



UNIVERSITY CONSORTIUM
FOR SUSTAINABLE WASTE MANAGEMENT
IN LATIN AMERICA AND THE CARIBBEAN

Activity Report 2020-2021

University Consortium on Sustainable Waste
Management for Latin America and the Caribbean

Report prepared by the Regional Office for Latin America and the
Caribbean region - UNEP

December 2021

I. Background.

In order to articulate responses to regional challenges on the issues related to waste management, the UNEP Latin America and the Caribbean Office, with the support of the International Environmental Technology Center (IETC), facilitated in 2016 the establishment of the **University Consortium for Sustainable Waste management in Latin America and the Caribbean**, which is comprised by 8 universities of the LAC region, in coordination with the Alliance of Ibero American Networks of Universities for Sustainability and the Environment (GUPES/ARIUSA, in Spanish). Following the formal establishment in May 2016 (Montevideo, Uruguay Declaration), the Consortium was reinforced through the agreement signed by the academic representatives in Cartagena de Indias, Colombia, in 2017.

The main objective of this initiative has been the promotion of an academic programme for the sustainable waste management, which was designed during 2016 by the Founder Members of the Consortium, and with the support of UNEP, to promote the education and the training of new professionals through a holistic approach to address challenges related with waste management.

A key initiative was the development and dissemination of the **Academic Programme on Sustainable Waste Management for LAC**, which consists of four (4) modules¹. A Guide on modalities for the adoption of the Academic Curriculum in LAC universities was also developed.

Since 2018, the programme has been tested through certificate courses in Venezuela, Argentina, Mexico and Chile (see more information below).

During the same period, UNAM University (Mexico), the largest in Latin America, incorporated into its Diploma on Sanitary Engineering (dependent on the Engineering School) a subject based on the academic proposal designed by the University Consortium. Likewise, ISALUD, from Argentina, launched a Certificate on Waste management incorporating some elements from the academic proposal, and UDCA, Colombia, approved the first Master Degree on Waste Management in the LAC region, as indicated below. All these programmes have been continued and are being offered by the respective universities.

Since the establishment of the LAC University Consortium, **six (6) face-to-face meetings** have been held with UNEP support, in Colombia, Mexico, Chile and Uruguay, back to back with public forums on waste management and dissemination activities, reaching out approximately **500 participants**. UNEP has also convened **34 virtual meetings** of the Consortium members, and all the activities held by 2020 and 2021 migrated towards this modality because of the pandemic.

In order to continue the promotion and dissemination of environmentally sound waste management practices and methods in Latin America and the Caribbean, UNEP LAC Office and IETC agreed to continue supporting the LAC University Consortium on Sustainable Waste Management during 2020-2021, as a suitable platform to deliver certificate courses and related activities in the region². This document provides an overview of the activities conducted during 2020-2021.

¹ Module I: Integrated Waste Management and material flows (*Universidad de Ciencias Aplicadas y Ambientales UDCA, Colombia / Universidad ISALUD, Argentina*); Module II: Handling of waste (*Universidad Autonoma del Estado de Morelos UAEM, Mexico*); Module III: Solid waste treatment technologies, towards holistic approaches (*University Of Technology UTECH, Jamaica / Pontificia Universidad Católica de Valparaiso PUCV, Chile / Universidad Nacional Autonoma de Mexico UNAM, Mexico*); Module IV: Policy on solid waste management, Governance and Financing (*Universidad de Los Andes-ULA CIDIAT, Venezuela*).

² This is part of UNEP Subprogramme 5 on Chemicals, Waste and Air Quality, contributing to Project 521.1 “Promotion and Delivery of Environmentally Sound Waste Management Technologies and Methods and in-Country Technical and Advisory Support”, Output C: Promotion and dissemination environmentally sound practices and methods, Activity 7: Implement pilot certificate courses on environmentally sound waste management.

II. Activities developed by the LAC University Consortium 2020-2021.

In order to promote sustainability to the objectives of the University Consortium, a range of specific activities were developed during 2020 and 2021, which are presented below.

2.1. Development of the LAC Consortium Workplan 2020-2021

Support was provided to outline the **Work Plan 2020-2021**, which was agreed by all members of the LAC University Consortium. The Workplan was developed and structured according to the four (4) objectives of the Consortium, namely:

- a) Promote the adoption of postgraduate educational programs in higher education institutions in LAC.
- b) Increase knowledge on integrated waste management and solutions tailored to the region, through joint research projects and publication of documents and scientific material.
- c) Promote the exchange of knowledge through the mobility of teachers and students in the region in the field of research and education on waste management, and through the organization of events.
- d) Increase the capacities of current and future waste management practitioners / professionals in LAC, through the development of training activities.

The Workplan includes a description of the specific activities, as well as the estimated timeframe and the universities responsible for its implementation.

2.2. Promote and monitor the adoption of academic programs by institutions in the region, according to the academic proposal designed by the University Consortium.

The monitoring of the adoption of the program by the Universities shows that the proposed curriculum has been internalized at least in academic institutions of Mexico, Argentina, Chile, and Colombia, as indicated below:

- ▶ Mexico. UNAM. (Diploma) Specialization on Sanitary Engineering. Subject: Integral Solid Waste Management by the Faculty of Engineering. Versions 2018, 2019, 2020 and 2021.
- ▶ Argentina. ISALUD. Degree (Certificate) on waste management. Versions 2019, 2020 (online modality) and 2021 (online modality).
- ▶ Chile. PUCV. (1) Subject introduced within the Master Programme: “Urban-Regional Projects on Human Security and Adaptation to Climate Change in LAC”. Version 2019-2020. Establishment of a regular international training on waste management (2018, 2019, 2020 and 2021. 2020 and 2021 versions were developed under online modality).
- ▶ Colombia. UDCA. Master’s degree on Integrated Waste management. 2019, 2020 and 2021.

2.3. Development of academic programs as certified courses by Universities in LAC.

During this period, **three** (3) additional certified courses were organized by universities with the support of the LAC Consortium, including in Chile and Trinidad & Tobago:

- ▶ **Short Course on Sustainable Integrated Solid Waste Management in the Caribbean. Trinidad & Tobago (March, 2020).**

The Course was developed by the Faculty of Engineering at the Saint Augustine Campus of the University of West Indies, based on the general academic program of the Consortium. It was preceded by a half-day seminar on solid

waste management, with the specific objective of identifying the major problems in the local sector and the role of tertiary institutions, to conduct research and offer training for solving them.

On the fourth day, a fieldtrip hosted by Carib Glassworks limited was organized, a company actively involved in the retrieval of glass products for manufacturing glass containers.

Thirty-five (35) participants from 10 Caribbean countries attended the course (academic, public and private sector), which included a summary of the contents defined by the academic Consortium proposal.



► III International Course on Sustainable Solid Waste Management in LAC (online). Valparaíso, Chile (December 2020 – January 2021).

The [Third edition of the International Course on Sustainable Solid Waste Management](#) was developed for the Latin American and the Caribbean region. It was the first virtual version due to of the outbreak of the COVID-19 pandemic, which has enabled the participation of a larger number of students (50 participants), from 14 countries in the region.

This initiative is a joint effort between the Chilean Agency for International Development Cooperation (AGCID), the Pontificia Universidad Católica de Valparaíso (PUCV), through its Institute of Geography, and UNEP. As in previous editions, an [International Seminar on Waste management](#) was held on 16th December 2020, with a total participation of 110 people connected.



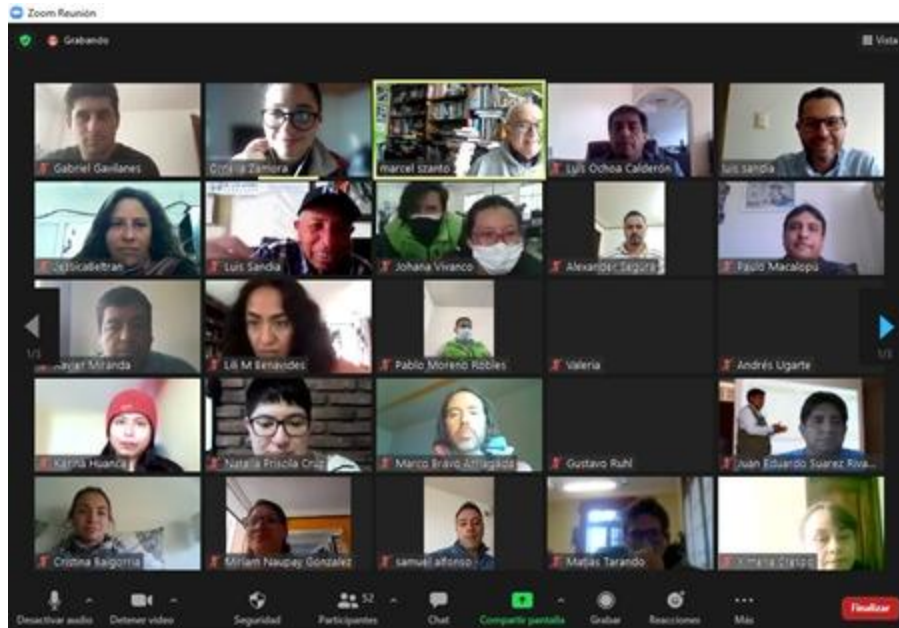

► **IV International Course on Sustainable Solid Waste Management in LAC (virtual). Valparaíso, Chile (June 2021 – September 2021).**

During 2021, the Institute of Geography (PUCV), in collaboration with the Chilean Agency for International Development Cooperation (AGCID) and UNEP, developed a new online version of the [International Course on Sustainable Solid Waste Management](#). This version in particular, was oriented to the closure, sealing and rehabilitation of dumpsites, so that some modules of the original academic proposal of the University Consortium were adjusted, and an additional module on georeferencing and mapping was included.

It was the second online version due to the outbreak of the COVID-19 pandemic, which has enabled the participation of 60 students, from 10 countries in the LAC region.

Besides of the regular development of the Course, an [International Seminar on closure, sealing and rehabilitation of dumpsites](#) was held on August 2021, with participation of UNEP, the PUCV and the Ministries of Environment of Chile and Peru. Close to 100 people were connected, by a period of 90 minutes with interaction with the audience.

The design of the Course also considered the development of four technical talks, in order to deepen some concepts on this topic, with participation of international experts, and related to: (1) Development of waste management plans, (2) Circular Economy, (3) Marine litter, and (4) Solid Waste Disposal Infrastructure³.

IV Curso Internacional
Gestión Sostenible de Residuos Sólidos
en América Latina y el Caribe:
Cierre, Sellado y Reinserción de Basurales a Cielo Abierto

**Seminario Internacional
Gestión Sostenible de Residuos Sólidos: Cierre,
sellado y reinserción de basurales a cielo abierto**

Ponencias:

- ① Contexto Regional de residuos sólidos y sitios de disposición final
PNUMA
- ② Gestión de residuos y áreas degradadas por residuos sólidos
Ministerio del Medio Ambiente, Perú
- ③ Estrategia Nacional de residuos orgánicos y hoja de ruta
Economía circular, Chile.
Ministerio del Medio Ambiente, Chile
- ④ Geo-información y percepción remota para el monitoreo de la
gestión de residuos
Instituto de Geografía, PUCV

A realizarse: Miércoles 4 de agosto a las 11:30 hrs. (de Chile)

El Seminario Internacional se realizará vía plataforma Zoom
Se enviarán las credenciales de acceso a los inscritos
Para más información: Julia Escuti julia.escuti@pucv.cl

Logos at the bottom: agcidChile, Instituto de Geografía, Pontificia Universidad Católica de Valparaíso, PUCV, and ONU programa para el medio ambiente.

³ In Spanish language, the Technical talks, together with the Specialist's name were: (1) "*Plan de gestión de residuos sólidos urbanos de Cantabria, España*" (Dr. Jose Luis Gil, Universidad de Cantabria, España). (2) "*Basura marina y contaminación*" (Carla Friedrich, UNEP). (3) "*Circular Economy in the framework of the climate crisis*" (Mr. Antonis Mavropoulos, ISWA). (4) "*Estabilidad y seguridad de infraestructuras de disposición de residuos sólidos*" (Raúl Espinace, Geotecnia ambiental, Chile).

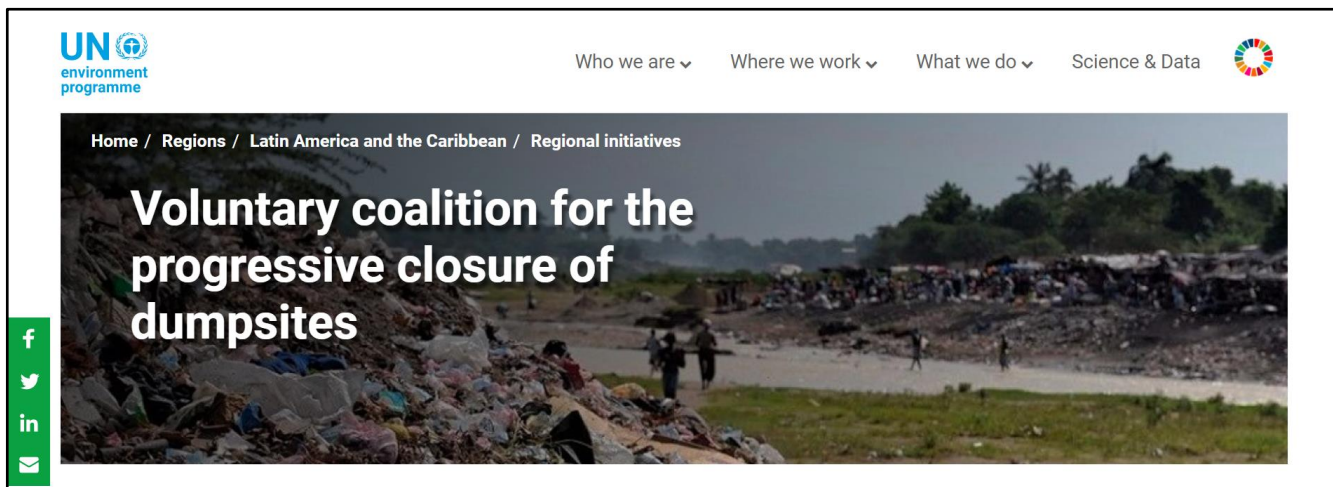
2.4. [Dissemination and outreach activities on priority matters on waste management in the LAC region.](#)

The LAC University Consortium has been actively engaged in numerous educational, dissemination, and awareness raising activities during this period. Some of them are summarized as follows.

► [Participation in the Voluntary Coalition for the gradual closure of Dumpsites in LAC.](#)

Within the framework of the Voluntary Coalition of governments and relevant organizations for the progressive closure of Dumpsites in Latin America and the Caribbean, the Consortium representatives participate in the activities related to the Subcommittee N°3: *“Capacity building, information exchange and awareness raising”*⁴.

The main purpose of the Coalition is to support the implementation of the [Roadmap for the progressive closure of dumpsites](#) and the effective transition towards sustainable waste management in the region, as well as to promote the development of technical guidelines, and facilitate the strengthening of capacities and exchange of information. The participation of the University Consortium in the Coalition’s work has included support in the elaboration of a Baseline, by participation in virtual meetings, technical advice and review of preliminary documents, as well as in the elaboration of the [Roadmap launched through a High-Level Event on June 2021](#).



► [Participation in activities of the Environmental Training Network for LAC.](#)

Within the framework of the Environmental Training Network for LAC, which UNEP serves as Secretariat, the University Consortium has been engaged in the cooperation area N°3: *“Sustainable Waste Management and other relevant issues”*⁵. Based on this work, the Consortium has designed an [online course on waste management for LAC](#), to be implemented towards 2022, and the initial design of a research on greenhouse gas emissions from the waste sector for LAC⁶.

⁴ It is also related to the Objective 3 of the WorkPlan 2020-2021 of the Coalition: *Facilitate the strengthening of capacities and exchange of information, experiences and good practices about policies, instruments, related projects and funding opportunities.*

⁵ In the framework of a collaboration Agreement with UDCA, ARIUSA and UNEP 2020-2021.

⁶ Available documents: 1) Proposal for online Course on waste management, and 2) Workplan for research on GHG and waste.

► [Webinars and virtual meetings.](#)

During 2020 and 2021, the Consortium has participated together with other entities in the organization and delivery of some webinars, virtual events and meetings, which has enabled, through its academic members, the exchange of ideas and knowledge dissemination, as well as the identification of potential solutions and strategies to address emergent challenges in the framework of the COVID-19 pandemic. Some of the events included the following:

- Webinar: “[Waste management: Towards safe and environmentally appropriate disposal](#)”, organized by CEGRU (Uruguay), ISWA and UNDP by July 2020, where the work of the university Consortium was presented by ISALUD and UNEP.



- Webinar: “[Waste management in the context of COVID-19](#)”, focused on the global health situation due to the effects of COVID-19 and the proper waste management. Facilitated by UNEP, PAHO/WHO, AIDIS and ISWA/ARS. This event was joined by 768 participants, and it was developed by April 2020.



- International Congress: “Integral Waste Management in LAC”, oriented to establish interaction channels for the exchange of experiences, and research work among the participants at regional level. Delivered by the UAEM (Mexico), as Founder member of the University Consortium, with participation of UNEP and the experts of the Consortium, by July 2021.



- Webinar: “Latin American Meeting on Construction and Demolition Waste”. Developed by the UNAM (Mexico) by October 2021. Open audience and participation of UNEP for a presentation oriented to the management of these kind of waste.



- Webinar: “Organic waste management: Approaches and experiences in the Caribbean region”. It was held by October 2021, and organized in coordination with the support of the University Consortium, from the University of West Indies (UWI) in Trinidad & Tobago, and University of Technology (UTECH) from Jamaica. It was oriented to facilitate a dialogue focused on the Caribbean region, on the management of organic waste, in order to exchange experiences from different countries. 51 people attended the webinar.

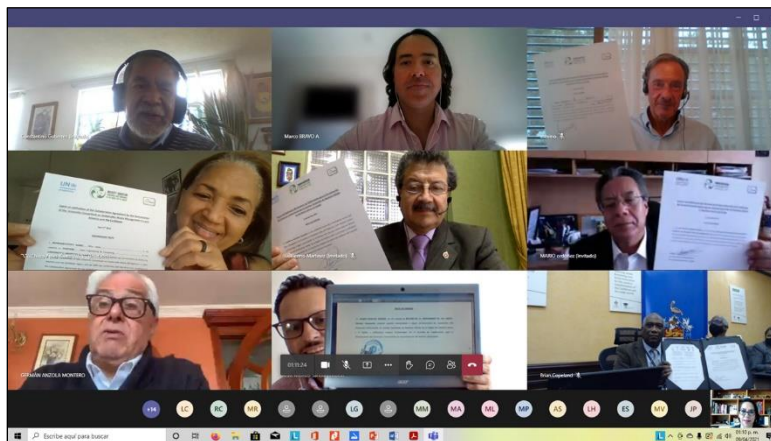


2.5. Strengthening of the operation and networking activities of the Consortium

In 2020, a new collaboration agreement for the formalization of the University Consortium for Sustainable Waste Management in LAC was agreed, including a **“Constitutive and Operational Guidelines of the University Consortium”**, which considers the establishment of a permanent Steering Committee, a Secretariat initially supported by UNEP, as well as the procedure to include new universities, among other clauses. The Steering Committee is chaired by a Coordinator, hosted by the Universidad de Ciencias Aplicadas y Ambientales (UDCA), Colombia, and a Secretary, hosted by the Universidad Autonoma del Estado de Morelos (UAEM), Mexico⁷.

During 2021, an **official launch** of the Agreement was held, with participation of all Consortium Member Universities. The Regional Director of UNEP led the virtual ceremony, which counted with the participation of the academics of the universities, as well as the governing bodies of each of the founding universities. The launch was oriented to mention the activities led by the Consortium, and the signing of the agreement as commitment towards the development of joint activities⁸.

The vision is to consolidate the LAC University Consortium as a thematic network to integrating science, technology and experience of its members, projecting itself as a leading platform in the academic field of sustainable waste management in Latin America and the Caribbean, contributing to the achievement of the related Sustainable Development Goals (SDG) and the 2030 Agenda.



⁷ Document available as: *“Collaboration agreement for the formalization of the University Consortium for Solid Waste Management in LAC”*. The agreement is in the process of being signed by Member Universities. At the edition of this document, six universities have done it. The agreement includes in the annex the “Constitutive and operational guidelines”, and it has been elaborated in Spanish and English.

III. Planned Activities for 2021-2022.

Some of the activities that have already been identified for the next year, or are already underway, include the following:

- ▶ An academic proposal is being designed to train 90 regional government officials in Chile during 2022, to be delivered at the third quarter of 2022.
- ▶ A Diploma on waste management has been designed by the Consortium under the leadership of UDCA (Colombia), in the framework of a cooperation agreement between UNEP and ARIUSA, to be delivered the first quarter of 2022.
- ▶ A regional webinar on the closure and rehabilitation of dumpsites to the LAC region is being outlined for the first quarter of 2022 with the University Consortium and other specialized entities.
- ▶ A proposal for the development of a Publication based on “The waste of the 21st Century” started during 2020 between the members of the Consortium, which will be finalized during 2022.
- ▶ A report on the analysis of the greenhouse gas emissions in the waste sector for Latin American and Caribbean countries is expected to be released by the beginning of 2022.
- ▶ Continue supporting those activities planned within the framework of the Voluntary Coalition for the closure of dumpsites in LAC.