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Concerning Pollution from Land-Based
Sources and Activities (LBS) in the Wider
Caribbean

Virtual

March 15 to 17, 2021

Draft Strategy and Work Plan of RAC CIMAB

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STRATEGIC PLANNING

RAC LBS CIMAB

2021- 2030

(Draft)

March 2021

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ACRONYMS

| | |
|----------------------|---|
| RAC | Regional Activity Centre |
| CIMAB | The Centre for Transportation Research and Environmental Management |
| Cartagena Convention | Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region |
| COP | Conference of the Contracting Parties |
| LBS | Land-based Sources of Marine Pollution |
| IMA | Institute of Marine Affairs |
| SDG | Sustainable Development Goals |
| CEP | Caribbean Environment Programme |
| UNEP | United Nations Environment Programme |
| RAN | Regional Centres Network |
| UNEP- CAR/RCU | Caribbean Environment Programme Regional Coordination Unit |
| WCR | Wider Caribbean Region |

INTRODUCTION

In 2015, the Office of Internal Oversight Services (OIOS) conducted an audit of the Caribbean Environment Programme (CEP) and recommended the updating of the Work Strategy to ensure that activities and programmes are aligned with the regional and global strategic objectives of the United Nations Environment Programme (UNEP).

As a result of this recommendation, it was agreed at the Eighteenth Intergovernmental Meeting of the Action Plan of the Caribbean Environment Programme and the Fifteenth Meeting of the Contracting Parties to the Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region (WCR) held in Roatan, Honduras, between June 5 and 6, 2019 (Decision IV) to develop a CEP Strategy for the period 2020 - 2030.

Meanwhile, Decision 5 of the Fourth Conference of the Contracting Parties (COP) to the Protocol on Land-based Sources of Marine Pollution (LBS) of the Wider Caribbean Region held in Roatan, Honduras on June 4, 2019, supported expanding the role of the Regional Activity Centres (RACs) and the Regional Activity Centres Network (RAN) for the implementation of the LBS Protocol and requested the RACs to develop a 6-year Strategic Plan to assist the Secretariat in mobilizing resources and developing new projects and activities as part of the biennial work plans.

This decision was endorsed by the Contracting Parties to the Cartagena Convention at the Eighteenth Intergovernmental Meeting of the Caribbean Environment Programme Action Plan and the Fifteenth Meeting of the Contracting Parties to the Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region held in Roatan, Honduras, June 5-6, 2019 (Decision V).

As part of this process of updating the Strategy of the Caribbean Environment Programme and its Regional Activity Centres (RACs), this document presents the Strategy of the Centre for Environmental Transport Research and Management as a Regional Activity Centre of the Cartagena Convention's Land-based Sources of Marine Pollution Protocol (LBS RAC Cimab Strategy for the period 2021- 2030).

Background

Recommendation No.10 of the Thirteenth Meeting of the Oversight Committee for the Action Plan for the Caribbean Environment Programme and the Special Meeting of the Bureau of the Contracting Parties to the Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region held in San Jose, Costa Rica, July 9-13, 2001, agreed to recognize two institutions as Regional Activity Centres for the Land-Based Sources of Marine Pollution Protocol (LBS Protocol): The Centre for Research and Environmental Management of Bays and Coasts (Cimab) of Cuba and the Institute of Marine Affairs (IMA) of Trinidad and Tobago. Both institutions were presented and endorsed as candidates by the respective governments of Cuba and Trinidad and Tobago.

Subsequently, at the Eleventh Intergovernmental Meeting on the Action Plan for the Caribbean Environment Programme and Eighth Meeting of the Contracting Parties to the Convention for

the Protection and Development of the Marine Environment of the Wider Caribbean Region, held from September 28 to October 2, 2004 in Montego Bay, Jamaica, the guidelines for the establishment and operation of the RACs were approved. (Decision M).

The objectives and functions approved at that time for the LBS RACs, which are still in place today, are as follows:

- i. Provide assistance and advice to the Coordinating Unit of the Caribbean Environment Programme (UNEP-CAR/RCU) in the implementation of the LBS Protocol;
- ii. Oversee and coordinate the implementation of activities assigned to projects to avoid impacts by LBS to the marine environment, in consultation with the RCU/RAC-UNEP;
- iii. Promote the standardization of methods and cooperation in research and monitoring needs of regional interest in aspects relevant to the LBS Protocol;
- iv. Promote scientific-technical cooperation with UN specialized agencies, intergovernmental, governmental and non-governmental organizations;
- v. Facilitate the provision of technical and scientific assistance (experts, consultancies), and training to the governments and institutions of the WCR;
- vi. Compile information on innovative technologies required for the implementation of LBS programmes and activities and make the information available to governments and institutions;
- vii. Establish and update data banks at the national, sub-regional and regional levels, in accordance with the measures adopted for the implementation of the LBS Protocol, including any other relevant information;
- viii. Develop training and information-sharing activities such as courses, seminars and workshops for RAN members; and public awareness about the need for management of marine pollution from land-based sources in the Wider Caribbean;
- ix. Ensure the harmonious and mutually reinforcing commitment of the institutions participating in the RAN;
- x. Mobilize human, financial and material resources, to the extent possible, to meet the needs of the Caribbean Environment Programme (CEP);
- xi. Organize meetings, symposia and field missions which are useful for the consolidation of the objectives of the LBS Protocol and fall within the functions of the RAC.
- xii. Provide services to projects that will be at commercially acceptable rates.

DESCRIPTION OF THE INSTITUTION

The institution known today as Centro de Investigación y Manejo Ambiental del Transporte (Cimab), evolved out of the Instituto de Investigaciones del Transporte (Transport Research

Institute (IIT)) which was founded in January 1981, as a budgeted Science and Technical Unit (UCT), reporting to the Ministry of Transportation.

Over the years, the IIT underwent several transformations which demonstrates the institution's capacity to manage change, create and undertake organizational innovations, with the ultimate goal of sustaining the work of Research, Development and Innovation (R&D&I) for the benefit of the development of the transportation system and the recovery and protection of the environment both in Cuba and in the Wider Caribbean Region.

It changed from the Transport Research Institute to the Transport Research and Production Association, then the Transport Innovation Group (IT Group) to which several entities were attached, until they were all integrated into 3 research centres: Transport Research Centre (Cetra), Transport Engineering Centre (Cit) and Cimab (Centre for Research and Environmental Management of Bays and Coasts).

The most recent of the organizational innovations implemented consisted of the suspension of the IT Group and the merger of the other two science entities into Cimab, which began to take shape at the end of 2011 and came into being in February 2013. In so doing, it concentrated human capital with experience and know-how in the creation and application of knowledge in a single science entity, to engage in scientific research activities and technological development, aimed at contributing to the objectives and scope of the different programmes being developed in the transportation sector, with a sustainable focus on environmental protection and the solution of environmental problems.

Cimab is a research institution, so scientific research and technological development are of fundamental importance to its activity, in addition to the provision of scientific-technological services, postgraduate teaching, commercialization of its products or services and other activities related to science and technological innovation. Its organizational structure is that of a company and it is self-financed. It is attached to the Senior Organization for Economic Management called "Grupo Marítimo Portuario" (GEMAR), belonging to the Ministry of Transportation.

Since its designation as a Regional Activity Centre of the Cartagena Convention's Land-Based Sources of Pollution Protocol in 2001, Cimab (hereinafter referred to as RAC Cimab) has signed 13 direct contracts with the CEP Secretariat, ranging from participation in regional projects with various sources of funding to institutional strengthening actions. In turn, RAC Cimab has participated in multiple regional activities organized and/or directed by the CEP Secretariat.

Cimab has a total of 160 employees, 122 are directly linked to research (76 %). Of the 48 employees with research status, 35 have science degrees (73 %); 22 have teaching status (46 %), 36 have a Master's degree and 2 have a doctorate, which speaks to an average experience of more than 20 years in the fields of transportation and the environment.

The performance of the institution in fulfilling its functions as a RAC (described in the **INTRODUCTION**) is as follows.

INTERNAL ANALYSIS OF RAC CIMAB

Mission and vision

Cimab's **mission** as a Regional Activity Centre of the Land-based Sources of Marine Pollution Protocol of the Caribbean Environment Program (RAC LBS Cimab) is to apply science and technology in the sustainable management of marine and coastal ecosystems in the Wider Caribbean Region.

The **vision** of the RAC LBS Cimab is to be a leading institution in the Wider Caribbean Region in the control, reduction and prevention of marine pollution, with highly committed and prestigious specialists and with the appropriate technological support.

RAC Cimab's core values, which decisively support its mission and define the way employees act in line with the organization's culture, are total quality and excellence; professional ethics and dedication; initiative, creativity and cooperation; capacity for technological innovation and environmental vocation. In addition, and given that the institution is based in Cuba, the institution adopts the principles and ethical norms that govern scientific activity in this country.

Principles governing the operation of the RAC Cimab

The principles or fundamentals guiding the operation of CAR Cimab for the period 2021 - 2030 are as follows:

Sources and Activities in the Wider Caribbean.

1. Recognition of and compliance with the Cartagena Convention and in particular the Protocol Concerning Marine Pollution from Land-Based Sources, the only legally binding document of the Wider Caribbean Region for the protection of the marine and coastal environment.
 2. Correspondence with the guidelines and strategic objectives of the Caribbean Environment Programme (CEP) for the period 2020 - 2030, which serves as the Secretariat of the Cartagena Convention.
 3. Consistency with Cimab's Strategy for the period 2020 - 2023.
 4. Synchronization with the pillars, objectives, targets and indicators of the Regional Strategy for Nutrient Pollution Reduction and the associated Action Plan approved at the 5th Meeting of the Scientific and Technical Advisory Committee of the LBS Protocol (2021). *Note: to be approved*
 5. Scientific and technical support to the Member States associated with the CEP and in particular to the contracting parties of the LBS Protocol for the fulfillment of the obligations stipulated in the Cartagena Convention as well as the 17 Sustainable Development Goals (SDGs) and the targets associated with the 2030 Agenda, specifically those related to pollution: goals 6 (Clean water and sanitation), 9 (industry, innovation and infrastructure), 11 (sustainable cities and communities), 12 (responsible production and consumption) and 14 (underwater life).
-

Guidelines, objectives and associated activities for the period 2020 - 2030.

The five strategic work guidelines and associated objectives are presented below, as well as a summary of the general tasks or activities to be carried out and the areas to be covered in order to achieve these objectives. Detailed projects, activities and corresponding budgets will be presented in the biennial work plans.

Guideline: Prevention, reduction and control of marine pollution from land-based sources.

Strategic Objective 1: Increase the use of innovative tools and solutions for the **prevention, reduction and control of marine pollution** from land-based sources.

To achieve this objective, programmes, projects and activities will continue to be implemented in the countries of the Wider Caribbean Region, in conjunction with the National Focal Points of the LBS Protocol, to prevent, mitigate and reduce the impact produced by land-based sources of marine pollution. This will include projects related to the inventory, classification and management of LBS, as well as programmes for monitoring and evaluating the environmental quality of coastal marine waters and all types of wastewater. Other types of research will be carried out on aspects relevant to the LBS Protocol to promote the ratification process in countries that are not yet contracting parties to this instrument or to promote compliance with obligations in the case of countries that have already adhered to it.

The programmes, projects and activities to be implemented will include innovative approaches such as the application of the "source to sea" or "watershed to reef" management principle to mitigate pollution and maintain water quality and ecosystem health from the point of origin to the discharge areas in the marine environment.

They will also include the "circular economy" approach as an attractive alternative that redefines economic growth and is based on the management of the 3Rs (reduce, recycle and reuse).

Guideline: Emerging contaminants and nutrients as environmental and health problems of the WCR affecting living resources of coastal marine ecosystems including human health.

Strategic Objective 2: Build capacities at RAC Cimab for the implementation of projects on **emerging pollutants** of higher priority for the WCR and strengthen the existing ones for the assessment of **nutrient pollution**.

The State of the Region Report completed in 2020 (SOCAR Report) identified that the main impacts on marine ecosystems in the WCR are primarily related to eutrophication, harmful algal blooms, mercury pollution, microplastics, and marine debris or litter.

On the other hand, the impact of nutrient pollution is recognized as significant in the WCR. In order to meet the goals proposed in the Regional Strategy for Nutrient Pollution Reduction and to support the associated Action Plan (documents approved in 2021), it is necessary to strengthen regional institutions, including the RACs in the implementation of projects and activities related to the topic.

Therefore, actions will be implemented focused on capacity building (in terms of human and technological resources) in research on the presence and impact of microplastics and highly toxic substances (mainly mercury) on human health and coastal marine ecosystems.

The capacity of RAC Cimab will also be strengthened to evaluate nutrient pollution, including the identification of input sources as well as their impact.

In addition, RAC Cimab and especially its Testing Laboratory will continue to be strengthened to determine other parameters and indicators of pollution in wastewater and coastal marine waters. Actions will continue to be carried out to preserve the status of Accredited Laboratory by the Cuban Standard NC ISO 17025:2017, and expand its scope.

Guideline: Mobilization of financial resources.

Strategic Objective 3: Develop national and regional initiatives **to mobilize financial resources** for projects and activities that meet the interests of the LBS Protocol.

Support to the Secretariat of the Cartagena Convention will be strengthened in the search for new sources of financing. Cooperation will be promoted with the National Focal Points of the LBS Protocol to also seek alternative (national and international) financing for projects and activities.

Guideline: Regional cooperation

Strategic Objective 4: Continue to expand **regional cooperation between the RACs and the RAN.**

The actions that will be carried out to achieve this objective include increasing scientific and technical cooperation among the institutions that are part of the RAN, with other specialized agencies of the United Nations System, as well as with other RACs in the region, with emphasis on improving collaboration and communication with the Institute of Marine Affairs of Trinidad and Tobago, which is the other Regional Activity Centre for the LBS Protocol. Different collaboration mechanisms and instruments will be used for this purpose.

Guideline 5: Knowledge Management

Strategic Objective 5: Increase the number of actions for **knowledge management.**

The provision of technical and scientific assistance (experts, consultancies, training) to the governments and institutions of the WCR will be facilitated through courses, seminars and workshops. We will continue to organize meetings, symposiums and field missions useful for the fulfillment of the objectives and obligations of the LBS Protocol in accordance with the functions of the RAC.

Similarly, the dissemination of successful experiences in the management of land-based sources of marine pollution will be increased, including the results of national and regional programmes and projects related to this topic. The implementation of public awareness actions on related topics for target audiences or interested parties will be strengthened.

We will continue to promote the LBS Protocol, emphasizing the advantages and benefits of its ratification, as well as compliance with the obligations it stipulates.

Expected accomplishments or results / Indicators of achievement

The strategic objectives set out above will be the platform or guide for the specific objectives of the projects and/or activities to be developed in the period 2021 - 2030.

Table 1 presents the expected results for each strategic objective and the associated progress indicators.



Table 1. Expected results and progress indicators as per strategic objectives.

| Strategic Objective | Expected results | Progress indicators |
|---|---|--|
| <p><u>Strategic Objective 1:</u> Increase the use of innovative tools and solutions for the prevention, reduction and control of marine pollution from land-based sources.</p> | <ul style="list-style-type: none"> • Increased number of programmes, projects and activities aimed at the prevention, reduction and control of marine pollution. • Expanded use of novel principles and approaches in such programmes, projects and activities. | <ul style="list-style-type: none"> • Number of programmes, projects and activities implemented based on novel principles and approaches (such as the circular economy, "from the watershed to the reef", "from the source to the sea", among others) for the prevention, reduction and control of pollution from land-based sources. • Number of countries involved in the implementation of such programmes, projects and activities. |
| <p><u>Strategic Objective 2:</u> Build capacity at RAC Cimab for the implementation of projects on emerging pollutants of higher priority for the WCR and strengthen the existing ones for the assessment of nutrient pollution.</p> | <ul style="list-style-type: none"> • Creation of capacity at RAC Cimab for the detection of emerging contaminants, mainly micro plastics and highly toxic substances in human health. • Increased capacity at RAC Cimab for the identification of nutrients. • Improved capacity at RAC Cimab for the evaluation and identification of other indicators of contamination from LBS. • Maintained status of Accredited Laboratory by NC ISO 17025:2017. | <ul style="list-style-type: none"> • Equipment and supplies acquired for the detection and/or quantification of emerging contaminants, as well as other indicators of marine pollution from LBS. • Training received (number of training sessions and number of participants). • Updated accreditation certificates. |

| | | |
|---|--|---|
| <p><u>Strategic Objective 3:</u> Develop national and regional initiatives to mobilize financial resources for projects and activities that meet the interests of the LBS Protocol.</p> | <ul style="list-style-type: none"> • Strengthened cooperation with LBS Focal Points in mobilizing financial resources for the implementation of projects and activities. • Increased funding for projects and activities related to the LBS Protocol. | <ul style="list-style-type: none"> • Number of projects implemented through direct collaboration with LBS Focal Points. • Amount of funds mobilized for the implementation of projects and activities in direct collaboration with LBS Focal Points. |
| <p><u>Strategic Objective 4:</u> Continue to expand regional cooperation between the RACs and the RAN.</p> | <ul style="list-style-type: none"> • Increased collaboration between the RACs and the institutions that constitute the RAN, through different collaboration modalities and instruments. | <ul style="list-style-type: none"> • Number of collaboration instruments signed. Number of institutions involved. • Number of collaborative work projects among institutions belonging to the RAN and among the RACs. |
| <p><u>Strategic Objective 5:</u> Increase the number of actions related to knowledge management.</p> | <ul style="list-style-type: none"> • Stronger level of scientific and technical knowledge among the different stakeholders involved in the management and handling of LBS and in the prevention, reduction and control of marine pollution. • Increased public knowledge of the LBS Protocol (benefits, obligations, among others). • Increased knowledge of successful experiences of regional projects and activities associated with the LBS | <ul style="list-style-type: none"> • Training and technical courses developed by RAC Cimab specialists (number of training sessions and courses as well as number of specialists trained). • Number of workshops and symposiums organized by RAC Cimab as well as total number of participants. • Number of actions to promote and disseminate information on the LBS Protocol including the results and |

| | | |
|--|-----------|--|
| | Protocol. | successful experiences of regional projects and activities associated with it. |
|--|-----------|--|

Research areas and technical capacity at the RAC Cimab.

The projects and activities to be carried out in response to the *Strategic Objectives* will be in line with the research that the Cimab RAC currently has the capacity to undertake, namely:

- Environmental Impact Assessments of new works and remodeling of existing works in deep waters, bays, ports and marine-coastal zones (EIAs).
 - Environmental baselines for marine ecosystems.
 - Diagnosis and monitoring of the environmental quality of a body of water in marine coastal ecosystems.
 - Physical, chemical and microbiological characterization of liquid waste, gauging measurement and calculation of pollutant load to facilities of all types.
 - Bacterial Growth Studies (T90), for underwater pipeline designs.
"Fingerprint" studies for oil spills in coastal waters.
 - Physical and chemical characterization of solid wastes for their management and final disposal.
 - Water quality mathematical models to simulate system behavior and evaluate future projections.
 - Qualitative and quantitative evaluation of coastal flora and fauna, for Environmental Impact Studies or environmental baseline.
 - Underwater pipe designs for the discharge of liquid waste into the sea.
 - Analyses of physical, chemical, microbiological and ecotoxicological laboratory tests on water samples, sediments and marine organisms.
 - Design of Environmental Policies and Strategies for the business sector.
 - Provide quote and conduct Environmental Diagnosis and design of Environmental Management Systems for the business sector.
 - Studies for Environmental License Applications.
 - Management of marine waste and solid and liquid waste of domestic and industrial origin.
 - Studies on basic infrastructure for waste management in ports.
 - Elaboration of contingency plans against oil spills.
 - Engineering topo-bathymetric investigations in berthing boxes, maneuvering docks and access channels to certify depths in rivers, reservoirs, bays, estuaries and coastal areas.
 - Structural and underwater technical inspection services for the diagnosis of the technical condition of the superstructure and substructure of works and/or hydro-technical facilities (docks, jetties, piers, mooring piers, docking facilities, underwater pipelines, among others).
 - Port and coastal engineering (including dredging projects, coastal rehabilitation and management, coastal protection, beach rehabilitation and port planning activities).
 - Implementation of Geographic Information Systems (GIS) applied to the management of land-based sources of marine pollution and coastal zone management.
 - Studies for the evaluation of greenhouse gas (GHG) emissions generated by transportation and land-based sources of marine pollution as well as their impact on atmospheric pollution.
-

Other lines of research may be included as the actions that respond to Strategic Objective No. 2 (Capacity building and strengthening) are implemented.

The installed technical capacity at the RAC -Cimab for the execution of projects and activities based on the above lines of research is presented in Annex 2.

Organizational chart

Cimab's organizational chart is presented in Annex 1. The institution has 4 functional directorates and 10 research divisions.

For the execution and management of Cimab's projects and RAC activities, there is an office that reports directly to Cimab's General Directorate.

The divisions whose lines of research are clearly related to the marine and coastal environment and that work directly related to the functions of the entity as a Regional Activity Centre (RAC) of the LBS Protocol are Pollution, Industrial Ecology and Coastal Management. However, any other research division of the institution is capable of eventually working on RAC Cimab projects as long as the tasks to be developed are within its functions.

The functional divisions (Financial Accounting, Human Capital, Scientific and Logistics-Administrative) support the work of RAC Cimab with their respective functions.

Human Resources

The LBS RAC Cimab is headed by the General Director of Cimab, who represents it and has overall responsibility for the operation and general administration of the projects and activities executed by the entity in its role as a Regional Activity Centre.

The LBS RAC Cimab has an administrator/project manager for the day-to-day execution and supervision of RAC functions. In the event that the magnitude of the projects and activities to be executed requires the support of other staff, the Director of the RAC Cimab will take that decision. The project manager(s) are considered permanent staff.

To carry out its functions, the RAC LBS is supported by personnel from the Financial Accounting, Human Capital, Scientific and Logistics-Administrative departments. These are considered support staff.

For the execution of the projects, Cimab makes available to RAC Cimab all the researchers/specialists/technicians from the Research Divisions that are required to execute the activities or tasks. They are considered as non-permanent project personnel.

The national human resources necessary for the operations of RAC Cimab, and for the execution of its activities, are financed by the institution and are recruited and directed by the Director of RAC Cimab with the support of the permanent staff.

If international personnel are needed for RAC Cimab, they will be financed and recruited directly by the RCU/RAC-UNEP (or by United Nations agencies directly related to the activity to be undertaken) with the approval of the Government of the Republic of Cuba, in accordance with UN Environment rules and regulations and Cuban laws.

Advisors and other experts destined to work on projects directed by RAC Cimab, whose

positions are financed by funds provided by the Parties to the Cartagena Convention and its Protocols, are selected by the RAC Cimab Directorate after consultation with the RCU/RAC-UNEP.

Facilities

For the execution of its projects and activities, RAC Cimab has at its disposal all of Cimab's facilities, including the Testing Laboratory, the Scientific and Technical Information Centre, meeting rooms, among others.

A main facility is established for the administration/management of the RAC activities where the project manager(s) (permanent staff) are located. This facility has the appropriate technology (telephones, photocopiers, printers, internet access), although it needs to be strengthened to ensure proper project administration and timely communication between RAC Cimab and RCU/RAC-UNEP.

Financial resources

RAC Cimab is a self-funded institution that has demonstrated its ability to obtain the necessary funds from various sources or avenues for the implementation of projects and activities.

It is anticipated that RAC Cimab will expand its capabilities to attract external funding for the implementation of national and regional projects through strengthening working relationships with the LBS Protocol National Focal Points of the WCR countries and with other donor agencies within and outside the UN System.

The costs of communications, maintenance of facilities, depreciation of equipment, and salaries (of permanent, support and non-permanent project staff) are assumed by RAC Cimab and are part of the Cuban Government's contribution to the RAC operations.

The project manager(s) (permanent staff) take the necessary measures to ensure the proper management of the financial resources allocated to each project with the collaboration of the support staff.

Communications

RAC Cimab will continue and will strengthen direct channels of communication on technical matters with the National Focal Points of the LBS Protocol and with other RAN member institutions, always updating the Secretariat on such communications.

The permanent staff of RAC Cimab maintains fluid and constant communication with the Secretariat regarding the technical aspects of the projects/activities under execution, always updating RAC Cimab's Management. Official communications with the Secretariat and with the National Focal Points of the LBS Protocol are carried out through the RAC Cimab Management.

Regarding RAC Cimab's internal communications, they are based on Cimab's Communication Strategy.

Quality Policy

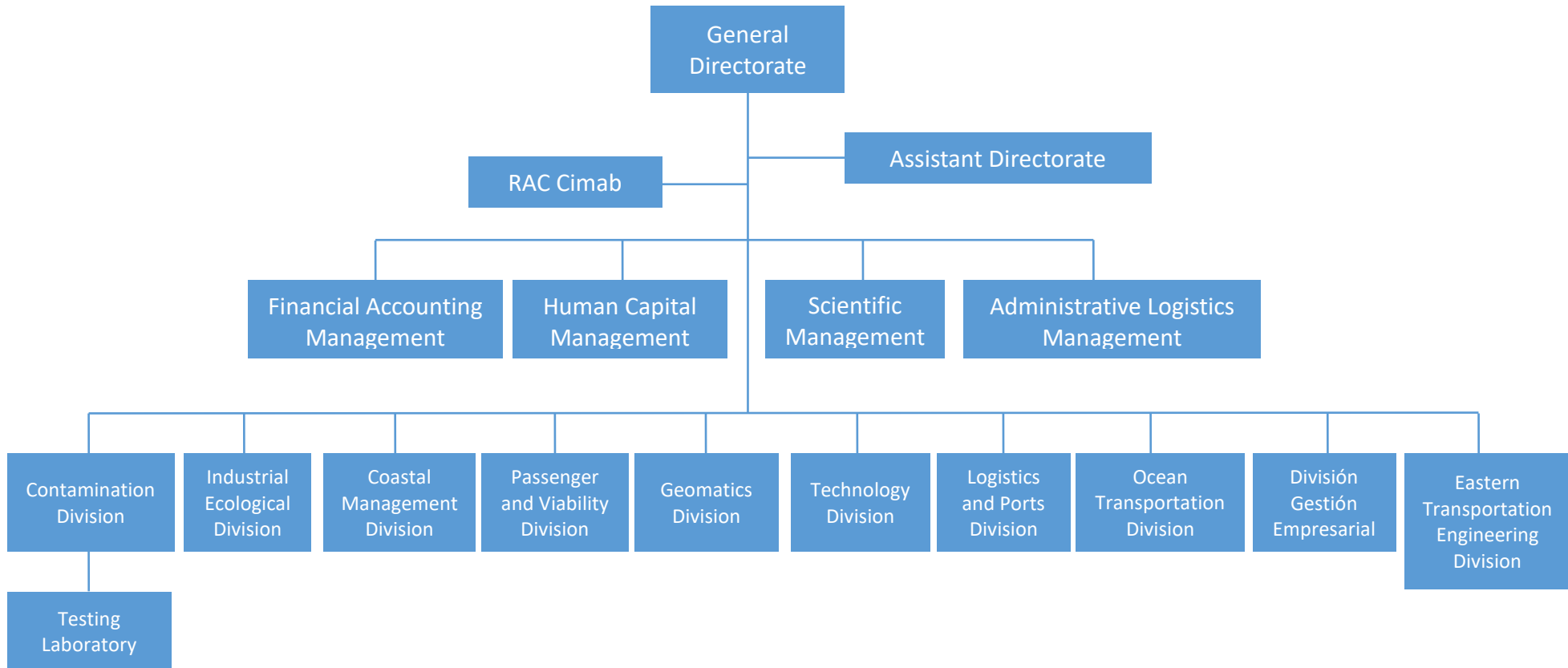
It is the commitment of Cimab's top management and therefore of RAC Cimab, to ensure the

Research and Development Management of its activities, aimed at meeting the needs and expectations of its customers and stakeholders, in addition to implementing and continuously improving the Quality Management System that meets the requirements established in the Cuban standard NC ISO 9001:2015 "Quality Management System-Requirements".

On the other hand, Cimab's Testing Laboratory operates under a Quality Management System implemented by the Cuban Standard NC ISO 17025:2017 and is accredited by the National Accreditation Body of the Republic of Cuba (ONARC) (Registration No. 36/2017) which allows it to work under internationally recognized quality standards and thus establish a strict control over the results achieved.

ANNEXES

Annex 1. Cimab's organizational chart



Annex 2. Main teams according to RAC Cimab projects and activities

| No. | Measuring equipment and/or means |
|------------|---|
| 1. | Magnetic stirrer |
| 2. | Magnetic stirrer with temperature |
| 3. | Autoclaves |
| 4. | Analytical Balances |
| 5. | Technical Balance |
| 6. | Thermostatic Bath |
| 7. | Ultrasonic Bath |
| 8. | Vacuum Pump |
| 9. | Digital Burette |
| 10. | Centrifuge |
| 11. | Colony Counter |
| 12. | Water distiller |
| 13. | COD Digester |
| 14. | Kjeldahl equipment |
| 15. | UV-VIS Spectrophotometer |
| 16. | Stoves |
| 17. | Bench Multiparameter Photometer |
| 18. | Turner Digital Fluorimeter |
| 19. | Hydrogen Generator |
| 20. | Refrigerated Incubator |
| 21. | Heating Blanket |
| 22. | pH and electrical conductivity meter |
| 23. | Optical microscope |
| 24. | Mufla |
| 25. | Heating plate |
| 26. | Roto Evaporator |
| 27. | COD Reactor |
| 28. | Electric sieve shaker |
| 29. | Thermosalinometer |
| 30. | Portable Turbidimeter |
| 31. | Vortex |
| 32. | Thermohygrometer |
| 33. | Incubator 0 - 60 °C |
| 34. | Digital Stopwatch |
| 35. | Digital Thermometer |
| 36. | Current meter |
| 37. | Thermohygrometer |
| 38. | Digital Burette |
| 39. | Technical balance |
| 40. | Thermostatic bath |
| 41. | Portable incubator for BOD5 |
| 42. | Visible spectrophotometer |
| 43. | Portable turbidity meter |
| 44. | Sampling bottle |
| 45. | Laminar Flow |
| 46. | Centrifuge |
| 47. | Selecta Incubator |
| 48. | Selecta Stove |
| 49. | Raypa water bath |
| 50. | Portable pH-CE Meter |
| 51. | 4-seater heating coil |
| 52. | Analytical balance |

53. **Autoclave**
 54. Refrigerated incubator
 55. Refrigerated fume hood
 56. Leica Flexline TS06 Total Station
 57. Multi-Frequency Echo Sounder BATHY 500 MF
 58. Thermosalinometer
 59. Current meter for measuring point currents
-