education research.

The Water and Culture Chair was the focal point for the Inter-American Association of Science Academies - Water Group (*IANAS*).

1.7.2 Completed and ongoing scientific projects

Research project: Social inclusion and equity in water and sanitation solutions among vulnerable groups. Water and Culture Chair. Funded by CSIC- the University of the Republic, Uruguay (2017-2018)

Research project: Development of an indicator focused on water education under SDG 6. Sponsored by UNESCO IHP. Water and Culture Chair and CeReGAS. (2019)

Atlas of LAC Water Cultures. A regional educational project to update information and studies on the relationship between water and the regional indigenous peoples. Water and Culture Chair. Sponsored by UNESCO IHP-LAC. (2018-2019).

Identification of SARS-CoV-2 in sanitation systems - Project developed under the CERTS framework - DINAGUA, IADB, Polo Tecnológico de Pando. This project dealt with the PCR technique for detecting SAR COV-2 in wastewater and creating an early sanitary alert. This project is being finalised.

Base project for an epidemiological monitoring system in wastewater and its application in sanitation safety plans. Project developed under CERTS, DINAGUA, IDB framework, about to start.

"Technology and modelling for integrated water management as a way to adapt to climate change in the main source of drinking water in Uruguay" project, in the Water Management with an Urban Resilience Perspective section of the EUROCLIMA+ project, about to start.

"Capacity building for the management and administration of wetlands in the La Plata Basin" project co-ordinated by the RAMSAR Uy office covering the La Plata Basin with face-to-face courses in Bolivia, Paraguay and Uruguay. CeReGAS attended and conducted a module on groundwater.

"Evaluation of the geothermal energy potential in the pilot area "Salto" (North Basin - Uruguay)" project developed by the School of Science and financed by the Sectorial Commission for Scientific Research (*CSIC*) from the University of the Republic. This project is expected to last two years and will end in May 2021. CeReGAS is involved.

"Evaluation of the intrinsic vulnerability and risk of contamination of the Guarani Aquifer System in Uruguayan recharge areas" project financed by the María Viñas Fund from the National Agency for Research and Innovation (*ANII*). Institutions involved: CeReGAS, Faculty of Sciences, UTEC, UNESP (Brazil)

"Gigante Guarani - Apuã: socioenvironmental diagnosis, training and planning for recovery and protection of the Capivara and Alambari river watersheds, in recharge areas of the Guarani Aquifer System" conducted by Fundibio - Fundação de Biociências de Botucatu (*UNESP*), CeReGAS

2. Future activities

Technical cooperation, training, projects, research, publications, outreach and other joint actions keep on contributing and are further strengthened, not only to contribute to the improvement of the integrated water management, as per the policies at a national level and in regional exchange but also to contribute to the implementation of the strategic pillars of the next IHP Phase 9 and the Sustainable Development Goals (SDGs).

- We will continue supporting the three objectives set out in the National Water Plan:
- Water for human use: ensuring that people can exercise their fundamental human rights to access drinking water and sanitation.
- Water for sustainable development: having enough quality and quantity of water for its social and economic development and the biodiversity conservation and ecosystem operation through integrated and collaborative management.
- Water and its associated risks: preventing, mitigating and adapting to extreme events (floods and droughts) and climate change.

The coordination of activities to be developed within the framework of the following National Water Plan Programmes will continue, linked to and consistent with UNESCO IHP Programmes:

P01 - Water for Sustainable Development (conservation measures, impact mitigation, environmental flows, efficient water use).

P02 - Water for Human Use (drinking water, sanitation, urban drainage, water and health)

P03 - Water and its associated risks (floods and droughts)

P04 – Water-related works design and management

P05 - Specific management tools (legal framework and management update)

P06 - Integrated management plans for the basin, aquifer, urban and transboundary waters

P07 - Information and modelling system

P08 - Water quantity and quality monitoring

P09 - Institutional reinforcement and coordination

P10 - Water education, communication, research and capacity building

CeReGAS

Distance learning course: "Groundwater, water security and governance focusing on transboundary areas" organised by the Water and Education Chair in collaboration with CeReGAS.

First edition of the Transboundary Aquifer Governance course. Proposal submitted to CODIA for funding.

ISARM Programme:

- Follow up the coordination of the Working Group to update the existing information on transboundary aquifers based on the dialogues with representatives from each country
- Organise the ISARM-Americas Virtual Symposium to be held in May 2021
- Member of the Scientific Committee of the 2021 ISARM Conference: "Challenges and the way forward" to be held in Paris in December

The organisation of the 2nd CeReGAS National Technical Conference. Proposed subject: Groundwater hydrochemistry.

CHAIR ON WATER AND CULTURE

For 2021-2022:

- Pursue further research on the water education indicator with Paris UNESCO IHP.
- Convene an Aqualac IHP-LAC special issue featuring the UN Assembly Resolution's ten years on the human right to water and sanitation.
- CILAC 2020 - Organise a special session to debate how a graduate of higher education can become a "water professional" in the Latin American and Caribbean region.
- Advise OSE on the preservation and promotion of water heritage.

Medium-term goals:

- Reorganise the Chair's governance by strengthening an inter-professional advisory committee, with scholars from the natural sciences, engineering, agricultural sciences and arts invited to lead the Chair's research, education and outreach.
- Design and launch an e-course for the region jointly with other UNESCO Water Chairs across LAC and Europe focusing on "Water Culture and Heritage".
- Publish a book on the "History of water management in Uruguay" from colonial times to the present day.
- Consolidate and reinforce the LAC Chapter of WAMU - NET by networking, publishing and updating a Water Museums Directory and organising the second regional meeting.

Long-term goals:

- Position the Chair as a regional and international focal point within the UNESCO Water family to address the challenges of a socio-ecological transition in the water sector from a Humanities and Social Sciences perspective.
- Develop a regional Citizen Science-based project to monitor progress made on the baseline level of the human right to water and sanitation.