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Seventh Meeting of the Scientific and Technical
Advisory Committee (STAC) to the Protocol
Concerning Pollution from Land-Based Sources
and Activities in the Wider Caribbean.

Virtual, 22 – 25 July 2025

**Report of Activities for the LBS Regional Activity Centres - IMA (Trinidad and Tobago)
and CIMAB (Cuba) for 2023-2025**

This meeting is being convened virtually. Delegates are kindly requested to access all meeting documents electronically for download as necessary.

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**REPORT ON THE ACTIVITIES OF THE LAND-BASED SOURCES OF POLLUTION
(LBS) REGIONAL ACTIVITY CENTRE**

INSTITUTE OF MARINE AFFAIRS (TRINIDAD AND TOBAGO)

2023 – 2025

REPORT OF ACTIVITIES 2023 – 2025
REGIONAL ACTIVITY CENTER
LBS RAC-IMA

Participation in regional and national projects related to or in support of the LBS Protocol:

Project Name and Code	Activity	Dates of Activity	Objective(s)	Source of Funds	Budget (USD)	Estimate of “in kind” Contribution of RAC-IMA (TT\$)	Recipients/ Participants	Outputs
Small Scale Funding Agreement (SSFA) UNEP and IMA. Project/programme entitled Capacity Building Related to Multilateral Environmental Agreements in African, Caribbean and Pacific Countries (ACP MEAs III) and Global Environment Facility CReW+ Project: An integrated approach to water and wastewater	SSFA- Activity 1 - Develop Guidelines for classification of waters according to the LBS Protocol with in kind support by RAC CIMAB. 1.5. Integration of sub regional reports the results of both reports (sub-regional studies) and preparation of the final report in both languages	Sept 2024-Mar 2025	Develop Guidelines for classification of waters according to the LBS Protocol	UNEP SIDA	4500		RAC IMA RAC CIMAB LBS Focal points	Technical Report with a proposal for regional guidelines for the classification of coastal marine waters of the Wider Caribbean Region according to the LBS Protocol In English and Spanish

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management in the Wider Caribbean Region using innovative solutions and sustainable financing mechanisms (GEF CReW+)								
	<p>SSFA- Activity 2 - Establish regional criteria and standards for Nitrogen (N) and Phosphorus (P) loads in domestic and industrial wastewater discharges together</p> <p>2.8 Integration of the results of both reports (sub- regional studies) and preparation of the final report in both languages</p>	Jan 2025 – Apr 2025	Establish regional criteria and standards for Nitrogen (N) and Phosphorus (P) loads in domestic and industrial wastewater discharges	UNEP SIDA	4000		<p>RAC IMA</p> <p>RAC CIMAB</p> <p>LBS Focal points</p>	Technical Report with a proposal for regional standards and criteria for nitrogen and phosphorus in terms of polluting loads of industrial and domestic origin

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	4.1 Revise the discharge national standards for wastewater in the English-speaking countries specially indicators that are now included in Annex III of the LBS Protocol (SST, BOD5, pH, fats and oils, fecal coliforms, E Coli). 4.2. Summary of limits or standards for other regions of the same indicators or other selected ones. 3.3. Results of surveys of national or regional experts on other indicators/parameters to be included in Annex III of the LBS Protocol (and its limits). 4.4. Sub-regional report (English-speaking countries) Provide RAC - CIMAB	July 2024 – Apr 2025	An integrated approach to water and wastewater management in the Wider Caribbean Region using innovative solutions and sustainable financing mechanisms	CreW+	7500		RAC IMA RAC CIMAB LBS Focal points	Report on recommendations for amendments to the LBS Protocol to facilitate increased reuse of domestic wastewater including adoption of new criteria or standards for domestic wastewater discharges.

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	with Sub- regional report (English-speaking countries) for preparation of the final report in both languages							
	<p>5.2. Update of work done by J. Eugenio Barrios O. on “Outline of Technical Paper on the incorporation of freshwater issues into the LBS Protocol”</p> <p>5.3. Review of work in other countries on management of freshwater resources including the EU Waters Framework Directive.</p> <p>5.4. Sub regional report (English-speaking countries) with the information about the national management</p>	Mar 2025 – Apr 2025	Developing a new Strategy or Protocol on the management of freshwater resources within the framework of the Cartagena Convention with a focus on Source to Sea and Integrated Watershed Management.	CreW+	9500		<p>RAC IMA</p> <p>RAC CIMAB</p>	Short integrated report in ENG and SPA languages (based on sub regional reports by RAC-CIMAB and RAC-IMA) to be submitted April 2025

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	of freshwater resources with a focus on Source to Sea and Integrated Watershed Management (in English). 5.5. Develop short integrated report in English and Spanish including recommendations for the STAC, which is based on the separate sub regional reports by RAC-IMA and RAC-CIMAB.							
	Activity 6 - Promote LBS Protocol Ratification in Non-Contracting Parties (English Speaking countries), including development of promotional and awareness material for ratification	JUL-SEP 2024	promotional and awareness material for LBS Protocol ratification.	CreW+	6000		RAC IMA LBS Focal Points	Promotional and awareness material developed (Digital)

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	6.2. Design and develop promotional and awareness material for LBS Protocol ratification.							
	<p>Activity 7- Implement Training on innovative low-cost integrated water and wastewater management such as though webinars, MOOC, training programmes with the participation of civil society.</p> <p>7.1. Technical Training on innovative low-cost integrated water and wastewater (country to be determined according to the training needs).</p>	FEB 2025	Technical Training on innovative low-cost integrated water and wastewater	CreW+	9000		RAC IMA LBS Focal Points	Training Workshop on Integrated Water and Wastewater Management (IWWM) held (virtually) in February 2025

Project Name and Code	Activity	Dates of Activity	Objective(s)	Source of Funds	Budget (USD)	Estimate of “in kind” Contribution of RAC-IMA (TT\$)	Recipients/ Participants	Outputs
	Activity 8- Update CReW+ clearinghouse mechanism on financial options, small- and large-scale wastewater treatment technologies, and wastewater and water management policies and practices developed. 8.1.2. Updating RAC IMA’s website to include LBS related information and links to the LBS Protocol, the website of the Secretariat as well as the CReW+ Academy.	Nov 2024-Feb 2025	Update RAC IMA website Improved capacity at RAC-IMA for the management and dissemination of information Updating RAC IMA’s website to include LBS related information and links to the LBS Protocol, the website of the Secretariat as well as the CReW+ Academy	CReW+	4000		RAC IMA	RAC IMA website being updated to included links and LBS related information via https://www.ima.gov.tt/rac-ima/

Project Name and Code	Activity	Dates of Activity	Objective(s)	Source of Funds	Budget (USD)	Estimate of “in kind” Contribution of RAC-IMA (TT\$)	Recipients/ Participants	Outputs
	<p>Activity 9 - Develop/Review/Update one national pollution/nutrients reduction strategy and plan in one English speaking country</p> <p>9.1. Review of national pollution/nutrients reduction initiatives in Trinidad and Tobago indicating successes, barriers and lessons learnt for upscaling and implementation in other countries.</p> <p>9.2. Review of the national legal framework related with management, control and evaluations of nutrient pollution.</p> <p>9.3. National stakeholder consultation with actors involved in</p>	JUN to SEPT 2025	Develop/Review/Update one national pollution/nutrients reduction strategy and plan in one English speaking country	ACP MEA III Funds	14,000		RAC IMA National LBS Focal Points	Final report with the national pollution/nutrient reduction strategy document indicating successes, barriers and lessons learnt for upscaling and implementation in other countries.

Project Name and Code	Activity	Dates of Activity	Objective(s)	Source of Funds	Budget (USD)	Estimate of “in kind” Contribution of RAC-IMA (TT\$)	Recipients/ Participants	Outputs
	management, control and evaluation of nutrient pollution. 9.4. Site selection for implementation of one national pollution/nutrient reduction strategy targeting either industrial, domestic, agricultural or marine based activity. 9.5. Final report with the national pollution/nutrient strategy/ lessons learnt and opportunities for upscaling.							
National Coastal Conservation Programme: Long Term Environmental Monitoring and Assessment in Trinidad and Tobago	On-going water, water quality monitoring. Parameters include, physiochemical (pH, temperature, Dissolve oxygen, salinity, turbidity) nutrients (ammonia, nitrites, nitrates, reactive and total phosphates), total	Sampling conducted during the dry and wet seasons in 2023/2024 within the Gulf of Paria, Trinidad.	Monitoring programme established to provide timely and continuous data and information on the environmental status and impacts of Trinidad and Tobago so as to effect policy changes/making for the improvement in the	Government of Trinidad and Tobago	3,000		Trinidad and Tobago, IMA	Data will be used towards producing a State of the Marine Environment Report 2026 for Trinidad and Tobago. Research reports will, be produced. Water quality data for future SOCAR reports.

Project Name and Code	Activity	Dates of Activity	Objective(s)	Source of Funds	Budget (USD)	Estimate of “in kind” Contribution of RAC-IMA (TT\$)	Recipients/ Participants	Outputs
	suspended solids, chlorophyll a, and hydrocarbons. 6 inland and 12 marine stations monitored.		quality of life of citizens and preservation of our natural environments. To assess the contribution of land-based sources of pollution in Trinidad					
Monitoring oil spill incident in Tobago February 2024	Sampling of oil in vessel and Oil impact areas	February to April 2024	To sample oil and link with suspect source.	Government of Trinidad and Tobago				Oil fingerprinting Reports
Preparation of State of Marine Environmental Report for Trinidad and Tobago		Jan 2023-Dec 2025	To prepare and make available report to a diverse range of stakeholders highlighting environmental concerns leading to mitigation actions towards environmental	Government of Trinidad and Tobago	6,000		Trinidad and Tobago, IMA	State of the Marine Environment 2022 completed and State of the Marine Environment Report 2026 for Trinidad and Tobago to be prepared Newspaper articles Policy Brief

Project Name and Code	Activity	Dates of Activity	Objective(s)	Source of Funds	Budget (USD)	Estimate of “in kind” Contribution of RAC-IMA (TT\$)	Recipients/ Participants	Outputs
			preservation and conservation					
Marine Space Remote Sensing and Trajectory Modelling Project Trinidad and Tobago and subsequent upscaling in the wider Caribbean	Staff of the Geomatics Units and personnel of the Ministry of Energy and Energy Industries (MEEI) and the Environmental Management Authority (EMA) Trinidad and Tobago received training on the use of satellite imagery for Oil spill detection and monitoring by SAB NOAA in May-June 2021. Daily oil spill monitoring by IMA, and MEEI in waters of	Ongoing PSIP allocation started 2022/2023 for 3 years. Training May - July 2021. July 2021-current.	To train staff in Trinidad and Tobago to detect and monitor for oil spills in region. To link oil spills with suspected sources by satellite monitoring. To upscale and expand initial Marine Surveillance Programme in Trinidad and Tobago for the wider Caribbean Region. Purchase of equipment, reagents and consumables, GIS software for monitoring and ground	Trinidad and Tobago Government		504,000.00 Breakdown below 144,000 for 1 tech/year 72,000 for software licences	IMA and MEEI	Oil spill remote sensing capabilities for the Exclusive Economic Zone (EEZ) of Trinidad and Tobago. (ongoing) Trained staff in Trinidad and Tobago to monitor for oil spills in region (Eastern and Southern Caribbean). (completed, ongoing for legacy planning_ Oil pollution reports on oil spills in region (ongoing).

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	<p>Trinidad and Tobago from July 2021 - current.</p> <p>Oil Spill detection and tracking for the Guayacara Oil Spill, August 2021.</p> <p>Support for the Oil Spill caused by the MV Cetus Tanker NW Aruba, mid-June 2022.</p> <p>Oil Spill detection and tracking for the Tobago Oil Spill February - July 2024. Inclusive of support for neighbouring countries due to slick travel, Grenada, Venezuela, Aruba and Bonaire. Informed through sharing of oil spill extent data, trajectory modelling conducted by CIMH.</p>	<p>August 2021.</p> <p>June 2022.</p> <p>Feb - July 2024</p>	<p>truthing remotely sensed information. Training and application of drone technology in marine pollution monitoring.</p> <p>Support for oil spill event management and response through satellite tracking for the region and through the international disaster charter.</p>					

Project Name and Code	Activity	Dates of Activity	Objective(s)	Source of Funds	Budget (USD)	Estimate of “in kind” Contribution of RAC-IMA (TT\$)	Recipients/ Participants	Outputs
	Proposed expansion to other areas of the Caribbean region including the Eastern and Southern Caribbean. Currently started Grenada in June 2024.	June 2024						
National Coastal Conservation Programme Bacteriological Water Quality at Popular Recreational Water-Use Sites in Trinidad and Tobago	Bacteriological Water Quality Surveys at popular bathing beaches along all the coasts of Trinidad and Tobago.	Bacteriological Water Quality Surveys during the wet and dry season of 2022 to 2024.	<p>To identify possible sources of sewage contamination for beaches surveyed for mitigation measures.</p> <p>To provide data and information to safeguard public health from risk of illness and infectious disease.</p> <p>To ensure representative bacteriological water quality data is obtained at popular beaches</p>	Government of Trinidad and Tobago	10,000 / year		Trinidad and Tobago, IMA	<p>Data used towards producing a State of the Marine Environment Report 2022 for Trinidad and Tobago.</p> <p>Research Report-</p> <ul style="list-style-type: none">• The Bathing Beach Water Quality at Clifton Hill and Vessigny Beach• The Bathing Beach Water Quality along Mayaro and Manzanilla• The Bathing Beach Water Quality along Los Iros and Quinam• The Bathing Beach Water Quality along SW Tobago• The Bathing Beach Water Quality along NE Tobago

Project Name and Code	Activity	Dates of Activity	Objective(s)	Source of Funds	Budget (USD)	Estimate of “in kind” Contribution of RAC-IMA (TT\$)	Recipients/ Participants	Outputs
								Water quality data for future SOCAR reports.
Monitoring of coral reef and seagrass beds in Trinidad and Tobago	<p>Coral reefs in Tobago are monitored annually to determine changes in % coral cover</p> <p>Productivity and biomass of seagrass beds at selected sites in Trinidad and Tobago are monitored 2 times per years</p> <p>Water quality sampling (nutrient, TSS, chl a, bacteria) is conducted at 12 sites in SW Tobago twice per year.</p> <p>Water quality sampling at 4 sites along the NW peninsula of Trinidad is</p>	<p>Coral reef monitoring on Buccoo Reef began in 1992.</p> <p>Monitoring of other reefs began in 2008 and is on-going</p> <p>Annual monitoring of 11 sites around Tobago</p> <p>Seagrass monitoring commenced</p>	<p>To monitor ecosystem health and determine impacts from land-based sources of pollution and climate change.</p> <p>To conduct an integrated baseline assessment of coral reefs around Tobago using environmental (physical and chemical), ecological and socio-economic indicators of reef health.</p> <p>To provide timely and continuous data and information on the environmental status</p>	Government of Trinidad and Tobago	10,000		Trinidad and Tobago, IMA	<p>Coral reef monitoring technical reports reviewed and published up to 2020. 2021 technical report under internal review. 2022 report near completion. 2023 report data analysis ongoing 2024 image analysis and data processing ongoing 2025 fieldwork completed</p> <p>Publication for the Resilience based analysis method applied to the long-term monitoring:</p> <p>The relative resilience potential of Tobago’s coral reefs in the Southern Caribbean https://doi.org/10.1016/j.rsma.2024.103456</p>

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Project Name and Code	Activity	Dates of Activity	Objective(s)	Source of Funds	Budget (USD)	Estimate of "in kind" Contribution of RAC-IMA (TT\$)	Recipients/Participants	Outputs
Strengthening National Capacity to Assess Coastal and Marine Environment in Trinidad and Tobago (TR 17002)	<p>1. Acquisition and installation of sampling equipment for Ocean Acidification and national training course on OA and climate change</p> <p>2. Acquisition and installation of sampling equipment for microplastics and fellowship on sampling for microplastics</p> <p>3. Acquire equipment for the sampling of water for environmental parameters and toxin-producing microalgae and faecal indicator bacteria.</p>	<p>Sampling kits received and national training course scheduled for July 2025</p> <p>FTIR spectrometer received and fellowship in Wisconsin in 2023</p> <p>Equipment received in 2024 and training scheduled for July 2025</p> <p>GC MS received in 2023 and GPC received in 2024.</p>	<p>To implement an effective monitoring programme for pollution in the coastal and marine environment.</p> <p>This project aims to (1) enhance national capacity for the generation of data on ocean acidification parameters and pollutants in the coastal and marine environment, thereby ensuring the availability of data at national and regional levels to inform policy decisions (2) improve monitoring of ocean acidification parameters and investigation of impacts on organisms including corals, oysters, and phytoplankton through training and capacity</p>	IAEA	736,000	Approx. 25,000US	IMA, Government of Trinidad and Tobago	<p>The equipment and training received during this project will be utilised by the IMA's for its long-term national coastal monitoring programme for environmental quality (water and sediment) and coral reef monitoring. Parameters to be monitored in water will include physical parameters-pH, salinity, temperature, dissolved oxygen concentration, nutrients (nitrates, nitrites, ammonia, reactive phosphates), Chlorophyll A, toxin producing microalgae, faecal indicator bacteria, petroleum hydrocarbons and total suspended solids. Parameters to be monitored in the sediment include heavy metals (mercury, cadmium, aluminium, iron, chromium, copper, zinc, lead), POPs and hydrocarbons.</p> <p>Parameters to be monitored on coral reef include % coverage by species, species diversity and richness, reef rugosity and coral reef disease.</p>

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Related Activities - Participation in meetings, workshops and/or regional training:

Support to RCU CAR UNEP:

- Provided comments and Feedback on IGM20COP17 Decisions to Cartagena Convention Secretariat on Friday, November 3rd 2023. Attended meeting on Marine Pollution & LBS Protocol Next Steps with to Cartagena Convention Secretariat, Thursday, October 19th 2023 at 2pm. • Attended meeting with Secretariat of Cartagena Convention and LBS RACS on Presentations/Story Map for upcoming LBS Pre COP on 21 September 2023 3-4 pm on Microsoft Teams.
- IMA Host joint LBS/SPAW Joint Sargassum Working Group Meeting (18-20) March 2025, Trinidad and Tobago, Meeting on Review of RAC Report #2 with CEP Secretariat - Virtual –31 January 2025

1. Presented on Recommendations of the Regional Activity Centres in support of LBS Protocol Amendments, UNEP Cartagena Convention COPs, 4th October 2023 - Oranjestad, Aruba.
2. Attended Finalized Versions-Meeting Decisions Virtual Resumption of the IGM20/COIP17 Conference of Parties (COPs) of the Cartagena Convention on Tuesday, November 28, 2023. Microsoft Teams.
3. Attended Twelfth Conference of Parties to the Protocol Concerning Specially Protected Areas and Wildlife (SPAW COP12) of the Wider Caribbean Region, 3 October 2023, Oranjestad, Aruba.
4. Attended Sixth Conference of Parties to the Protocol Concerning Pollution from Land-Based Sources and Activities (LBS COP6) of the Wider Caribbean Region, 4 October 2023, Oranjestad, Aruba.
5. Attended Twentieth Intergovernmental Meeting on the Action Plan for the Caribbean Environment Programme and the Seventeenth Conference of Parties to the Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region (IGM20/COP17), 5 October 2023, Oranjestad, Aruba.
6. Attended meeting Invitation & Agenda: Debriefing for the Conference of Parties (COPs)_Wed 18th Oct 2023, 2:00 pm - 3:30 pm (online; Main Conference Room, Jamaica).
7. Attended the informal preparatory meeting of the LBS COP-6 with Secretariat of Cartagena Convention and Contracting Parties Friday, September 22 2023 from 8 a.m. to 11:30 a.m. (Jamaica Time) via Microsoft Teams.
8. Attended the informal preparatory meeting of the LBS pre COP on 27th September from 8:00 a.m. to 11:00 a.m. (Jamaica time) Microsoft Teams.
9. Attended the Tenth Meeting of the Scientific and Technical Advisory Committee (STAC) to the Protocol Concerning Specially Protected Areas and Wildlife (SPAW) in the Wider Caribbean on 31st January 2023 via Microsoft Teams Meeting.

10. Attended Orientation meeting for LBS focal points of the Scientific Technical Advisory Committee (STAC) meeting on Wednesday, January 25 at 11AM – 12 AM (Trinidad time) with the UNEP CAR/RCU via Microsoft Teams Meeting.
11. Attended Pre-Scientific Technical Advisory Committee (STAC) meeting on Thursday, January 26 2023 at 11AM – 12 AM (Trinidad time) with the UNEP CAR/RCU via Microsoft Teams Meeting.
12. Attended GEF UNEP IWEco Project June Meetings (13 – 14) June, 2024 - Saint Lucia
13. Attendance of OEWG meetings (1st meeting-20th February 2024, 2nd meeting -4th April 2024, 3rd meeting -May 23 2024, 4th meeting –July 25t 2024, 5th meeting - October 2024, 6th meeting -December 2024, 7th meeting – 6th February 2025, 8th meeting -8th April 2025).
14. Attendance of SPAW Sargassum Working group meetings, 1st Meeting 22nd March 2024, 2nd Meeting 29th April 2024, 3rd Meeting 4th September 2024, 4th Meeting 16th October 2024, 5th Meeting 29th November 2024, 7th Meeting 28th January 2025, 10th Meeting 28th February 2025.
15. Consultation on RAC RAN Guidelines Update with CEP Secretariat and consultant. Virtual – 29th January 2025.
16. Meeting of Nutrients & WW Sub-Group Meeting of Open Ended Working Group of LBS Protocol - virtual – 23rd January 2025

ACTIVITIES REPORT 2023-2024 (it includes the first quarter of 2025)

REGIONAL ACTIVITY CENTRE RAC-CIMAB, HAVANA, CUBA

1.- Participation in regional and national projects or support to the LBS protocol:

Name of the Project and code	Activity	Date and country location	Objectives	Source of financing	(USD) Budget	Financing given by RAC-Cimab (Cuban pesos CUP)	Recipients/ Participants	Products/Outputs
Small-Scale Funding Agreement (SSFA): "UNEP and CIMAB cooperation regarding the GEF CReW+, ACP MEAs III projects/programs and SIDA funds (UNEP HQ) in the Greater Caribbean Region."	4.-Develop recommendations for amendments to the LBS protocol to facilitate the increased reuse of domestic wastewater, including the adoption of new criteria or standards for the discharge of domestic wastewater.	June 2023/April 2025	Present recommendations for amendments to the LBS Protocol, primarily focused on its technical annexes.	Project ACP MEA III Project GEF CReW+	Total budget: 176 000.00 USD Activity 4: 60 000.00 USD (executed until March 2025: 43 000 USD)	30 000.00 CUP	Participants: researchers and specialists from RAC Cimab Recipients National focal points of the protocol LBS	Technical report with recommendations for amendments to the LBS Protocol, to be presented at the seventh meeting of the Advisory Technical Committee (STAC, by its English acronym) of the LBS Protocol
	5.- Review, analyze, and develop a strategy or protocol for freshwater resource management within the framework of the Cartagena Convention with a regional approach.	August 2024 / April 2025	Review recent studies on regional strategies for freshwater management, identify gaps, and adapt them to Spanish-speaking countries.	SIDA funds (UNEP HQ)	Activity 5: 25 000.00 USD (executed until March 2025: 17 000 USD)	20 000.00 CUP	Participants: Researchers and specialists from RAC Cimab Recipients: Environmental authorities and water resource management agencies from	A report with the proposed strategy or protocol for freshwater management within the framework of the Cartagena Convention, adapted to Spanish-speaking countries.

							the Spanish-speaking countries of the RAC	
	6.-Promote the ratification of the LBS protocol among non-Contracting Parties (in Spanish-speaking countries), including the development of promotional materials for ratification.	February 2024	Carry out promotional activities for the protocol, including national workshops in non-Contracting Parties, and develop promotional materials.		Activity 6: USD 30,000.00 (Executed until March 2025: USD 3,792.00)	4 000.00 CUP	Participants: Senior specialists from RAC Cimab. Recipients: Focal Points and decision-makers from non-Contracting Parties.	A National Workshop to promote the LBS protocol was held in Cuba (February 2024), with participation from various stakeholders involved in the protocol's adoption and implementation
	7.- Implement training on integrated and innovative wastewater management approaches, such as webinars, massive open online courses (MOOCs), training programs involving civil society participation, among others	January 2024	Strengthen human resources in Spanish-speaking countries in relation to integrated and innovative wastewater management.		Activity 7: USD 25,000.00 (Executed as of March 2025: USD 8,171.00)	8 500.00 CUP	Participants: Specialists from RAC Cimab. Recipients: Focal Points and decision-makers from the countries where the trainings are conducted.	A technical training on low-cost and innovative approaches to integrated water and wastewater management was conducted in Panama, with the support of the LBS Focal Point and the GEF CReW+ Project Focal Point.
	8.- Update the data and information dissemination mechanism on small-	-	Strengthen the capacities of RAC Cimab as a distributor of data and information		Activity 8: USD 15,000.00 (No budget	-	Participants: Specialists	An update of the data and information dissemination

	and large-scale wastewater treatment technologies, as well as on wastewater management policies and practices.		related to wastewater treatment technologies		executed as of March 2025		from RAC Cimab. Recipients: General public and environmental authorities from the countries of the GCR (Greater Caribbean Region).	mechanisms is expected. A compilation of documents related to best practices and technologies for wastewater management and reuse, as well as national standards or regulations on wastewater discharges, is being carried out .
	9.- Develop a national strategy and action plan for nutrient pollution reduction in one (1) Spanish-speaking country	December 2023 – March 2025	Develop the Nutrient Reduction Strategy in the Demonstration Area "Tributary Basin to Havana Bay, Cuba.		Activity 9: USD 12,000.00 (Executed as of March 2025: USD 7,500.00)	8 000.00 CUP	Participants: Specialists from RAC Cimab. Recipients: Environmental Management Directorate of the Havana Bay State Working Group	Final report with the nutrient reduction strategy in the Demonstration Area: "Tributary Basin to Havana Bay."
National Project: "Environmental Quality Monitoring of the Ecosystem in the Bays of Santiago de Cuba, Cayo Moa, Nipe, Puerto Padre, Cienfuegos, Mariel, Varadero–Cárdenas, Guantánamo, Matanzas,	<ul style="list-style-type: none"> Update of the inventory of land-based sources of marine pollution (LBS) for the evaluated bays. Assessment of the main physical-chemical (nutrients, organic matter), bacteriological, biological, and organic toxic 	February 2023 / March 2025	<ul style="list-style-type: none"> Update the inventory of the land-based sources of marine pollution (LBS) for each bay. Assess the hydrochemical and sanitary quality of the waters, the levels of organic and inorganic contaminants in the surface sediments, and the level of 	Ministry of Science, Technology, and Environment (CITMA) of Cuba	2023 - 2024: 5 024 889.73 CUP 2024 - 2025: 3 184 864.70 (CUP)		Participants: Researchers and specialists from RAC Cimab. Recipients: Environmental Safety Regulatory Office (ORSA) and the	Result 1: Report with the updated inventory of the land-based sources of marine pollution (LBS) for each bay, including an evaluation of the effectiveness of the proposed measures for controlling and

Nuevitas, and Sagua.”	<p>indicators in the bay waters.</p> <ul style="list-style-type: none">▪ Analysis and comparison of the obtained results with historical values.▪ Analysis of the effectiveness of mitigation measures for LBS proposed in previous studies		<p>deterioration of the biological communities in the bays during rainy and dry periods.</p> <ul style="list-style-type: none">▪ Evaluate the effectiveness of the corrective measures proposed for each LBS.▪ Bays studied:▪ 2023 - 2024: Mariel, Matanzas, Varadero-Cárdenas, Santiago de Cuba, and Guantánamo Bays.▪ 2024 - 2025: Nuevitas and Nipe Bays			—	<p>Provincial Delegations of the Ministry of Science, Technology, and Environment of Cuba (CITMA).</p>	<p>mitigating impacts in the studied coastal area.</p> <p><u>Result 2:</u> Report on the evolution and control of the environmental quality of the marine ecosystem of each bay.</p> <p><u>Executive Summary</u></p>
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Participation in regional meetings, workshops, and/or trainings:

1. RAC-Cimab actively participated in the following meetings:

- 6th Meeting of the Scientific and Technical Advisory Committee of the Protocol on Land-Based Sources of Marine Pollution (5th LBS STAC), held virtually in February 2023.
- 6th Meeting of the Contracting Parties to the Protocol on Pollution from Land-Based Sources and Activities (6th COP – LBS), held in person in October 2023 in Aruba.
- 20th Intergovernmental Meeting on the Caribbean Environment Programme Action Plan and 17th Meeting of the Contracting Parties to the Convention for the Protection and Development of the Marine Environment in the Wider Caribbean Region (19th IGM), held in person in October 2023 in Aruba

The Coordinator of RAC Cimab participated in these meetings, where the main activities carried out by RAC Cimab during the 2021–2022 biennium were presented. Additionally, participation took place in the discussions on the Work Plan and Budget for the 2023–2024 biennium. Furthermore, RAC Cimab participated as an observer in the 12th Meeting of the Contracting Parties to the Protocol concerning Specially Protected Areas and Wildlife (SPAW COP12).

2. RAC Cimab participated in all joint online meetings of the Secretariat / RACs / CSRO held in 2024 (March, June, October, December). The purpose of these meetings was to strengthen collaboration between the RACs and the Secretariat, establish new working strategies, and provide updates on regional activities and projects.
3. During the 2023–2024 biennium, RAC Cimab representatives participated in the online meetings of the Open-Ended Working Group on Monitoring and Assessment (OEWG), as well as in the online meetings of the Nutrients Sub-Group.
4. In April 2023, RAC Cimab made a presentation to the Negotiating Committee of the Ministry of Science, Technology, and Environment (CITMA) of Cuba. During the session, the LBS protocol (overview, obligations, and benefits for Cuba) was presented to the Committee. Additionally, the functions of Cimab as a Regional Activity Centre and the importance of ratifying the Headquarters Agreement by the Government of Cuba were discussed.
5. In May 2023, RAC Cimab organized the working visit to Cuba of Mr. Chris Corbin, Regional Coordinator of the Caribbean Environment Programme and the Cartagena Convention Secretariat. As part of the visit, Mr. Corbin attended a working session at RAC Cimab to follow up on the ongoing joint activities.
6. A specialist from RAC Cimab participated in the Regional Training Workshop for the Environmental Monitoring Data Regional Portal, held in Saint Lucia in August 2023. During the workshop, the RAC Cimab representative presented Cimab's experience in environmental data management. Participation in the workshop was funded by the Integration of Water, Land, and Ecosystems Management Project in the Caribbean Small Island Developing States (GEF-IWEco).

7. RAC Cimab participated online in the Second Informal Meeting of Nitrogen Experts, held in Nairobi, Kenya, in September 2023. During the meeting, RAC Cimab presented the Regional Nutrient Reduction Strategy and the Associated Action Plan (RNPRSAP).
8. A specialist from RAC Cimab participated in person in the Regional Workshop “Building a ‘One Health’ Community of Practice in the Caribbean,” held in the Dominican Republic in November 2023. During the workshop, the RAC Cimab specialist presented the experience accumulated by Cimab as a Regional Activity Centre for the Protocol on Land-Based Sources of Marine Pollution (LBS), particularly regarding regional environmental studies. The specialist’s participation was funded by the French Agricultural Research Centre for International Development (CIRAD). The specialist has continued to be active in related discussions convened by the regional group formed for the implementation of this practice.
9. RAC Cimab participated in person (through its Coordinator) in the European Union – Caribbean Workshop on Cooperation for Marine Research, held in Barbados in November 2023. During the workshop, the RAC Cimab representative presented Cuba’s research priorities related to the environmental quality of bays and coastal zones.
10. RAC Cimab actively collaborated with the consultant contracted for the Analysis of the Functionality of the Working Groups (recommendations and improvements), an activity carried out in December 2024.
11. RAC Cimab actively collaborated with the consultant contracted by the Secretariat to update the guidelines for the Establishment and Operation of the RACs and the RAN of the Cartagena Convention (November 2024 – January 2025).
12. RAC Cimab participated virtually in the Joint Workshop between the Working Groups of the SPAW Subprogram and the AMEP Subprogram (Open-Ended Working Group on Monitoring and Assessment, OEWG) held in March 2025 in Trinidad and Tobago. During the workshop, RAC Cimab presented a summary of the Regional Nutrient Pollution Reduction Strategy and Action Plan for the Wider Caribbean Region.