CIP Inter-American Committee on Ports

GUIDE TO ENVIRONMENTAL CERTIFICATION

AND

SUSTAINABILITY REPORTING

FOR PORTS OF THE AMERICAS

2020

INTRODUCTION

The **Guide to Environmental Certification and Sustainability Reporting for Ports of the Americas** is a reference tool offered by the Inter-American Committee on Ports (CIP) to Latin American ports and terminals to highlight the importance of environmental protection in their business setting.

This tool provides ports with general information to establish a plan of action and make a commitment to continual improvement based on the planning and structure suggested in the Guide.

This document is made up of the following chapters:

CHAPTER I.
CRITICAL ELEMENTS FOR PORT ENVIRONMENTAL MANAGEMENT

In this chapter, the key elements for developing environmental management of ports are laid out, as well as the principal guidelines and principles such management should reflect.

Additionally, the basic guidelines that an Environmental Management System (EMS) should follow, as it applies to a port with an approach of continual improvement, are discussed.

CHAPTER 2.
GREEN PORT MANAGEMENT BEST PRACTICES CATALOGUE

In this chapter, we will identify the major impacts of port operations on the environment of port terminals in order to set priorities and examine actions that can be pursued for mitigation and control of such impacts. We will also discuss existing best practices in the Latin American port system in terms of managing, mitigating and controlling environmental impacts of those port facilities on the surroundings where they operate.

The main purpose of this section is to highlight previously implemented actions that are in line with environmental management systems standards.

CHAPTER 3.
GENERAL BACKGROUND, PROCEDURES AND REQUIREMENTS FOR OBTAINING ENVIRONMENTAL MANAGEMENT SYSTEM ISO 14001, ECOPORTS AND OTHER INTERNATIONALLY RECOGNIZED ENVIRONMENTAL CERTIFICATIONS

In this chapter, we describe the most important and widely used Environmental Management Systems in the world, along with providing the general background information needed to implement them and receive certification in them.

In particular, we will: i) provide an explanation of the different environmental management systems currently available and being used; ii) give a step by step description of the latest version of the ISO 14001 Environmental Management System; and, iii) provide a description of the methodology for implementation of, and certification in, the EcoPort Environmental Management System.

CHAPTER 4.
COMMERCIAL, SOCIAL AND ENVIRONMENTAL BENEFITS AND ADVANTAGES OF BEING A GREEN OR ECOLOGICAL PORT

In this chapter, we address the (social, commercial and environmental) benefits and advantages of green or ecofriendly practices, either inside or outside of the organization, the reach of which goes beyond mere compliance with the environmental legislation of each country.

CHAPTER 5.
SUCCESSFUL EXPERIENCES OF LATIN AMERICAN PORTS WITH ISO 14001 ENVIRONMENTAL MANAGEMENT SYSTEMS, ECOPORTS CERTIFICATION AND OTHER INTERNATIONALLY RECOGNIZED ENVIRONMENTAL CERTIFICATIONS

In this chapter, we will identify port terminals that, after implementing key aspects of environmental management, have established and developed successful environmental management strategies.

We will also highlight achievements in implementing environmental management systems, such as ISO 14001 and EcoPorts, determining the scope and the particular characteristics of their operation and environment. Lastly, we will mention the benefits of these environmental certification practices.

CHAPTER 6.
GLOBAL REPORTING INITIATIVE (GRI), SUSTAINABILITY REPORTING GUIDELINES.

This chapter explains the context in which sustainability reporting is necessary, describes and examines the principles and core content of sustainability reporting using the GRI methodology and, lastly, fleshes out and explains the GRI Standards.

CHAPTER 7.
COMMERCIAL, SOCIAL AND ENVIRONMENTAL BENEFITS AND ADVANTAGES TO PORTS FROM SUSTAINABILITY REPORTS

In this chapter, based on the aspects of sustainability defined by the GRI Standards, we explain the benefits and advantages of a Sustainability Report, drawing a distinction between internal and external benefits and, in this way, facilitate analysis and comparison between these benefits.

CHAPTER 8.
SUCCESSFUL EXPERIENCES OF SUSTAINABILITY REPORTS IN LATIN AMERICAN PORTS

This chapter aims to identify Sustainability Report publications of Latin American port terminals and explain why these ports are outstanding examples (processes involved, how long they have been reporting, frequency of reporting, communication, and other aspects).

Lastly, **ANNEX No. 1** presents a lists of the steps a port can consider for the different certifications that are examined in this Guide, including a brief description of organizations that support this effort and their respective contact information.

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CHAPTER 1.
CRITICAL ELEMENTS FOR PORT ENVIRONMENTAL MANAGEMENT

The environmental management of a port is a set of actions or tasks, which must be defined and spearheaded by the port authority's upper management, aimed at protecting the environment of the locality where the port operates, while abiding by the statutory requirements prescribed in the environmental legislation of the particular country. It is an ongoing and circular process of continual enhancement that fosters the preservation, restoration, conservation, and sustainable utilization of resources and of the environment where the port does business.

In this chapter, the key elements for developing the environmental management of ports are laid out, as well as the main guidelines and principles such management should reflect. Additionally, the basic guidelines that an Environmental Management System should follow, as it applies to a port entity, are discussed.

1.1 A Port's Environmental Policy.

The environmental policy of a port is a publicly available document, written by the upper management of the port authority, reflecting its commitment to achieving adequate environmental management and fostering sustainable development through the port's operations and processes.

It is very important for the environmental policy of a port to clearly set forth the intentions and principles of its actions as well as to define the strategies and short-, medium-, and long-term objectives to be achieved and to consistently maintain the environmental management and improvement intended by the port authority.

Accordingly, the environmental policy should be based on significant environmental aspects and impacts caused by the port, taking care that its objectives do not commit the organization to carry out actions and/or make statements that fall outside of its purview.

The port authority should encourage and promote internal, as well as external participation of its employees and other stakeholders, in developing and crafting environmental policy. It is also advisable to receive input from outside the organization. Only in this way can this policy be successfully understood and adhered to by the port personnel and users and their associates.

Several recommendations for the formulation and implementation of the environmental policy of a port authority are listed hereunder:

- It should have the backing and sign off of the upper management of the port authority, ideally, of the board of directors.
- It should set forth the authority's commitment to abide by the legislation currently in force and all environmental regulations that are applicable and

related to significant environmental aspects and the attendant environmental impacts thereof.

- It should be appropriate to the nature, scope, and the significant environmental impacts of the activities, products, and processes of the port facility.
- It should include the commitments to the protection of the environment, to continual improvement of environmental management and prevention of pollution.
- It should be documented, kept up to date, be communicated to all persons working under the control of the port organization, and be available to any stakeholder.
- It should be written in simple, non-technical language in order for it to be more readily understood, both inside and outside the organization.

1.2 Environmental Program

An environmental program or environmental management program is a written description laying out actions to achieve compliance with the environmental objectives and targets of the port authority, defining who is responsible for them, and earmarking the financial and technical resources required to achieve them.

In order to achieve compliance with the environmental objectives and targets set forth in the Environmental Management Program of a Port Authority, the unequivocal commitment of the entire agency and, especially, of the most senior level management, is essential.

Prior to defining the Environmental Management Program, the port authority must identify all environmental aspects related to its activities, products, or services. This includes both aspects that it is able to control, as well as those that are difficult to predict and that it may be able to influence, such as situations of reasonably predictable emergencies. All of these aspects should be assessed in order to determine the significance of their impact on the environment.

In determining environmental aspects relating to its operations, the standard ISO 14.001 of 2015 establishes that, in addition to incorporating those aspects that are inherent to its operations, the organization should take into account:

- Changes, including new and planned developments, and the activities, products and services deriving from them.
- Abnormal conditions and reasonably predictable emergency situations.

To the extent that all significant environmental aspects relating to the activities, products or services provided by a port are adequately identified, the Environmental Management Program will be able to address them, by establishing achievable and useful environmental objectives and targets.

Thus, environmental objectives and targets constitute an environmental goal of a general nature, which should be defined in such a way that they are consistent with the Port's Environmental Policy. The idea is for these environmental objectives to be measurable, subject to follow-up, communicable and updatable. (Figure 1: Improvement and maintenance of environmental aspects).

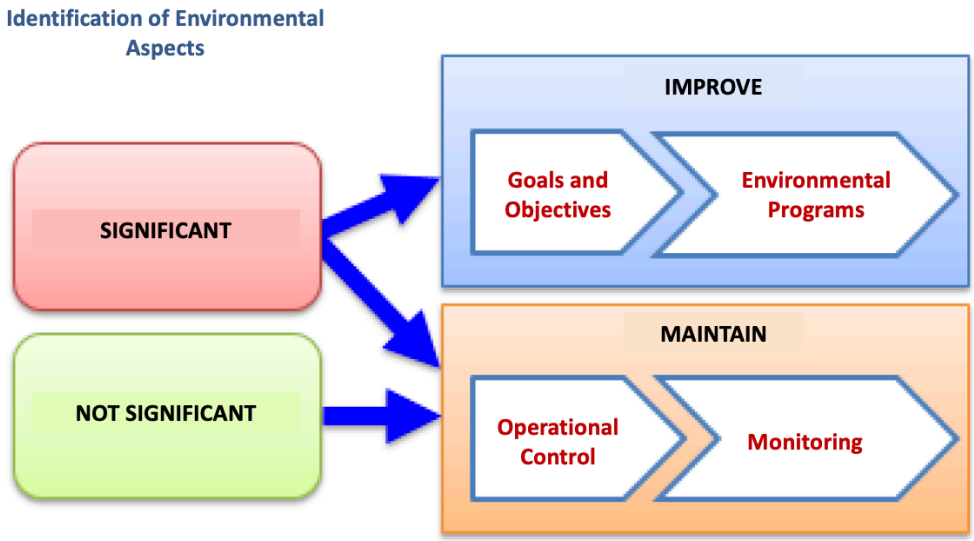


FIGURE No. 1

After establishing environmental objectives, actions that directly or indirectly have a repercussion on the intended objective must be identified and planned for.

For each action defined, environmental targets are set to ensure that the objective is reached. These targets constitute the performance requirements applicable to the organization or to parts of the organization. To the extent that these targets are reached, the actions defined will be able to achieve environmental objectives.

When identifying and planning the actions and their respective targets, for achieving of the environmental objectives, it is essential to specify:

- What is going to be done;
- What resources will be required;
- Who will be responsible;
- When will it been considered accomplished; and,
- How will the outcomes be evaluated, including follow-up progress indicators toward achievement of its environmental objectives.

Once the actions, means, responsibilities, time periods and necessary resources to achieve the environmental objectives and their goals are determined, the Environmental Program should be documented, that is, put into writing.

1.3 Organization and Training

Upper management should define what part of the organization would oversee implementation and control of environmental management, what its responsibilities are, and endow it with the resources it requires to establish, implement, maintain and continually improve this management. For this purpose, the organization should consider key personnel with adequate competencies.

It is the obligation of the upper management of the organization to appoint one or more persons responsible for:

- Making sure that the requirements of the management system are defined, implemented, and documentation thereof is kept up-to-date.
- Maintaining senior officers of the organization properly informed about the management system for its review and ongoing improvement.

The competencies of the persons making up the environmental management team should include environmental training and education, leadership skills to run and coordinate their own internal and external working groups, knowledge of the organization itself (context) and managerial skills.

The knowledge and expertise of those responsible for the environmental management system must be in line with statutory requirements and any other requirements arising from other commitments undertaken by the organization, environmental policy, environmental objectives and targets, environmental aspects caused by the port organization itself, control and management measures for the monitoring and reduction of such aspects, among other things.

Along with the foregoing, the organization must define the level of experience required by the personnel and must ensure their training and professional development so that the performance of their duties is satisfactory in terms of environmental management.

In order to achieve this training objective, the organization must identify the capacity required of its personnel to carry out specific duties that may have a significant environmental impact. Concurrently, it must make sure that all persons working under the control of the organization become aware of the environmental policy and objectives linked to it, significant environmental aspects and related actual or potential impacts associated with their work.

1.4 Implementing an Environmental Management System (EMS)

Port operations have been the cause of environmental impacts and the source of pollutants, which have had an adverse effect on their surroundings and/or areas of influence.

Thus, it is essential for port terminal facilities to engage in environmental conservation and protection of their surrounding areas providing guidance and striking a balance in their development towards consistent environmental management, to not overexploit natural resources and to minimize negative impacts, all in a process of continual improvement.

With a mind towards minimizing and/or controlling environmental impacts caused by port operations and by economic activities in general, international environmental management models or standards have been developed.

Implementing an Environmental Management System (EMS) entails preliminary research efforts, as well as allocation of sufficient resources to put it into operation. In addition to facilitating compliance obligations, with an EMS, the port authority will be able to improve its environmental performance in controlling and lessening environmental impacts, it will strengthen its environmental and business strategy by boosting its own and its stakeholders' market value, and it will potentially be able to reduce operation costs in the medium and/or long term, among other improvements.

Furthermore, by implementing an Environmental Management System the organization is better equipped to detect potential causes of environmental impact in all its operations processes, and thus be in a position to define or set environmental objectives and targets and indicators for the continual improvement of its environmental performance. As was noted above, an Environmental Management System is also an important support to legal review and compliance.

An Environmental Management System is a structured system whose strategic approach is continual improvement, which involves the processes of planning (P), implementing or doing (D), review or verification (V) and of action or acting (A), all of which a port must practice in conducting its operations thus ensuring compliance with its environmental objectives.

Environmental Management Systems can be implemented at different degrees of development, depending on the size and the intended reach of the port, as defined by each particular organization.

Currently, there are two tools for instituting an Environmental Management System, which are standardized, auditable and certifiable:

a) ISO 14001:2015; and,

b) EMAS III Regulation (EcoManagement and Audit Scheme).

Table No. 1 shows the differences between the two Standards in terms of requirements.

REQUIREMENTS	ISO 14.001:2015	EMAS III
Application	Universal application to all types of organizations	Applies to all types of organization through global or corporate registration (currently restricted to some countries)
Initial Environmental Evaluation/Review	Recommended when no prior Environmental Management System in place	Mandatory when no Environmental Management System was in place prior to certification
Audit cycle	No established frequency	The cycle will depend on the type of activity performed, at least every 3 years
Scope of audit	Environmental Management System	In addition to the Environmental Management System, it must include: - The Environmental Policy - The Program Compliance with applicable legislation
Environmental Statement	Not required	Required, it shall be publicly and annually released.
Validity	Can be self-certified, although the most usual thing is to be certified by an external accrediting agency	It must be verified by an external accrediting agency, and validation of the Environmental Statement is required.
Registration	Not necessary	The organizations are entered into the registry of companies.

TABLE No. 1

If the port follows an environmental strategy of continual improvement, it must also comply with environmental regulations in force, properly plan its operations, be organized and systematic measuring and evaluating its development or progress, and adjusting its outcomes accordingly.

This entails applying a standardized EMS, which is voluntary, requires commitment to an environmental policy, strict compliance with the pertinent environmental legislation and a commitment to continual improvement.

CHAPTER 2.
GREEN PORT MANAGEMENT BEST PRACTICES CATALOGUE

Proper environmental management of ports must include mitigating and controlling impacts on the environment and surrounding the land, air, and sea that are caused by port facilities and operations, as well as complying with the national framework of environmental law in force. Environmental impacts at working port facilities are the result of maritime traffic, loading and unloading of vessels, cargo storage, shipment consolidation and deconsolidation operations, internal and external conveyances or transportation, maintenance, supplying operations, waste disposal, among other ones, which involve any disturbance to the surroundings and for which control and mitigation measures must be implemented.

Each facility must identify the main environmental priorities. However, generally speaking, the major issues and impacts pertain to air quality, energy conservation, noise, waste management, and water.

In this chapter, we will identify the major impacts of port operations on the environment of port terminals, in order to set priorities and examine the actions that can be pursued for the mitigation and control of these impacts. Additionally, we will discuss existing best practices in the Latin American port system in terms of managing, mitigating and controlling the environmental impacts of those port facilities on the surroundings where they operate. The main purpose of this section is to highlight previously implemented actions that are in line with environmental management systems standards.

2.1 Summary of port operations-caused impacts on common environmental priorities (air, noise, waste, water, energy)

Table No. 2 shows significant environmental aspects of port operations, which depend on the different circumstances in which they are carried out, as well as the different processes and operations involved, and the associated environmental impact for each aspect.

ENVIRONMENTAL ASPECTS OF OPERATIONS	
ENVIRONMENTAL ASPECT	**ASSOCIATED IMPACT**
Waste Generation	Air pollution
Particulate matter emission	Air pollution
Water use	Exhaustion of natural resources
Energy use	Exhaustion of natural resources
Special waste generation	Contamination of soil, water, flora, and fauna
Gas and smoke emission	Air pollution

TABLE No. 2

Particulate Matter Emission. Particulate matter can be produced in port operations by the following activities: infrastructure works, demolitions, operating equipment and means of conveyance, handling bulk solids.

Waste Generation. Waste can be hazardous. Examples include sludge, used oil filters, solvents and paints, contaminated materials and equipment, dangerous chemicals and their containers, among other things. Waste can also be non-hazardous. Examples can include plastics, wood, scrap metal, screens, cables, etc. This category can also include bulk solid and liquid spills at the different stages of port operations (handling, conveyance, clean up, etc.).

Special Waste Generation. MARPOL waste,[1] includes garbage, oil cargo waste, bilge water, noxious liquid substances, sewage, solids and other waste and residues, originating in seafaring vessels.

Gas and Smoke Emission. Potential atmospheric emissions can be associated with the use of air conditioners for refrigerated containers, gas and smoke emission from the use of means of conveyance or transfer (mobile gantries), boiler fumes, emission of volatile organic compounds, emission of foul odors, among others.

A more specific listing of environmental impacts linked to port operations appears below in Table No. 3.[2]

COMPONENT	IMPACT	DESCRIPTION
WATER	Fluvial and maritime dynamics	Expanding a section of river or shore for mooring docks and laying piles to support the docks
	Disturbing the water absorption regime	Impacting the ability of soil to absorb water.
	Increased turbidity from repeated suspension of sediments on the floor	Change in water quality due to increased dissolved solids
	Pollution from bilge water	Increased concentration of oil residues in the water, caused by discharge of bilge water in vessel operations
	Changes in floor topography	Changing the current sea floor or riverbed.
	Floor sediment pollution	Changes in the quality of the sea floor or river bed sediments due to polluting agents
	Pollution by potentially hazardous and toxic substance spills	Changes in water quality due to the presence of hazardous or toxic elements.
	Pollution by solid and liquid discharges	Increased concentration of solid or liquid waste in the water
	Pollution by organic residue and substances	Increased concentration of organic substances in the water
	Increased water demand	Increase in the amount of water to be used.
	Pollution by potential fuel, grease and oil spills	Change in the water quality due to increased concentration of fuel, grease, and oil.
	Saltwater intrusion	Partial encroachment of marine saltwater inland.
AIR	Pollution by increased gas	Increased concentration of gases such as SO_2,

[1] MARPOL – International Convention for the Prevention of Pollution from Ships.

[2] Guía Ambiental Terminales Portuarios [‘Evironmental Guide to Port Terminals’]. Convenio No. 370-2016 MADS-INVERMAR (2016), pgs. 105-107.

	concentration	CO, volatile organic compounds, nitrogen oxide, CO_2, methane (CH_4) and Chlorofluorocarbons (CFC) in the atmosphere
	Increased noise pollution	Higher decibel level in the air
	Deteriorating air quality from increased concentration of particulate matter	Increased concentration of particles suspended in the air
	Increased temperature	Increased base air temperature at the ground surface level in the port's area of influence
SOIL	Silting, accretion, erosion, and undermining	Solid material building up on the sea floor or river bed, growth by addition of smaller objects, removal or wearing away of the soil and/or deep excavation caused by water
	Compacting	The artificial process whereby soil particles are forced to be in closer contact with one another.
	Change in natural drainage pattern of the ground	Shifting of the natural channels which collect all water of the watershed, whose final destination is spilling into the river
	Pollution by potential fuel, grease, and oil spills	Change in soil quality due to increased concentration of fuel, greases, and oils
	Solid waste generation	Presence of solid waste in the soil
	Soil loss	Wearing down of the ground
	Change in land use	Modifying current land use
	Vibration	Spreading of elastic waves producing deformations and tension to a continuous medium, in this instance, the soil
	Foul odors	Complex mixture of gases, vapors, and dust, the composition of which directly causes an unpleasant odor to whomever perceives it.
LANDSCAPE	Decreased esthetic and recreational value of beaches	Beaches are perceived as less beautiful and as having less recreational potential
	Disturbance of the landscape and visual appeal	The structural or functional disturbance of one, several, or all natural components and visual elements of the landscape as a consequence of human interventions, causing decreased environmental and visual quality.
	Changes in coastal morphology. River banks and/or sea shores	Shifts in the surface line of land defining the boundary between the sea and/or river channel and firm ground, due to expansion of the channel or dredging of the seaport floor
	Change in topography	Shifting relief of the surface of the land
	Increased fragmentation	Transformation of a continuous forest into many smaller units that are isolated from each other, whose aggregated expanse becomes much smaller than the original forest
	Increased risk of edge of habitat effect	Increased exposure of organisms that remain in a fragment to conditions that are different from their normal habitat
	Disturbance of aquatic productivity	Decreased fishing and aquacultural production, as a result of the construction and operation of port infrastructure.
	Habitat loss or deterioration	Decreased availability or quality of the environments occupied by biological

		populations.
FLORA	Dust build-up on fauna and vegetation	Particulate material accumulates on the surface or inside of vegetation and wildlife
	Loss of vegetation cover	Total or partial elimination of the LAI (Leaf Area Index)
FAUNA	Increased pressure from pest or invasive species	New aquatic environments, that can potentially be occupied by non-native biological populations, are created
	Disruption in the migration routes of species of marine and land wildlife	Increased fluvial, maritime, and land traffic affecting the dynamics of the location and, therefore, the species associated with the environment
	Changes in substrata structure	Resulting from dredging, discharge of water, greases, and other substances that can impact the substratum used by the organisms to sequester such substances
	Decreased benthos and periphyton and plankton as a result of the deterioration in water quality	Harming the environments occupied by biological populations or the populations themselves
	Reduced population of fish species as a result of the deterioration of water quality	Disturbances to the wealth, abundance, dynamics of sexes, ages, among other variables, of different biological communities

TABLE No. 3

2.2 Catalogue of port management best practices using environmental management systems

Latin American ports have begun to implement a plethora of successful initiatives in keeping with their Environmental Management System to reach their environmental goals and benchmarks.

Table No. 4 provides a list of best practices identified at Latin American port terminals, excelling in the area of environmental management, a description of the initiative and the expected outcomes. Needless to say, each action and expected outcome must be continual and periodically monitored.

PRACTICE	ACTION	DESCRIPTION	EXPECTED OUTCOMES
Atmospheric Emissions Control	- Environmental surveillance system of air quality and particulate material - Measuring Carbon Footprint - Airtight seals freight trucks	- Modernization of equipment - Control and Oversight of operation - Preventive maintenance of equipment - Moistening and use of biodegradable additives - Installation and maintenance of windbreaker barriers - Moistening Systems	- Compliance with applicable Law - Decreased concentration of particulate material - Plan of action in the event of surpassing permitted limits - Decreased greenhouse gas effect (GGE)
Noise	- Perimeter noise	- Conducting regular	- Compliance with applicable law

PRACTICE	ACTION	DESCRIPTION	EXPECTED OUTCOMES
Control	level studies	measuring of perimeter noise levels caused by the port facilities	- Plan of action in event of surpassing permitted limits
Water	- Efficient use and savings - Oil separator system - Waste water treatment plant	- Minimize consumption and efficiently use the resource, protect water sources and control discharge into water sources - Training and sensitization courses for all personnel - Leak control programs	- The use of biodegradable chemical products for emission control contributes to the reduction of water usage for moistening tracks and pathways - Reuse of water from the process of vehicle and container washing, for watering green areas and gardens - Zero discharge into the sea
Energy	- Decreasing consumption - Implementing ISO 50001 energy efficiency management system - Measuring Carbon Footprint	- Minimizing consumption and generate savings - Regeneration of energy - Use of more efficient systems or low consumption (lighting) - Use of solar panels - Training and sensitization courses for all personnel	- Compliance with regulations, as required - Decreased levels of consumption and generating savings - Improved quality of lighting from use of efficient systems - Decreased greenhouse gases effect (GGE)
Solid waste management	- Managing waste - Training personnel and contractors - Recycling - Sorting waste - Adequate final disposal - Control of hazardous waste	- Minimizing waste generation - Promoting waste sorting to facilitate recycling - Paper waste and consumption reduction campaigns - Verifying agreements for removal and final disposal - Beach cleaning	- Compliance with laws - Achieve maximum waste sorting to reduce amount of waste that goes into garbage dumps - Outreach and awareness raising - Less garbage and especially plastics - Improvements to conditions of marine flora and fauna
Landscape Management	- Permanent vegetation maintenance plan - Reforestation of lands - Beach cleaning campaigns	- Mitigating and improving the port's interior and exterior vegetation - Growing native species inside and outside of the port's grounds - Waste disposal - Erosion control	- Minimized visual impact caused by cargo and equipment used in the seaport terminal operation - Land reclamation - Improved port image and awareness - Decreased trash, especially plastics - Improvements in marine wildlife and aquatic vegetation
Sea (seawater)	- Measuring benthos and marine silt - Quality monitoring of	- Taking silt samples - Water column profiling for component analysis - Sampling should be done at a reference point outside	- Analysis of biodiversity - Observing changes in the physical-chemical quality of the seawater

PRACTICE	ACTION	DESCRIPTION	EXPECTED OUTCOMES
	water column profiling	the port and where operations take place (mooring docks)	
Soil	- Environmental monitoring of soils - (Re)forestation	- Soil samples for component analysis	- Compliance with law, as required - Pollution monitoring - Erosion control - Air quality

TABLE No. 4

CHAPTER 3.
GENERAL BACKGROUND, PROCEDURES AND REQUIREMENTS FOR OBTAINING ENVIRONMENTAL MANAGEMENT SYSTEM ISO 14001, ECOPORTS OR OTHER INTERNATIONALLY RECOGNIZED ENVIRONMENTAL CERTIFICATIONS.

Port terminals must deal with countless environmental problems from the time they are designed to the time they are constructed and are functioning. Thus, oversight and management are important so that their activities are conducted in harmony with the environment and cause fewer and fewer impacts.

One way to meet this challenge is by putting an Environmental Management System (EMS) into place. An EMS is a management tool that helps an organization to improve on an ongoing basis in terms of planning, monitoring, and overseeing its environmental management.

In this chapter, we describe the most important and widely used Environmental Management Systems in the world, along with providing the general background information needed to implement them and receive certification in them. In particular, we will: i) provide an explanation of the different Environmental Management Systems currently available and being implemented; ii) give a "step by step" description of the latest version of the ISO 14001 Environmental Management System; and, iii) provide a description of the methodology for implementation of, and certification in, the EcoPort Environmental Management System.

3.1 Environmental Management Systems Standards

Ports with effective environmental management systems in place will be more competitive, less likely to cause adverse effects on the surrounding environment where they are located and, particularly, more accepted by the stakeholders in their area or sphere of influence.

We can highlight the following advantages offered by an Environmental Management System:

1. Competition factors: it boosts the port's institutional image, improves company leadership, productivity, better positions organization for business and adds value to clients.
2. Cost reduction: it lowers the cost of waste control and treatment, management and control of physical and human resources, and of compliance with regulations.
3. A committed organization: it provides for structured and effective environmental management, integration of environmental management with business management, development of environmental awareness among personnel and integration with the community and related parties.
4. Risk identification and control: it establishes a commitment to complying with environmental regulations, adequate communications plan, reduces emergency

situations and potential impacts of them, and provides a plan of action to deal with such situations.

Thus, the motivating factors to implement and obtain certification in an Environmental Management System are:

a. Gaining competitive advantages;
b. Market and client requirements; and
c. Environmental awareness, surrounding community and society (stakeholders).

The first standard regarding Environmental Management Systems was Standard BS7750, which was created by the British Standards Institution in 1992. Then, in 1994, the European Community approved the Eco-management and Audit Scheme, EMAS. Finally, in 1996, the International Standards Organization created ISO 14000.

3.2 ISO 14.001:2015 Environmental Management System

3.2.1 General Description of the Standard

So, the ISO 14001:2015 standard is an instrument with a systematic approach to environmental management.

The purpose of this Standard is to produce voluntary administrative instruments to help and provide organizations with a framework to protect the environment and respond to changing environmental conditions, while always maintaining a balance between socio-economic needs and regulatory requirements.

As one of its foundational principles, the Standard itself establishes that society's expectations with regard to sustainable development, transparency, responsibility, and accountability have evolved in the context of increasingly more stringent legislation, growing pressure with relation to environmental pollution, inefficient use of resources, inappropriate waste management, climate change, degradation of ecosystems, and loss of biodiversity.

ISO 14001:2015 Standard defines an Environmental Management System as the part of the management system that includes the organizational structure, planning, practices, procedures, processes, and the resources to develop, implement, review, and maintain environmental policy.

Establishing a systematic approach to implementing environmental management can pave the way for an organization to accomplish great things within particular timeframes and make it possible to contribute to sustainable development through actions aimed at:

- Protecting the environment through prevention or mitigation of adverse environmental impacts;

- Complying with statutory requirements;
- Controlling how the organization designs, manufactures, distributes, consumes and carries out final provision of products and services
- Making it easier to gain financial and operational benefits that can result from implementing environmentally respectful alternatives that strengthen the organization's market position;
- Successfully communicating environmental information to stakeholders.

The major reasons to implement ISO 14001 include:

- Globalization makes environmental management mandatory for companies.
- It is a new parameter for competitiveness.
- Eco-strategy is key to winning over markets.
- It is a fact that society is increasingly more environmentally aware.
- It is a paradigm of growth and sustainable development.

It is very important for the success of implementation of ISO 14001 that a faithful commitment exist at all levels and functions of an organization, in particular, its upper management.

By implementing the standard, it is possible to prevent or mitigate adverse environmental impacts and, in this way, enable the upper management to adequately monitor risks and opportunities through implementation of this environmental management system.

The environmental management system of Standard ISO 14.001 is based on the model or cycle of continual improvement, known as "PDVA," which is a management tool created in the 1950s by Edward Deming and whose acronym is made up of the words **P**lan, **D**o, **V**erify and **A**ct, with each concept representing one phase of the improvement cycle, as follows (Plate No. 1):

- **Plan**: identifying the environmental objectives and processes that are necessary for the achievement of particular outcomes in keeping with the environmental policy of the organization.
- **Do**: implementing the processes or actions that are necessary to achieve the proposed improvements.
- **Verify**: following up to measure the processes in terms of environmental policy and assess the effectiveness of the changes; it is a phase of calibration and adjustment.
- **Act**: undertaking actions to continually improve (the necessary corrections and changes are carried out).

Plate No. 1 shows each step of the process of continual improvement of the Environmental Management System and is part of the frame of reference of ISO 14.001:2015.[3]

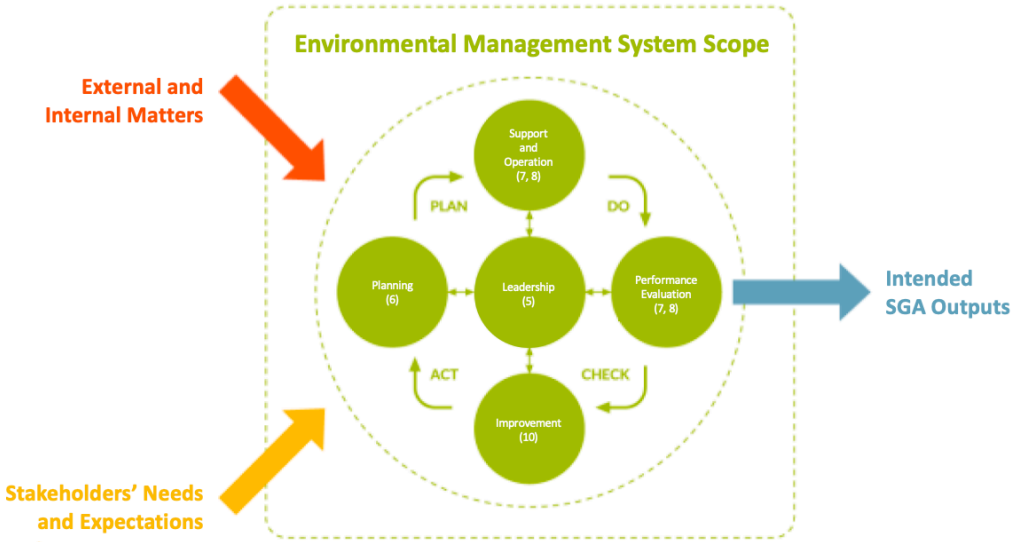


PLATE No. 1

ISO 14001:2015 conforms to ISO requirements for all management system standards.

ISO requirements include a high-level structure, basic identical wording and common terms, with essential definitions that have been designed to benefit users in implementing a number of ISO management system standards.

This international standard does not include specific requirements of other management systems, such as those relating to quality, health, job safety, and other aspects.

The standard allows the organization to use a common risk-based approach to integrate its Environmental Management System with the requirements of other management systems.

The standard sets forth all necessary requirements to conduct a conformity assessment. Thus, an organization that wishes to prove conformity with this standard can do so through:

- Self-determination and self-declaration.
- Seeking conformity compliance from stakeholders.
- Requiring an external party to the organization to assess the conformity of its self-declaration.

[3] Standard ISO 14.001:2015 – Introduction - 0.4 Plan-Do-Verify-Act Model.

- Seeking certification of its Environmental Management System by an external company.

ISO 14.001:2015 specifies all requirements needed to implement an Environmental Management System that will be used to improve the environmental performance of an organization.

The standard is used by the organization to systematically manage its environmental responsibilities, to contribute to sustainability (environmental management adds value to the environment, the organization itself, and its stakeholders).

Expected outcomes of an Environmental Management System include:

- Improvement of environmental performance.
- Compliance with applicable statutory and other requirements, pursuant to its own legislation.
- Achievement of environmental objectives.

ISO 14.001:2015 can be applicable to any organization, regardless of its size, type, and nature, by also applying environmental aspects to their activities, products, and/or services.

The Table below describes the stages and methodology that must be followed by the organization in order to implement ISO 14.001:2015 (Table No. 5).

P (Plan)	D (Do)	V (Verify)	A (Act)
PLANNING	**IMPLEMENTATION AND OPERATION**	**CONTROL AND CORRECTIVE ACTION**	**REVISION UPPER MANAGEMENT**
Environmental Aspects	Structure and Responsibilities	Monitoring and Measuring	Continual Improvement
Legal and other requirements	Training, Awareness Raising and Professional Competencies	Non-conformity, corrective action and preventive action	
Objectives and goals	Communication	Records	
Environmental Management Program	Documentation of Environmental Management System		
	Control of Documentation		
	Control of Operations		
	Emergency Plans		

COMMITMENT

TABLE No. 5

3.2.2 Commitment – Environmental Policy

The first stage is for the upper management of the organization to draft an Environmental Policy as the basis for its environmental objectives and targets.

ISO 14.001:2015 defines Environmental Policy as a set of principles established as commitments, in which Upper Management lays out the organization's intentions to support and improve its environmental performance.

Environmental policy enables the organization "to establish its environmental objectives, carry out actions to achieve the expected outcomes of the environmental management system, and provide for continual improvement."

ISO 14.001:2015 prescribes **three basic commitments** to be considered in the Environmental Policy. These commitments must actually be reflected in the organization's processes to ensure a robust, credible, and reliable environmental management system.[4]

The first commitment is to "*protect the environment"* in order to safeguard the natural surroundings against damage and degradation, whose origin could be the activities, products and/or services of the organization, along with preventing adverse environmental impacts by preventing pollution.

This commitment must be relevant to the context of the organization and include the local and regional environmental conditions of its surroundings and be able, for example, "*to address water quality, recycling or air quality, and also can include commitments relating to mitigation and adaptation to climate change, protection of biodiversity and ecosystems, and restoration."*

The second commitment is "*to comply with applicable legal and other requirements of the organization,"* that enable it to conduct its operations, make its products and/or provide its services lawfully, by determining applicable statutory requirements, ensuring that operations are carried out in accordance with those statutory requirements, evaluating obligation compliance and correcting any non-conformities that could exist.

This commitment entails identifying and evaluating the applicable legal requirements of an organization, based on periodic and exhaustive analysis of activities, processes, procedures and the corresponding environmental aspects and impacts, identifying applicable laws and regulations and verifying the level of compliance, to shed light on actions that the organization needs to take in order to comply with applicable legal requirements.

[4] ISO 14.001:2015 – Annex A.5 – A.5.2 Environmental policy.

The third commitment is "*to continually improve the environmental management system in order to improve environmental performance,*" in such a way as to generate over time a positive evolution of activities, products and/or services of the organization, "determining opportunities for improvement and implementing the actions necessary to achieve the expected outcomes of the environmental management system."

In order to fulfill this commitment, the organization must "*consider the results of the analysis and of the environmental performance evaluation, the compliance evaluation, the internal audits and the review by management when improvement actions are taken. Examples of improvement include corrective action, continual improvement, innovating change, innovation and reorganization."*

The Environmental Policy must meet several requirements, which we can summarize as follows:

a) *It must be appropriate for the purpose and context of the organization, including the nature, scope, and environmental impacts of its activities, products, and services;*
b) *It must provide a frame of reference for establishing the environmental objectives;*
c) *It must include a commitment to the protection of the environment, including preventing pollution, and other specific commitments that are relevant to the context of the organization;*
d) *It must include a commitment to comply with the legal and other requirements; and,*
e) *It must include a commitment to continual improvement of the environmental management system in order to improve environmental performance.*

Likewise, Upper Management must make sure the Environmental Policy meets certain standing requirements, which we can summarize as follows:

a) *It must be maintained as documented information;*
b) *It must be communicated within the organization;*
c) *It must be available to stakeholders.*

3.2.3 Planning

3.2.3.1 Actions to address risks and opportunities

Generalities

The planning processes set forth in ISO 14001 help the organization to ensure "*the capacity to achieve the anticipated or expected outcomes of the environmental management system, prevent or reduce unwanted effects and achieve continual improvement."*

An overall risk and opportunity approach must be used to identify environmental aspects and assess their corresponding impacts, as well as to identify legal and other types of requirements. Environmental aspects are associated with adverse and beneficial environmental impacts or other effects on the organization, while the legal requirements are associated with dereliction of duty that could damage the organization's reputation, that is to say, which go well beyond simple breaches of legal obligation. In the end, the aim is to improve the organization's reputation.

The organization could have other types of risk and opportunities, such as those linked to emergency situations. These are unplanned or unforeseen events, for which specific processes or plans should be in place to prevent and mitigate their actual or potential consequences.

ISO 14.001:2015 does not establish any formal requirement for the management or documentation of risks and opportunities. Nonetheless, it establishes that a simple or comprehensive qualitative process, depending on the context of the organization, should be considered to determine and address planning actions and to establish environmental objectives.

Environmental Aspects

On the basis of one or more criteria, the organization must determine the environmental aspects of its activities, products and/or services, that is to say, aspects that it is able to control as well as influence and associated environmental impacts, from a life cycle perspective.

For this purpose, we must define life cycle as consecutive and interlinked stages of a product (or service) system, from the raw material acquisition, or generation from natural resources to final disposal.

Thus, the stages of the life cycle include the acquisition of raw materials, design, production, transportation/delivery, use, end-of-life treatment, and final disposal.

The Standard describes an **environmental aspect** as an *element of an organization's activities, products or services that interacts or can interact with the environment*. It further notes that *an environmental aspect may cause one or more environmental impacts, distinguishing it from a significant environmental aspect that is precisely one that has or can have one or more significant impact on the environmental.*[5]

For its part, an **environmental impact** is defined as a *change to the environment, whether adverse or beneficial, wholly or partially resulting from an organization's environmental aspects*.[6]

[5] Standard ISO 14.001:2015 – 3. Terms and definitions– 3.2.2 environmental aspect.
[6] Standard ISO 14.001:2015 – 3. Terms and definitions – 3.2.4 environmental impact.

As has been noted, the organization needs to determine or identify the environmental aspects that fall within the reach of its environmental management system, so that it is able to act on the environmental impacts to evaluate them and prioritize those it will act on.

In determining or identifying environmental aspects, the organization must bear in mind the different conditions as well as the different processes and operations in which it conducts its activity, consider a periodic review or, when a change in activities, products or services occurs giving rise to new environmental impacts or significant changes in the aspects identified.

For this process of **identification of environmental aspects,** it is recommended to consider the following stages:

- Firstly, determine the general conditions of operation, bearing in mind the circumstances of normal and abnormal functioning, and situations of accidents and emergencies.
- Subsequently, identify and specifically break down all operations and processes associated with its activity, product, or service that is liable to cause an impact, both in normal and abnormal situations of functioning.
- Then, an analysis must be conducted of each stage associated with the operations and processes, identifying for each stage the elements required for its functioning (such as, water, energy, fuel, materials consumption) and its discharges (such as emissions, dumping, waste, among other ones).
- After the preceding stage, aspects must be identified at each stage, based on the prior analysis, classifying them as:[7]

  a) Emissions into the air;

  b) Discharges into the water;

  c) Discharges into the ground;

  d) Use of raw materials and natural resources;

  e) Use of energy;

  f) Energy emitted (such as heat, radiation, vibration (noise) and light);

  g) Generation of waste and/or by-products; and,

  h) Use of space.

- Lastly, forms and records of these aspects should be drawn up, to enable the organization to view all data it has collected: stage/process when it is generated, scale, physical-chemical characteristics, cause of generation, and the environment affected by it.

[7] Standard ISO 14.001:2015 – Annex A.6 – A.6.1.2 Environmental Aspects.

After identifying the environmental aspects, the **criterion or criteria to evaluate the importance of each one** should be established and defined.

It is recommended that evaluation criteria be general (applicable to different environments), reproducible (applicable to the same environmental aspects in different locations) and suitable for validation through an internal or external review.

Each environmental aspect should be evaluated in both normal functioning situations and abnormal situations, such as accident or emergency situations.

Once the environmental aspects are identified and evaluated, they must be **prioritized**, determining what aspects have or can have a significant impact on the environment.

The organization itself will establish the (qualitative or quantitative) methodology for the prioritization of the aspects, and must bear in mind that the result has to be consistent with its reality and the concept of continual improvement.

Lastly, the information on the environmental aspects and impacts, as well as the criteria used to determine the significant environmental impacts, must all be **recorded and documented,** in a document defined by the organization itself, making it possible to see all information collected for each aspect in one place.

Compliance Obligations

Compliance obligations applicable to the organization must be linked to environmental aspects. In order to facilitate stringent compliance with the obligations and improve environmental performance, operational control guidelines must be defined.

For this purpose, Standard ISO 14.001:2015 establishes that the organization must:

a) *Determine and have access to legal and other requirements related to their environmental aspects*

   As part of the environmental management system of the organization, a methodology to access any legal and other requirements that are applicable to the organization should be provided, identifying each particular national, regional or local provision of law or regulation applying to it.

   The legal and other requirements may originate in any of the following:

   - Provisions set forth in national, international, and local laws and regulations;
   - Requirements prescribed in permits, licenses, or other forms of authorization;
   - Requirements issued by decree from government entities or other pertinent authorities;

- Orders, rules, or guidance issued by regulatory agencies;
- Obligations stemming from judgements of Courts of Review or Trial Courts.

Additional legal and other requirements that must be considered include those originating with interested parties and stakeholders of the organization, which relate to its environmental management system. These obligations can include agreements with community groups or nongovernmental organizations, agreements with public authorities or clients, relevant norms or rules of the industry or the organization itself.

Statutory environmental requirements may be accessed in the following ways:

i) Using the legal resources of the organization;

ii) Periodically visiting specialized web sites to identify newly published legal texts;

iii) Hiring an external legal service;

iv) Subscribing to the legal information listservs of professional entities, such as chambers of commerce, foundations, associations, etc.

b) *Determine how these legal and other requirements apply to the organization*

The organization must define and establish what it needs to do to obtain information on the legal texts and define the practical application of the requirements, identifying legislation that is applicable to waste management, emissions, discharging, industrial safety, or transportation of hazardous substances, among other aspects.

c) *Take into account these legal and other requirements as it establishes, implements, maintains and continually improves its Environmental Management System*

After identifying the applicable legal and other environmental requirements, periodic evaluations must be conducted, as defined by the organization, of the degree of compliance, ascertaining whether the organization is in compliance and, in the event of potential non-compliance, carry out corrective actions to proceed to resolve the non-conformity.

In order to comply with the above-stated actions, it is recommended to maintain documented information with respect to applicable legal and other requirements (compliance obligations).

Likewise, a legal compliance matrix to identify the provisions that are applicable to the organization in its processes should be created and it should be periodically updated and evaluated while keeping records of the results.

Planning of Actions

In order to achieve the expected outcomes of the Environmental Management System of the organization, actions must be established as part of the processes to address significant environmental aspects, applicable legal and other requirements, risks and opportunities detected, bearing in mind the subsequent evaluation of the effectiveness of these actions.

The actions planned can include establishing environmental objectives or can incorporate other processes of the Environmental Management System, either individually or in combination. Some actions can be addressed through other management systems, such as those relating to health, occupational safety, continuity of business, or through other business processes relating to risk, financial, or human resource management.[8]

3.2.3.2 Planning of Actions to Achieve Environmental Objectives

Environmental Objectives

Some environmental aspects identified by the organization are more important than others and this is determined by an evaluation process. Thus, environmental aspects that have been deemed as significant will be taken into consideration for the company to establish environmental objectives and the targets relating to them.

In this regard, the company can establish the points of action and the improvement measures, making sure that the Environmental Management System is effective in moving forward in a process of continual improvement.

The progress or process of continual improvement of the organization's Environmental Management System becomes apparent in measuring and evaluating the objectives and targets, through the outcomes and environmental performance. "*The objectives and targets help to turn intention into action and, therefore, they should be included in the strategic plans of the company and can facilitate integration of environmental management with other business management processes.*"

The Standard establishes that "*The organization must establish environmental objectives for the pertinent functions and levels, taking into account the significant environmental aspects of the organization and its associated legal and other requirements, and considering its risks and opportunities*."[9]

This means that the environmental objectives can be established by upper management at the strategic level (applicable across the organization) or at the tactical or operational level (for specific units or functions within the organization) in which case they should be compatible with their strategic direction.

Examples of Environmental Objectives include decreasing solid waste, reducing water consumption, reducing emissions into the atmosphere, increasing recycling levels.

[8] Standard ISO 14.001:2015 – Annex A.6 – A.6.1.4 Planning of Actions.
[9] Standard ISO 14.001:2015 – Annex A.6 – A.6.2.1 Environmental Objectives.

The Standard states that *environmental objectives must meet the following requirements:*[10]

i) Be consistent with environmental policy

ii) *Be measurable (if feasible)*

iii) *Be subject to follow-up*

iv) *Be communicated*

v) *Be updated*

vi) *Concurrently, preserve documented information on environmental objectives.*

Table No. 6 identifies considerations to bear in mind in determining environmental objectives.

"Take into account significant environmental aspects"	"Consistent with environmental policy"	"Measurable"	"If is feasible"	"Be Communicated"
Means that an environmental objective should not be established for each significant environmental aspect. However, these significant environmental aspects must have a high priority when the environmental objectives are established.	Means that the environmental objectives are in line and in accordance with the commitments made by upper management in the Environmental Policy, including the commitment to continual improvement and to not forget the views of stakeholders.	Means that it is possible to use quantitative or qualitative methods in relation to a defined scale to determine whether the environmental objective has been achieved.	It is recognized that there may be situations when it is not feasible to measure an environmental objective. However, it is important that the organization has the capacity to determine whether an Environmental objective has been achieved or not.	It should be communicated to the individuals working under the control of the organization and that have the ability to influence achievement of the objectives.

TABLE No. 6

There are also other considerations that the organization should bear in mind:

[10] Standard ISO 14.001:2015 – Annex A.6 – A.6.2.1 Environmental Objectives.

- In planning environmental objectives, the cost-benefit relationship must be taken into consideration to determine whether the benefit derived from improving the environmental quality and the image of the company justifies the investment involved in adopting the measure, as assessed by expenditures or cost savings.
- The cost-benefit analysis helps to identify the type of objective, its quantification, and how it develops over time.
- In order to determine the value or the efficacy of the model, environmental efficiency indicators should be established to measure the degree of compliance.
- For measuring the evolution of environmental management of the company itself, along with conducting a comparative analysis with other companies of the same economic sector (if possible), it is recommended that the environmental indicators are defined so that they allow for detection of shifts and trends, evaluate the outcomes of the Environmental Management Policy, as well as the degree of compliance with the commitments acquired by the company. "*The environmental efficiency of a company is evaluated as a function of the environmental objectives achieved.*"

Planning of Actions to Achieve the Environmental Objectives.

In accordance with the Standard, *when planning how to achieve its environmental objectives, the organization should determine:*[11]

a) What is going to be done
b) What resources will be required
c) Who will be responsible
d) When will it be completed; and,
e) How with the results be evaluated, including the progress follow-up indicators for achievement of its measurable environmental objectives.

The organization should consider how actions for the achievement of its environmental objectives can be integrated into the business processes of the organization.

After defining the environmental objectives, planning is required to achieve compliance with them, in other words, planning the actions to be carried out to achieve the environmental objectives, establishing for that purpose the material and human resources, the responsibilities for the execution of the different actions, and the timeframe.

Plans and programs for follow-up on the objectives (quantitative indicators) and actions to undertake in the event of failure to comply must be established.

[11] Standard ISO 14.001:2015 – Annex A.6 – A.6.2.2 Planning of actions to achieve environmental objectives.

Evaluation of the results obtained, including quantitative indicators, will allow for modification of particular trends which, if left uncorrected, would prevent achievement of the environmental objective.

The planning process must be established in the form of an Environmental Management Program of the organization, inasmuch as it is a key element for implementation of the system since it makes it possible to view how the environmental objectives will be achieved, how they are planned, the resources committed, among other things, for improved environmental management.

For that reason, we have noted that the Environmental Management Program is a documented description of the means that the company uses to achieve the environmental objectives and targets it defined.

It is important for the organization to understand the Environmental Planning and Program to be dynamic and periodically reviewed, so that in the event of a change in the processes, services, or products within the scope of the Environmental Management System, the associated objectives and programs should be updated, as required.

3.2.4 Support

3.2.4.1 Resources

As for the concept of resource, the Standard establishes that they *can include human resources, natural resources, infrastructure, technology, and financial resources.*[12] The organization's decision to implement an Environmental Management System assumes availability of resources for proper functioning and, therefore, upper management must ensure that these resources are made available to the person responsible for them.

3.2.4.2 Competence

With respect to competence, the Standard establishes that persons doing work under the control of the organization that impact its environmental performance and its ability to fulfil its compliance obligations must have the appropriate training, education, and job experience. It also provides that actions to ensure the competence of the persons must be taken and that, when personnel is not sufficiently trained, they should undergo proper training and induction processes (job-specific training, mentoring, reassignment of currently employed persons, etc.), and the effectiveness of the actions taken should be evaluated.

Documented information must be retained as evidence of competence and professional development.

3.2.4.3 Awareness

[12] Standard ISO 14.001:2015 – Annex A.7 – A.7.1 Resources.

Persons doing work under the organization's control must be aware of:[13]

a) *The Environmental Policy.*

b) *The significant environmental aspects and related actual or potential environment impacts associated with their work.*

c) *Their contribution to the effectiveness of the environmental management system, including the benefits of enhanced environmental performance; and,*

d) *The implications of not conforming with the environmental management system requirements including not fulfilling the organizations compliance obligations.*

Upper management's ability to act and show leadership is very important in this regard in order to foster and bring about the full awareness prescribed in the Standard among all persons working under the control of the organization.

3.2.4.4 Communication

Communication is an essential part of implementing an Environmental Management System and the term should be understood as both intra-organizational as well as external communication.

The organization must determine what it will communicate, when to communicate, with whom to communicate and how to communicate, as strategically defined in the process. While establishing its communication processes, the organization must take into account its compliance obligations and ensure that the environmental information communicated is consistent, reliable, verifiable, truthful, timely, and appropriate for the stakeholders, and not exclude relevant information.

The organization must internally communicate on an ongoing basis information relevant to the environmental management system among the various levels and functions of the organization, progress of the system, its achievements and challenges, as well as changes to the system, as appropriate.

The organization must externally communicate information relevant to the environmental management system, with a focus on continual improvement, in such a way that the information is linked to any queries. Stakeholders play an important role in this process, whether they voice negative or positive views, though the organization must be very effective in responding, particularly to the negative ones.

In the communication process, it is also important to provide for a means of "listening" to organizations and to the surrounding community.

3.2.4.5 Documented information.

[13] Standard ISO 14.001:2015 – 7. Support – 7.3 Awareness.

In order to ensure that an Environmental Management System is appropriate, adequate and effective, always promoting continual improvement, the organization must have a documented information system in place to meet this objective. In this regard, there will be mandatory documented information that is required by the Standard itself, as well as other information, as determined by the organization for the effectiveness of its Environmental Management System.

The context of this requirement depends on each organization and, particularly, on its size and type of activity, processes and /or services, as well as the competencies and knowledge of the persons responsible for the Environmental Management System.

As for creating and updating documented information, the organization must ensure:

- Its identification and description (such as title, date, author, or reference number);
- Its format (such as language, software version, graphics) and media (e.g., paper, electronic);
- Review and approval for suitability and adequacy.

Another important aspect of documented information is control. In fact, the Standard requires it must:[14]

a) Be available and suitable for use, where and when it is needed; and,

b) Be adequately protected (such as from loss of confidentiality, improper use, or loss of integrity).

3.2.5 Operation

3.2.5.1 Operational Planning and Control

Operational Planning and Control means that the organization must establish operating principles for the processes; and put into action controls of the processes in accordance with the operating principles, in order to meet the requirements of the Environmental Management System and to implement actions as determined under "*Actions to address risks and opportunities*" and the "*Planning of Actions to Achieve Environmental Objectives*" (6.1 and 6.2 of the standard – 3.2.3.1 and 3.2.3.2 of this guide).

The Standard establishes that the type and extent of operational controls depends on the nature of the operations, the risks and opportunities, the significant environmental aspects and on the compliance obligations.[15]

[14] Standard ISO 14.001:2015 – 7. Support – 7.5.3 Control of Documented Information.
[15] Standard ISO 14.001:2015 – A.8 Operation – A.8.1 Operational Planning and Control.

The established requirement of Operational Planning and Control must be put into the context of the organization's areas of action or processes, which are directly linked to what the organization does, such as providing a service or manufacturing products, while also taking into consideration outsourcing or subcontracting.

3.2.5.2 Emergency Preparedness and Response

Every organization has the responsibility to comply with emergency preparedness requirements.

In planning the emergency preparedness and response process, aspects to consider include the appropriate method to respond to any emergency situation, internal and external communications, actions to prevent and mitigate environmental impacts, formation of teams, evacuation routes and meeting points, emergency services.

3.2.6 Performance evaluation

The organization must follow up, measure, analyze, and evaluate its environmental performance, taking into account significant environmental aspects, compliance obligations and operational controls.

The methodology used by the organization for this purpose must ensure that results are reliable, and make it possible to measure evolution over time (traceability), and analyze and evaluate results.

Evaluation of Compliance

The Standard provides that frequency and timeliness of compliance evaluation must be determined and, in the event of failure to comply, the necessary corrective actions must be promoted. Any variation in operating conditions and changes in compliance obligations must be reviewed on a regular basis.

Failure to comply will not necessarily mean non-conformity of the Environmental Management System.

Internal Audit

The Environmental Management System must be reviewed by independent, unbiased specialists of the organization, who have no conflicts of interest.

Internal audits must be conducted at planned intervals to provide information to determine whether or not the Environmental Management System conforms with the requirements of the organization and the Standard, and whether or not the system is being properly implemented.

An internal audit program must lay out the frequency of review, methodology, responsibilities, planning and results reporting requirements. It is important for this program to focus on the environmental aspect of the processes under audit, changes

that could impact the organization and results of prior internal or external audits (continual improvement).

Review by the Organization's Management (Upper Management).

Review by the General Management and the Board of Directors (Upper Management) must be a planned activity taking place every so often. It is important for non-conformances to be analyzed, to determine the reasons for their occurrence and for plans of action to be implemented to resolve them, as well as for the organization to receive information from its interest parties or stakeholders to determine actions for improvement.

Records or documented evidence of these reviews should be maintained.

3.2.7 Improvement

One of the strategic foundations for the adoption of an Environmental Management System is the organization's commitment to continual improvement, the outcome of which is expressed in enhanced environmental performance.

Opportunities for improvement are determined by considering the environmental performance evaluation, compliance evaluation, internal audits and management's review.

Non-conformance and corrective action

Non-conformance or non-compliance with an obligation compels the organization to correct it and to take action on its potential consequences, taking particular care to prevent it from happening again by validating the effectiveness of the action.

Records or documentation must be made of instances of non-conformance and the actions taken to resolve it.

Continual Improvement

The organization must define the scope and timeframe of any actions undertaken by it to continually improve the EMS as a whole or one or more of its elements.

3.2.8 Certification of the Environmental Management System

When an organization wants to prove conformance of its Environmental Management System with ISO 14.001:2015, it must be certified/registered by an external party to the organization.[16]

The Standard does not establish that certification is an implicit or tacit requirement for compliance. Certification is about the Environmental Management System, not about the environmental performance of the company.

[16] Standard ISO 14.001:2015 – Introduction - 0.5 Content of this international standard.

ISO 14.001: 2015 certification does not guarantee that the company will be a careful steward of the environment nor does it ensure that it will continually improve its Environmental Management System. A company that values its Environmental Management System will determine its environmental risks and will bring them under control, will potentially be able to lower its costs by controlling and eliminating waste, and fulfill compliance obligations.

The process of certifying a company's Environmental Management System is usually carried out by an independent agency. This agency is accredited to conduct the process, verify and validate the system, and defines and submits its own protocols to conduct the certification process.

Generally speaking, it involves the following steps:

1. Preliminary evaluation: some certifying agencies conduct a simple review of compliance with the essential aspects of the system.
2. Evaluation of documentation: concurrently to the preliminary evaluation, a review is conducted of the documents that are mandatory records under the Standard.

Both of the aforementioned evaluations may also be carried out in the following stages:

3. Initial Evaluation or Audit: in this stage, the scope, requirements, processes, and associated documentation are reviewed. The results of this stage will be recorded in an Initial Audit Report; along with it, the Principal Audit Plan will be drawn up. The initial Audit must be conducted in the offices or facilities of the organization or company.
4. Principal Evaluation or Audit: the Principal Audit is the general survey of the Integrated Management System, to verify compliance with the requirements established in ISO 14001:2015. This verification will be conducted through the review of the documentation of the Management System (manuals, procedures, instruction books, records, etc.), on-the-ground inspections and interviews with the persons working under the control of the organization. Once the Principal Audit is completed, the auditing team must present to the company (at the closing meeting) the result of the Audit. It is the responsibility of the certifying agency to issue an Audit Report laying out the scope of the Certification, the findings, its classification, the timeframe and the form of review of the corrective actions that are required to be implemented.
5. Certification: if the evaluation of the Environmental Management System is favorable, the certifying agency issues the certificate to the company, and must notify the national agency responsible for overseeing implementation of the standard.

6. Control or oversight Audits: as a guarantee of maintenance and continual improvement, the certifying agency must conduct further maintenance audits of the Environmental Management System every so often.

3.3 EMAS Environmental Management System

3.3.1 General Description of the Standard

The EMAS N°1836/93 Regulation was first introduced in July 1993 as an environmental policy tool designed by the European Union (EU) with a view towards complying with the sustainable development goal. Consequently, industrial sector companies were allowed to adhere on a voluntary basis to an EU environmental management and audit system. This system, which has undergone changes and updates over time, is also known by the acronym EMAS for Eco-Management and Audit Scheme.

In 2001, revised (EU) Regulation No. 761/2001 ("EMAS II") was adopted. The major change was an expansion of the scope of EMAS to all sectors of economic activity and integration with Environmental Management Standard ISO 14001.

In 2009, the EMAS Regulation was revised and amended for a second time. EU Regulation No. 1221/2009 ("EMAS III") came into force on January 11, 2010.

EMAS III includes the following new elements:

- Makes it easier for all organizations, whether based inside or outside of the European Community, the activities of which have an environmental impact, to join EMAS.
- Revised audit cycles to further improve applicability to small and medium size companies.
- Corporate registrations to alleviate the administrative and financial burdens of organizations with several sites registered in EMAS.
- Basic environmental indicators to adequately document environmental performance.
- Introduction of EMAS Global to make EMAS accessible to organizations and sites throughout the world.

In 2017, Annexes I, II, and III of the EMAS Regulation were amended to include changes associated with the revision of ISO 14001:2015. EU Regulation 2017/1505 of the Commission, amending these annexes, came into effect on September 18, 2017.

Since January 9, 2019, amended Annex IV to the EMAS regulation (EU Commission Regulation 2018/2026) has also been in force. This amendment includes an update of the basic EMAS indicators and of the wording of the environmental statement. It also offers EMAS organizations new opportunities to report on their environmental

performance and use the EMAS Environmental Statement of the organization as well for other reporting obligations.

Implementation of this EMAS system at a company is very similar to the system required under ISO 14.001:2015.

The EMAS is a European environmental regulation that companies can adopt once they have put into place an Environmental Management System under ISO 14001, accepting the commitment to continual improvement and having been verified through independent audits.

Like the standard ISO 14.001, EMAS provides a flexible and adaptable system for the organization to guide and manage enhancement to its environmental management on an ongoing basis, with the following specific objectives:[17]

- *The establishment and implementation of an environmental management system.*
- *The systematic, objective, and periodic evaluation of the performance of such a system.*
- *The provision of information on the environmental performance of the organization.*
- *Open dialogue with the public and other interested parties.*
- *Active involvement of employees in organizations and appropriate training.*

The advantages and benefits of implementing EMAS are:

- *Environmental benefits: improved environmental management, fewer environmental impacts and stimulation of ecological innovation in production processes.*
- *Benefits of leadership and corporate image: reinforcement and improvement of corporate image of the company, credibility and confidence in the eyes of public authorities, citizens, shareholders, employees, and other clients.*
- *Economic and social benefits: when you're certified, you may see increased business and, by optimizing management of environmental aspects, economic benefits will be obtained in the medium and long term.*

The sequence of actions to implement and join EMAS is as follows:[18]

- *Conducting the* ***initial environmental review,*** *identifying the significant environmental aspects of the organization, as well as the applicable compliance*

[17] EMAS Regulation – Chapter I General Provisions – Article 1 Objective.

[18] Practical Guide to implementing the EMAS Regulation – Consejería del Medio Ambiente y Ordenación del Territorio – Community of Madrid - 4.2. Steps to join EMAS – (October 2013).

obligations, evaluating the degree of compliance in the management practices and procedures that are carried out.

- *Developing and **implementing an Environmental Management System that** fulfills the requirements of Standard ISO 14001:2015 and incorporate several other aspects beyond this Standard, as established by the EMAS Regulation.*
- *Preparing an **Environmental Statement,** incorporating the information that needs to be made available to the public and other interested parties.*
- ***Verifying the environmental analysis, Environmental Management System and the audit program,** by an accredited audit agency to evaluate whether management practices and procedures fulfill the requirements of the EMAS Regulation, as well as that agency validating the Environmental Statement.*
- ***Applying for entry into the EMAS Registry,** submitting the documentation and supplementary information, for setting into motion the administrative procedure that finalizes the resolution of entry into the Registry or, as appropriate, denial of application.*

3.3.2 Initial Environmental Review

The initial environmental review is the first step an organization must take to implement an Environmental Management System pursuant to the EMAS Regulation, which is defined as a "comprehensive analysis of environmental aspects, environmental impacts and environmental performance related to an organization's activities, products and services."

The objective of the environmental review is to obtain an overview of the organization with respect to the environment, in order to identify environment-related legal requirements and environmental aspects of the company, inasmuch as that this will be the basis and starting point for creating the Environmental Management System.

The environmental review must meet certain requirements, such as:

- Identifying environmental compliance obligations that have been entered into by the company;
- Identifying all environmental aspects that have a significant environmental impact along with the criteria used for the determination thereof; and,
- Reviewing potential environmental management actions.

3.3.3 Development and Implementation of an EMAS Environmental Management System

The next step (requirement) set forth by the EMAS is developing and implementing an Environmental Management System, which means implementing ISO 14.001:2015, as was discussed and reviewed in the previous chapter.

3.3.4 Environmental Statement

The EMAS regulation establishes that the company or organization must make an Environmental Statement, publicizing its context, environmental work and results, along with identifying the steps it is taking to benefit the environment and reduce its own environmental impacts.

This statement is one thing that sets this certification apart from other environmental management systems.

The statement must always be available to all interested parties, and it must be verified by an external and independent agency to ensure credibility.
This environmental statement should not be confused with the requirement of ISO 14.001:2015 of an Environmental Policy.

In general, the Environmental Statement shall contain at least the elements listed below:

a. *A description of the organization registering under EMAS and a summary of its activities, products, and services and its relationship to any parent or affiliate organizations, as appropriate.*
b. *The Environmental Policy and a brief description of the Environmental Management System of the organization.*
c. *A description of all significant direct and indirect environmental aspects which result in significant environmental impacts and an explanation of the nature of the impacts as related to these aspects.*
d. *A description of the environmental objectives and targets in relation to the significant environmental aspects and impacts.*
e. *A summary of the data available on the performance of the organization against its environmental objectives and targets with respect to its significant environmental impacts. Reporting shall be on the core indicators and on other relevant existing environmental performance indicators.*
f. *Other factors regarding environmental performance including performance against legal provisions with respect to their significant environmental impacts.*
g. *A reference to the applicable legal requirements relating to the environment.*
h. *The name and accreditation or license number of the environmental verifier and date of validation.*

3.3.5 Verification of the System and Validation of the Environmental Statement

Once the Environmental Management System has been implemented at the organization based on ISO 14.001:2105 and once the Environmental Statement has been prepared, in order to obtain registration under the EMAS Regulation, these elements must be examined by an accredited, independent, and recognized external auditor or entity.

Environmental auditors will carry out the following tasks to validate the foregoing elements:

- *Verify whether the organization meets all requirements of the EMAS Regulation in relation to the initial environmental review, the Environmental Management System, the environmental audit and its results and the environmental statement.*
- *Check whether the organization meets the relevant legal requirements with respect to the environment.*
- *Ascertain continual improvement in the organization's environmental performance.*
- *Ascertain reliability, credibility, and accuracy of the data included and used in the EMAS environmental statement, as well as any environmental information they are supposed to validate.*
- *Conduct the inspection of the organization's facilities.*

3.3.6 Registration (Accreditation)

Once implementation has been completed and the EMAS Environmental Management System and Environmental Statement has been validated, the organization must apply for registration from the competent agency.

Once it is registered, it is entitled to use the EMAS logo.

3.4 ECOPORT PERS (Port Environmental Review System) Environmental Management System

3.4.1 General Description of the Environmental Review System

EcoPorts is the principal environmental initiative of the European port sector. Its origin dates back to 1997, at the initiative of a leading group of European Port Authorities, who became integrated with the European Sea Ports Organization (ESPO) in 2011.

The guiding principle of EcoPorts is to raise awareness about environmental protection through cooperation and knowledge exchange between ports and improve environmental management.

In the past, ports managed their environmental impacts as independent units, through their own activities and operations. As problems increased, so did demands and concern for environmental care in these activities, and European port terminals began to think about the need to develop a credible and common environmental policy to comply with applicable legislation and provide protection to the environment as best as possible.

The year 1993 saw the creation of the European Sea Ports Organization – ESPO, the representative agency of the port authorities and administrations of the sea ports of the member states of the European Union and Norway.

In 1994, the ESPO published the Code of Environmental Policy Practices for Ports in order to deal with the growing environmental demands that were emerging at that time, in reference to the early developments of Environmental Management Systems, such as ISO 14.001 and EMAS.

That same year, a group of seven European ports made the decision to pursue a collaborative research project pertaining to information exchange on environmental subjects associated with their own operations and interactions with the environment.

Given the uncertainty and lack of clarity regarding the environmental responsibilities of each port, a diagnostic methodology, known as SDM (Self Diagnosis Method), was proposed so that each port terminal could assess its environmental situation and plan its management approach in the most suitable way, focusing on its own relevant environmental issues. At that time, the 'ECO-information in European Port' project was born, and was approved by the European Commission Transportation Program in 1997 and, in the end, would launch and develop the EcoPorts initiative.

The EcoPorts Foundation – EPF was chartered in 1999 by a group of European ports, as a not-for-profit organization, to provide a platform for a network of products and services developed through the ECO-information in the European Port project.

In 2002, port authorities, port associations, and port administrations decided to launch the EcoPorts Foundation project, which involved exchange of environmental impact information and evaluation of port operations in line with best environmental practices in European ports and terminals, adopting the methodology known as PERS (Port Environmental Review System). Three years later, more than 100 new European ports joined the project, thus successfully developing the PERS methodology.

By 2011, the EcoPorts Foundation ceased to exist and EcoPorts became part of the structure of the European Sea Port Organization - ESPO, thus ushering in a new era of environmental management and sustainability of ports, after 15 years of significant progress in these areas.

That year, the web portal of EcoPorts (www.ecoports.com) was officially launched and is used by ESPO to manage the network of EcoPorts member ports and the SDM (Self Diagnosis Method) management tools and PERS (Port Environmental Review System).

Ports and terminals outside of Europe can access the EcoPorts tools through the ECO Sustainable Logistic Chain Foundation or ECOSLC at www.ecoslc.eu.

In 2013, EcoPorts and EcoSLC were recognized by the American Association of Port Authorities, the organization that represents the public port authorities of the United States, Canada, the Caribbean, and Latin America.

3.4.2 Implementation methodology (SDM – Self Diagnostic Methodology Phase and PERS - Port Environmental Review System Phase).

The methodology for the EcoPorts implementation and certification is shown in Plate No. 2.[19]

Plate No. 2

The first step is Registration of the port organization, providing information about its location and port profile data. EcoSLC will then proceed to record the background information submitted and confirm the registration.

The second step involves completing the SDM (Self Diagnosis Method) statement.

The SDM is the first step to identify the characteristics of the terminal port, and consists of a check list of environmental aspects and risks of the organization, as shown by way of example in Plate No. 3.[19]

[19] ECO SLC Sustainable Logistic Chain - https://www.ecoslc.eu/about

A: Environmental Policy

ENVIRONMENTAL POLICY DOCUMENT

A.1	Does the Port have an Environmental Policy?	O Y O N *
	IF YES,	
A.2	Is the Policy signed by Chief Executive / Senior Management?	O Y O N
A.3	Is the Policy communicated to all relevant stakeholders? [A.3]	O Y O N
A.4	Is the policy communicated to all employees? [A.4]	O Y O N
A.5	Is the policy publicly available on the Port's Website?	O Y O N
	Does the Policy include reference to:	
A.6	Major objectives?	O Y O N
A.7	Publication of an Environmental Report?	O Y O N
A.8	The identification and control of the port's Significant Environmental Aspects?	O Y O N
A.9	Continual improvement?	O Y O N
A.10	Prevention of pollution?	O Y O N
A.11	Training employees in environmental issues?	O Y O N
A.12	Introduction/maintenance of an Environmental Management System?	O Y O N
A.13	Reduction of resource consumption?	O Y O N
A.14	Improvement of environmental standards beyond those required under legislation? [A.14]	O Y O N
A.15	Environmental management of main aspects within the port area (including Tenants and Operators)?	O Y O N

Plate No. 3

Plate No. 4 shows, by way of example, the result of the preceding check list.[19]

	Gap Analysis:	PERS 60.71%	ISO 48.68%	Answers	SWOT	ANS(%)	YES(%)	NO(%)
A.1	Does the Port have an Environmental Policy?				S1	100,0%	87,8%	12,2%
A.2	IF YES,Is the Policy signed by Chief Executive / Senior Management?				S2	89,8%	90,9%	9,1%
A.3	IF YES,Is the Policy communicated to all relevant stakeholders?				S3	89,8%	88,6%	11,4%
A.4	IF YES,Is the policy communicated to all employees?				O1	89,8%	84,1%	15,9%
A.5	IF YES,Is the policy publicly available on the Port's Website?				O2			
A.6	Does the Policy include reference to:Major objectives?				S4	89,8%	90,9%	9,1%
A.7	Does the Policy include reference to:Publication of an Environmental Report?				O3	87,8%	65,1%	34,9%
A.8	Does the Policy include reference to:The identification and control of the port's Significant Environmental Aspects?				S5			
A.9	Does the Policy include reference to:Continual improvement?				S6	89,8%	93,2%	6,8%
A.10	Does the Policy include reference to:Prevention of pollution?				S7	73,5%	86,1%	13,9%
A.11	Does the Policy include reference to:Training employees in environmental issues?				O4	89,8%	75,0%	25,0%

Plate No. 4

The SDM checklist contains the following sections: Environmental Policy, Organization and personnel, Training, Communication, Operational Management, Emergency Planning, Monitoring, Review and Auditing.

After the port terminal completes the diagnostic assessment and Report, it is formally recognized as "EcoPorts" but not yet certified until implementation of its PERS.

The SDM analysis and results provide information from:

- An evaluation of background information submitted pursuant to the European standard on environmental management of ports.
- A gap analysis between international environmental management standards (ISO 14.001 and PERS) and actual performance of the applicant port.
- A SWOT (Strengths-Weaknesses-Opportunities-Threats) analysis of environmental performance of the applicant port.
- Background and recommendations on the status or level of environmental management of the applicant port.

The third step involves implementation of the PERS (Port Environmental Review System) in accordance with the system documentation and guidelines.

For this purpose, all information and documentation requested in the guidelines for each section must be gathered, along with the statement forms, appropriately signed by the most senior officer of the organization.

Subsequently, an audit inspection will be conducted by an external agency -hired by EcoSLC.

The process concludes with submission of the report with the most important findings with respect to conformance with the PERS standard.

Aspects examined during PERS implementation include: Environmental Policy Statement, records of environmental aspects and compliance with legal requirements, environmental reports, best practices.

One aspect of the PERS to highlight is that it is an environmental review system conducted exclusively for ports and it includes recognition by the European Sea Port Organization ESPO.

If PERS certification is successfully achieved, the port is formally recognized as a "Certified PERS EcoPorts Port," which is valid for two years.

CHAPTER 4.
COMMERCIAL, SOCIAL AND ENVIRONMENTAL BENEFITS AND ADVANTAGES OF BEING A GREEN PORT

The economic development of a port terminal and environmental protection are by no means mutually exclusive of each other. On the contrary, being "green" has its benefits. A green port is one that carries out or conducts its activities while taking into account not only the economic aspect of its business, but also the environmental aspect, ranging from identifying impacts cause by it, to mitigating and controlling those impacts. A Green Port is expected to have a higher level of commitment to the environmental aspect and that, in short, it's activity causes minimal impact. Accordingly, these ports are expected to effectively promote (internal and external) actions that go beyond mere compliance with domestic environmental legislation.

The commercial, social, and environmental benefits and advantages of being a Green Port are only noticeable to the extent that such initiatives endure over time and are not just a single isolated action or for merely commercial reasons. Being recognized as an environmentally and surroundings-friendly Port is an undertaking that takes many years and entails a high risk of losing that status, if it is not properly administered.

In this chapter, we will highlight the importance of the (social, commercial, and environmental) benefits and advantages from Green or ecological practices.
***

4.1 Analysis of benefits and advantages of being a Green Port

1. **Reduction of waste, costs, and increased efficiency**

In the process of continual improvement of processes and activities, ports can define initiatives which, in the medium and long term, result in environmental enhancement with adequate financial return on investment.

The stated environmental policies of green ports are usually aimed at improving environmental indicators, as well as providing for actions to support the use of technology, energy efficiency and innovation, all of which can bring savings while minimizing environmental impact. The purpose of these initiatives is environmental improvement of operations while generating a financial return, which does not necessarily have to be consistent with the profit-making motive of the port business as such. It is motivated by something else.

Some of the initiatives listed hereunder depend on the particular operations carried out at each port:

- Energy efficiency, encompassing the efficient use of energy by taking actions to reduce energy consumption levels and CO_2 emissions, without impacting productivity. It goes hand-in-hand with the use of renewable energy sources.

- Water resource management, inasmuch as it is a vital and irreplaceable, non-renewable and limited resource, which requires efficient use and/or consumption.
- Waste management, encompassing activities related to the life cycle of waste, taking into consideration the traceability of waste, including everything from collection and transfer to treatment.
- Circular Economy (innovation), in some ways linked to waste management, involving utilization of waste to transform it into resources and reusing them. This management model can very effectively link the port to its surroundings by indirectly promoting and generating jobs, outside of its own line of business.

Additionally, being a Green Port means implementing and following up on an Environmental Management System, ongoing review of the entire value chain and port activities, which can cause (positive or negative) environmental impacts, thus transforming the system into a beneficial "management and monitoring tool" to the organization and its surroundings.

2. **Timely compliance with legal requirements and other regulations**

It is essential for ports to comply with environmental regulations, rules and statutory requirements in their places of business. As we have noted, applicable statutory requirements and other regulations must be linked to environmental aspects and operational control guidelines must be established to improve environmental performance. To comply with this suggestion, there must be available access to these legal requirements through some means in order to be able to determine how they apply to the port, in each instance, and periodically assess compliance with each one.

Thus, an Environmental Management System implemented at ports requires regular analysis and review of compliance with statutory requirements and other rules. Although there is potential for non-compliance, such potential is minimized by periodic review efforts. It is recommended to create a matrix of compliance obligations to identify rules, regulations, and laws that must be complied with, any updates thereof, and evaluation of performance.

Notwithstanding, more broadly, ports must comply with all legal requirements and rules regulating their business activities so that identifying, following up on, and enforcing these compliance obligations serves to prevent (not be the cause of) repercussions on its functionality and operational continuity.

3. **Strengthening Reputation**

Complying with and ensuring environmental practices and standards in port activities and operations, following the adoption and certification of an environmental management system or of a higher recognition, such as EcoPorts PERS, promotes transparency and improves reputation. This valuable asset is not only well regarded by peers, but also by a port's economic and social milieu (shareholders, personnel,

suppliers, among others), because it must continue to develop its environmental management to improve and sustain the valuable positive perception of its stakeholders over time. This means that the organization must consistently and adequately oversee and ensure compliance.

This outward display of managing environmental impacts (both positive or negative ones) caused by a port, boosts confidence in its stakeholders, paving the way for the organization's continued operations and leadership. A port's reputation is based precisely on satisfying a wide range of stakeholders' expectations, on the quality of its services and on strict compliance with legal requirements and other regulations.

Another important advantage to being a Green Port is that, when crisis situations arise due to environmental non-compliance, the port will be better equipped to confront such a circumstance, which obviously will impact its reputation and could be subject to the scrutiny of the community and authorities. A Green Port will have the mechanisms and protocols in place to enable it to act rapidly and in a coordinated fashion, to lessen the impact of an environmental crisis.

There are examples of ports facing complex environmental situations and then resorting to implementing management systems and other certifications to improve their response capacity, thereby improving their environmental management and reputation.

4. **Information and engagement with stakeholders**

Several ports issue environmental reports on the different efforts undertaken by the organization to demonstrate their compliance with the law and commitment to the environment, reporting concrete actions they have taken, outcomes they have achieved, and comparing performance over time to show improvement.

Dissemination of these or other reports, which may have a positive or negative impact, must be in person and directly with the interested parties, though they may also be made available on web pages or other media for greater engagement.

The aim of this engagement is to link environmental actions and projects to the demands and needs of stakeholders or interested parties. This engagement should go hand-in-hand with the port getting into the habit of actively listening on an ongoing basis to the groups that have fundamental issues with, and are impacted by, its operation. Other actions that can be taken by ports include setting up complaint or environmental comment mechanisms to provide access to information and respond to any comments that citizens may have about the ports activities, environmental studies or compliance. This initiative shows the port's respect and concern for the interests of citizens.

All of these actions bring a social benefit (to communities, oversight agencies and authorities) and enable the port, as was noted, to improve its reputation and relationship with its stakeholders.

CHAPTER 5.
SUCCESSFUL EXPERIENCES OF LATIN AMERICAN PORTS WITH ISO 14001 ENVIRONMENTAL MANAGEMENT SYSTEMS, ECOPORTS AND OTHER INTERNATIONALLY RECOGNIZED CERTIFICATIONS

Latin American ports have designed and taken different actions to mitigate and control their environmental impacts in order to make themselves competitive. Although European ports are the leaders in this area, because of the direct and indirect benefits brought by this practice, Latin American ports have invested in improvements to infrastructure, procedures and actions aimed at respect for the surroundings where they operate, implementing processes that are in line with top tier environmental management, attaining socially and commercially recognized certifications, such as ISO 14001 and EcoPort.

Fostering environmental management and adopting superior and more effective practices at Latin American ports, which in turn enables certification of their management, is viewed today, both internally and externally, as key to their development, operation, and productivity. This is because, objectively speaking, there are many benefits to operating with awareness and respect for the environment they do business in and share, in line with the domestic legislation in effect, and in harmony with the society of which they are a part.

In this chapter, we will identify port terminals that, after implementing key aspects of environmental management, have established and developed successful environmental management strategies. Additionally, we will highlight achievements in implementing environmental management systems, such as ISO 14001, EcoPorts, determining the scope and the particular characteristics of their operation and environment. Lastly, we will mention the benefits of these environmental certification practices.

5.1 Latin American Port Terminals that excel in their Environmental Management Systems certifications

Today, it is common for most Latin American ports to have developed and implemented, an ISO 14.001:2015-based Environmental Management System, including having certification.

The major difference between these ports lies in the extent to which the system has been implemented, initiatives have been taken, and the degree of improvement in their environmental performance, with the most outstanding ones adopting the higher standards of validation of their environmental management, such as EcoPorts – PERS certification.

Generally speaking, the port terminals have implemented several notable environmental initiatives, such as:

- Allocating financial resources and assigning persons to environmental management.
- Implementing Environmental Management Systems. In some instances, the ports have even moved towards other more stringent systems.

- Incorporating an environmental philosophy into the strategic planning of the ports.
- Environmental infrastructure, such as clean points, water recirculation systems, energy and water saving programs, strengthening contingency plans (spills), environmental risk analysis, training, enclosing conveyor systems, outfitting the grounds with hedges or natural barriers and using forestation, replacing internal combustion for electric equipment, monitoring air, water, and soil quality, and solid waste management.

Hereunder, we examine port facilities with outstanding environmental management. The information has been obtained from the respective web pages, reports, and available public information about each port terminal, citing the respective source.

Empresa Portuaria Antofagasta (Chile)[20]

Empresa Portuaria Antofagasta is a Chilean State-owned port company located in the Antofagasta region, Region II of Chile. Its strategic function is the administration, operation, development, and conservation of the Port of Antofagasta and its terminals.

Empresa Portuaria Antofagasta (EPA) states "*At EPA, Sustainability and Shared Value Generation is a long term commitment. That is why we consider respect for our workers, clients, and suppliers essential. We seek to develop our activities in a setting where the environment is respected and we are committed to the growth and development of the communities in which we operate.*"[21]

In one of the commitments of its Environmental Policy, it states: "*Protecting the environment, preventing pollution and controlling significant environmental aspects, working towards the principal environmental objectives, which are: maintaining under control the levels of concentrated PM10 and PM 2.5 particulate material, levels of hydrocarbons on the wharf, emissions from fixed and airborne sources, levels of noise, domestic and hazardous waste, water and energy consumption, water column profiling, and marine life at the docks and in green areas.*"[22]

The Empresa Portuaria Antofagasta has the following environmental initiatives in place:

- ISO 14.001:2015 Environmental Management System certified, recertified in 2019.
- Environmental surveillance and monitoring plans. On a semi-annual basis it conducts environmental surveillance on the marine environment and maintains

[20] Puerto Antofagasta - https://www.anfport.cl/
[21] Puerto de Antofagasta - https://www.anfport.cl/sostenibilidad/#medioambiente
[22] Puerto de Antofagasta - https://www.anfport.cl/wp-content/uploads/2019/09/Politica-de-Medioambiente-Actualizada-Pers.pdf

control of the monitoring carried out by its concessionaire Antofagasta Terminal Internacional[23] in the area of air quality and the marine environment, and of its users in the multi-operations terminal and Antepuerto Portezuelo through weekly inspections.

- Clean Production Agreement (Logistics, Mining, and Ports). The Port of Antofagasta takes part in this initiative that brings the State's oversight bodies together in enforcing the laws and regulations governing port activities and other companies of the sector.
- EcoPorts PERS certification. In October 2019, Empresa Portuaria Antofagasta attained EcoPorts certification, becoming the second port in Chile to obtain this certification and the first State-owned port to obtain it.

Empresa Portuaria Antofagasta has been issuing Sustainability Reports (since 2012). The last one is for the two-year period of 2017-2018, under the GRI Standards methodology. Additionally, in 2019, it wrote its first environmental report, in compliance with the EcoPorts PERS methodology, which covers a two-year period.

The best practices of this port administration include acquisition of 407 units of tipping containers for the transfer of concentrated mineral ore, which helps to minimize emissions leaking out from these minerals, as it was a situation that had generated growing concern of the community with respect to these operations.

Port Group of Cartagena (Grupo Puerto de Cartagena):[24] Regional Port Corporation of Cartagena (Sociedad Portuaria Regional de Cartagena) – Terminal de Contendores de Cartagena (Colombia)

El Grupo Puerto de Cartagena is the principal logistical platform of the Caribbean, given its strategic location and its sea terminals (Sociedad Portuaria Regional de Cartagena SPRC[25] - Terminal de Contenedores de Cartagena Contecar[26]).

Currently connected to 750 ports in 150 countries worldwide, it serves 25 shipping lines. It has been operating since 1993 under private administration, with a 40-year concession. Currently, it has the capacity to move up to 3.5 million TEUs annually and is preparing to increase that capacity to 5.2 million (Grupo Puerto de Cartagena ranks among the Top 100 Container Ports in the world). It owns two sea terminals, SPRC and Contecar, in addition to other companies linked to port activity.

Sociedad Portuaria Regional de Cartagena (SPRC) is the administrator of the sea terminal of Manga. SPRC received the concession to operate the terminal in 1993 for a 40-year period. The company serves 6,000 TEU vessels and has the capacity to move up to 1.5 million TEUs per year, with expansion plans to 2 million TEUs.

[23] Antofagasta Terminal Internacional - https://www.atiport.cl/
[24] Grupo Puerto de Cartagena https://www.puertocartagena.com/es
[25] Sociedad Portuaria Regional de Cartagena - https://www.puertocartagena.com/es/empresas-del-grupo/sprc
[26] Contecar - https://www.puertocartagena.com/es/empresas-de-la-organizacion/contecar

Port operator Terminal de Contenedores de Cartagena S.A. (Contecar) is responsible for the second sea terminal of the port of Cartagena and began its operations in 2008. It has a capacity to move 3.2 million TEUs per year. The company operates as a hub for shippers and as an international distribution center for multinational corporations. The terminal has a capacity to move automotive cargo and project cargo and is specialized in automobile cargo.

In its Comprehensive Environmental Management, Quality, Workplace Safety and Health, Social Responsibility and Sustainability Policy, it states "*The Group undertakes to generate value for its clients, through agile and simple processes, under certified international operating standards; identifying, evaluating and controlling workplace and environmental risks; seeking innovation and continual improvement, through competent human talent and the effective implementation of technology.*"[27]

Grupo Puerto de Cartagena has the following environmental initiatives in place:

- ISO 14.001:2015 Environmental Management System certified, for both port terminals.
- Clean fuel. Some port equipment is powered by clean combustion systems with lower fuel consumption and low emission of particles, heat or noise. This equipment includes: the RTG mobile gantry electrification program, and the automatic time-saving truck idling system, which enables energy to be produced and stored to the benefit of the environment.
- Water quality. Regular potable water quality analysis (for internal and third party consumption), the same monitoring for sea water column profiling.
- Protected species. To preserve native species, it has a nursery and 15 hectares of mangroves were planted in the Canal del Dique (Bahía Barbacoas, Caño Matunilla) and 5 additional hectares in la Ciénaga de la Virgen. Planting campaigns in several neighborhoods of the city in 'generation areas' and green spaces, which produce oxygen and filter radiation, in addition to absorbing pollutants and buffering noise. Within its facilities, it protects pelicans, flamingos, iguanas, macaws and deer, in a veritable oasis, that also serves as a tourism attraction for cruise line passengers.
- Green buildings. In order to control water consumption, it has an efficient water use and savings program, part of which was the installation of water saving sensors in bathrooms, irrigation control has been implemented in green areas and leak detection and control has also been carried out. Additionally, an alarm system is in place that reports when consumption surpasses normal rates. It also has a system to collect rain water, which is then used for watering greenery and a fire sprinkler system.

[27] Grupo Puerto Cartagena - https://www.puertocartagena.com/es/filosofia/politica

- Energy. Both terminals take part in an energy efficiency program, which includes activities such as: exchanging incandescent for LED light bulbs, designing new constructions which utilize natural light and ventilation, installation of high efficiency equipment, replacing older air conditioners with high efficiency cooling units and assessment of potential use of solar energy. In this regard, it highlights publication of the "Environmental Responsibility Report,"[28] which it published for the fourth consecutive year in 2018.
- Awareness of proper use of resources. Awareness raising campaigns about the importance of water and energy saving, of sorting at the source of solid waste and the adequate disposal thereof, as well as compliance with the activities provided for in the environmental management plan of the terminals.
- EcoPorts PERS certification. In October 2019, its two terminals received EcoPorts certification.

Port Authority of Montevideo (Uruguay)[29]

The Port of Montevideo is administered by the National Administration of Ports (ANP), whose remit is the management, conservation, and development of the public ports of Uruguay (Nueva Palmira, Colonia, Juan Lacaze, Fray Bentos, Paysandú, Salto). The Port of Montevideo is the most important one commercially, being a multipurpose port, with terminals specialized in container cargo, bulk cargo, fishing vessels, ship repair, among other things, and is located on the La Plata River.

The Free Port regime (customs areas in the port where merchants are exempt from paying import tax, fees, duties), has turned Montevideo into the first and only port of the Atlantic coastal seaboard of South America, with a logistical and competitive regime for the traffic of goods.

The business model of the Port of Montevideo considers the ANP to be the Port Authority that owns the port where the services are provided mostly by private companies through a concession regime (fee-based).

The Port Authority of Montevideo (through the ANP) established in its strategic guidelines, that *"National port development must be environmentally sustainable, in harmony with the growth of the city and its surroundings."* Thus, the ANP reaffirms its commitments to protecting the environment. The Environmental Management System of the Port of Montevideo is supported by four pillars: Operations and Services, Infrastructure Works, Dredging, and Investigations.

The Port Authority of Montevideo has the following environmental initiatives in place:

[28] https://www.puertocartagena.com/sites/default/files/inline/informe-responsabilidad-ambiental-2018_0.pdf

[29] National Administration of Ports - http://anp.com.uy/inicio/inicio

- Environmental Policy. Measures adopted to minimize the environmental impacts of operations on the port of Montevideo. Objectives were established along with their respective Management, Operational, and Environmental Indicators.
- Legal requirements relating to Environmental Aspects. Applicable laws and regulations are reviewed periodically, as well as updated.
- Environmental studies. Its Policy provides for specific financial resources to conduct studies.
- Training. Resources are made available for training at organization of the Port of Montevideo.
- Air quality. Green House Gases Effect (GHG) Studies on ships operating in the Port of Montevideo and a sensitivity map by dock and ship type. Monitoring of solid bulk operations (PM10). Switch-over to electric driven vehicles. Replacement of Headquarters Building's central heating boilers with inverter technology Air Conditioning. Dredger motor replacement for more energy efficient units.
- Water quality. Physical - chemical parameter monitoring by ANP. Installation of micro bubble aerators at Mántaras Wharf.
- Land use. Master Plan of the Port of Montevideo for planning expansion works and improvements to port facilities.
- Relationship with Port Community. Participation in cultural activities, fostering environmental and port education. Enhanced accessibility to the port and planning of uses of port areas for the city.
- Electric energy consumption. Replacement of independent air conditioner systems with inverter technology and improvements in building insulation. Switching to low energy light bulbs (LED).
- EcoPorts PERS certification. In 2019, the Port of Montevideo received EcoPorts PERS certification.

Administración Portuaria Integral de Lázaro Cárdenas (Mexico)[30]

The Port of Lázaro Cárdenas is geographically located on the Pacific coast of Mexico, where it borders the States of Michoacán and Guerrero, a micro production zone also known as Delta del Balsas, where heavy port, commercial, and industrial activity is carried out.

Lázaro Cárdenas is the only Mexico port with 18 meters depth in its access channel and 16.50 meters depth along its principal dock. It has 3,689 meters of docks built at depths of 6, 8, 11, 12, 14, and 16.50 meters and has a structural capacity to host vessels of 20,000 to 150,000 tons displacement.

API de Lázaro Cárdenas S.A., states that it is "*responsible for administering and conserving the port infrastructure for the provision of port services of the Port of*

[30] API de Lázaro Cárdenas - https://www.puertolazarocardenas.com.mx/plc25/

Lázaro Cárdenas Michoacán, undertakes to care for and protect the environment, mitigate any adverse and significant environmental impacts stemming from our activities and operations, complying at all times with applicable legislation and other requirements, through continual improvement of environmental performance."[31]

The Administración Portuaria Integral de Lázaro Cárdenas has taken the following environmental initiatives:

- Environmental Policy. Established in 2015 to contribute to the sustainable development of the port. The policy includes management, training, implementation, review and publication of the results of actions taken by the port.
- ISO 14.001:2015 Environmental Management System certified.
- Stewardship of wildlife and vegetation habitat. Contribution to the preservation of mangroves.
- Development areas for the conservation of natural resources. On the Port Premises, an area of 138 hectares set aside for environmental improvement and conservation and ecological balance of neighboring ecosystems, including the facilities and their natural elements.
- Water quality. In order to preserve water quality, water treatment plants are constructed to treat discharge into rivers and bodies of water. As of 2018, there are 11 treatment plants and monthly monitoring is conducted in compliance with the official Mexican regulations.
- Use of Clean Energy. Implementation of solar energy plants or modules (ecological sustainable alternative) generating energy consumption savings (Emergency Plant Isla del Cayacal and Puente Albatros and Roadways).
- Air quality. Pursuant to Mexican regulations, air quality is monitored on port premises.
- Urban solid waste management. Comprehensive management of solid waste generated and sorting (paper, organics, aluminum, non-sortable, and plastics).
- Soil pollution control. Initiative to reclaim used piles in administrative activities.
- Social environmental responsibility. Free movie shows, healthy habits outreach campaign, family living and physical activity through its program linking the port to the city.
- Port emergency response office. Unit that provides support to the community with introductory instruction on the prevention and combating of fires, medical services, vaccination campaigns, among other things.
- Noise. Implementation of projects to improve circulation within the port facilities in order to mitigate the impact of noise on the nearby communities.

[31] https://www.puertolazarocardenas.com.mx/Docs%20pdf/Politicas/informe_ambiental_2018.pdf

- Air quality. Sampling of air quality determining sources of pollution and their impacts. Semiannual monitoring campaigns are carried out pursuant to the official Mexican regulations.
- Conservation of the ecosystem. Enhancement of green areas, wetlands, and protected areas of the port premises, which includes installation of nurseries with sprinkler systems, to foster the reproduction of native plants of the region to be used in reforestation campaigns inside the port and neighboring areas.
- Clean industry. Voluntary participation in environmental audits and certification by the Office of the Federal Prosecutor for the Protection of the Environment (PROFEPA).
- EcoPorts PERS certification. In 2016, the Administración Portuaria Integral of Lázaro Cárdenas received EcoPorts PERS certification, and was recertified in February 2019.

Administración Portuaria Integral de Ensenada (Mexico)[32]

Administración Portuaria Integral de Ensenada (API) (Comprehensive Port Administration of Ensenada) was created in 1994, by enactment of the Ports Act of 1993. The API's principal objective is to administer, oversee, control and promote goods, services, and activities on the Port Premises.

The Port of Ensenada is located in the northwest corner of Mexico, in the State of Northern Baja California, 110 kilometers from the Mexican-US border in the state capital, the municipality of Ensenada, bordering to the north the States of California and Arizona, to the south, Southern Baja California, to the east, Sonora and, to the west, the Pacific Ocean.

API Ensenada is a multipurpose port that has port infrastructure and equipment to handle containerized cargo goods and activities, bulk mineral ore and agro-industrial goods, general cargo and project cargo, cruise ships, among other types.

The Administración Portuaria Integral de Ensenada has taken the following environmental initiatives:

- ISO 14.001:2015 Environmental Management System certified.
- Manual of best environmental practices. Manuals for the chains of production of the port, containing specific information about best practices.
- Cleanliness Campaigns. Ensenada stream bed and beach clean-up program.
- Environmental monitors. Under the terms and legal provisions currently in force, atmospheric (total suspended particles), noise, port water facilities, and treatment plant monitoring is performed.
- Paper and cardboard recycling campaigns.

[32] API de Ensenada - https://www.puertoensenada.com.mx/espi/0000001/inicio

- Final disposal of urban solid waste.
- Plastic recycling campaigns.
- Clean industry. Voluntary participation in environmental audits and certification of the Federal Office of the Prosecutor for the Protection of the Environment (PROFEPA).
- EcoPorts PERS certification. In 2018, the Administración Portuaria Integral Ensenada received EcoPorts PERS certification.

Administración Portuaria Integral de Dos Bocas (México).[33]

The Port of Dos Bocas is located in the municipality of Paraíso, State of Tabasco, 85 kilometers away from the city of Villa Hermosa, and hosts a wide range of commercial, industrial, and specialized service activities.

Development of the port infrastructure of the Port of Dos Bocas has led to consistent growth in oil, commercial, and industrial cargo movement.
It has an edge in being able to carry out specialized activities relating to the oil industry, because of its proximity to the main hydrocarbon exploration and production areas in the Gulf of Mexico. Annually, Dos Bocas receives an average of 6,000 vessels of different types, moving more than 8 million tons of cargo.

The Port's specialization in industrial activities and logistics gave rise to the development of a 70 hectare Industrial Park, designed to support the operations of companies of different sectors. The Industrial Park is located on the Port Premises of Dos Bocas, on 70 hectares, which are ideal for carrying out oil processing activities in the Gulf of Mexico, offering proximity to the major hubs of consumption and production, in an area with the greatest logistical and commercial industrial activity of the region.

The Comprehensive Port Administration of Dos Bocas has taken the following environmental initiatives:

- ISO 14.001:2015 Environmental Management Systems certified.
- Periodic visual inspections for leak detection.
- Participation in clean-up campaigns of the Rio Seco and public beaches. Ensure and guarantee the preservation of the beaches and, therefore, marine wildlife, reducing at the same time pollution of bodies of water by waste generation.
- Installation of solar panels in some areas of the port, replacement of light bulbs with LED technology, reduction of fuel consumption and installation of solar panels on hazardous waste units and surveillance.

[33] API Dos Bocas - https://www.puertodosbocas.com.mx/

- Informational campaigns about responsible consumption of water, water leak detection check program, annual monitoring of water quality of the docks and navigation channel.
- Sewage treatment. It has two treatment plants.
- Education campaigns to reduce waste and paper consumption, giving preference to the use of electronic media.
- Naval installation unit with recycled containers.
- Expansion of Dos Bocas Port. As a product of the different stages of construction of the port infrastructure, prevention and mitigation measures were implemented during execution.
- Clean industry. Voluntary participation in environmental audits and certification of the Federal Office of the Prosecutor for Protection of the Environment (PROFEPA).
- EcoPorts PERS certification. In 2018, the Administración Portuaria Integral Ensenada received EcoPorts PERS certification.

Porto do Açu (Brazil)[34]

A private port that kicked off its operations in 2014. It is strategically located with a total surface area of 130 square kilometers, located in São João da Barra in northern Rio de Janeiro State. It has become a hub for the oil and gas industry because it's near the Campos basin (a 352,260 Km² oil field located in the Atlantic Ocean). It has nine terminals, divided into offshore and on-land areas. Porto do Açu handles solid and liquid bulk cargo, general cargo, iron ore, and oil.

Porto do Açu is subdivided into three major areas: Terminal 1, Terminal 2, and the Industrial Zone. Porto do Açu Operations S.A. is the company responsible for Port Administration of Terminal 2 and the Industrial Area, while the company Ferroport S.A,[35] is responsible for operation and administration of Terminal 1 (iron ore shipment).

The port and industrial complex has 14 companies installed in its sectors, doing business as Porto do Açu Operações, Açu Petróleo, BP Prumo, Brasil Port (empresa do Grupo Edison Chouest), InterMoor, NOV, TechnipFMC, Wartsila, Ferroport, Anglo American, Dome, GNA (Gás Natural Açu), Estação Açu and Saybolt.

Recently (2020), Porto do Açu won the World Ports Sustainability Award of the International Association of Ports and Harbors. Port do Açu was the only Latin American port selected as the winner in the category of Security and Surveillance, with its Emergency Preparedness Project.

Porto do Açu has taken the following environmental actions and initiatives:

[34] Porto do Açu - https://portodoacu.com.br/
[35] Ferroport - https://www.ferroport.com.br/

- Construction of electric energy lines for nearby towns.
- Installation of potable water distribution systems in communities.
- Donation of computers to fishermen's organizations.
- Advisory services for the legalization of vessels.
- Use of fishing boats for port operations.
- Permanent support for artisanal fishermen (donations, training).
- Support for family farming (donation of machinery, workshops).
- Support for public institutions: Infrastructure renovation, donation of equipment.
- Promotion of cultural activities.
- Social programs: Environmental, agricultural, social communication training.
- Guided visits.

Lastly, we must point out that there are other ports that are also outstanding in the area of environmental management, such as Sociedad Portuaria Santa Marta (Colombia), Puerto Ventanas, Terminal Internacional del Sur y Terminal Pacífico Sur (Chile). Nonetheless, because these terminals have implemented a sustainability strategy in their organizations, which in addition to their environmental performance, incorporates social engagement with the communities located in their sphere of influence, as well as economic engagement, boosting the performance of their corporate governance and creation of shared value, they will be mentioned in Chapter 8 of this guide.

CHAPTER 6.
GLOBAL REPORTING INITIATIVE (GRI) SUSTAINABILITY REPORTING GUIDELINES

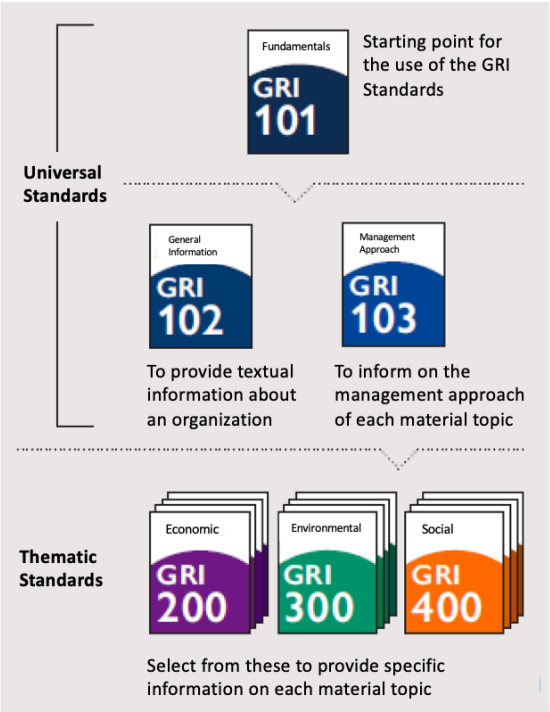
GRI (Global Reporting Initiative) is a non-profit, independent, international organization, founded in the United States in 1997 by the Coalition for Environmentally Responsible Economies (CERES), the United Nations Environment Programme (UNEP) and the Tellus Institute.

GRI supports different types of organizations (businesses and governments) throughout the world in promoting sustainability reporting, based on standards or a framework of principles and indicators that represent the best practices worldwide that organizations can use to measure and communicate their economic, environmental, and social performance. The Sustainability Reporting Guidelines (GRI) are the first and most widely adopted of their type over the past 20 years.

In 2000, GRI officially released the first version of the guidelines providing the first global framework for sustainability reporting.

In October 2016, GRI transitioned from providing guidelines to setting the first global standards for sustainability reporting, now known as the GRI Standards, which came into effect in June 2018.

The GRI Standards for sustainability reporting are divided into four series grouped in two modules (Plate No. 5, source GRI[36]). The first module is Universal Standards, which covers standards for reporting contextual information about the organization, the reporting principles, criteria for addressing and managing material topics, among others (Universal Standards Series 100). The second module is Topic-Specific Standards, establishing more than 33 specific disclosure topics of quantitative and qualitative information (Topic-specific Standards Series 200 Economic topics, Series 300 Environmental topics, Series 400 Social topics).



This chapter provides an explanation of the context where sustainability reporting is necessary, describes and examines the principles and core content of sustainability reporting using the GRI methodology and, lastly, fleshes out and explains the GRI Standards.

6.1 Introduction to the Process of Sustainability Reporting under the GRI Standards

[36] GRI 101: Foundations - Introduction (2016).

A sustainability report is a document prepared by ports, based on "structured guidelines," that is aimed at the interested parties or stakeholders of the ports' area or sphere of influence, and contains relevant information about their economic, environmental, social, and corporate governance performance.

Ports' strategic interest in sustainability is reflected in their voluntary reporting on the topic, in an attempt to excel in performance and become more competitive. The modern day vision of a port that strives to continue growing and doing business is about more than just economic profit, though there is no denying that the bottom line is important.

Years ago, in 1987, the World Commission on Environment and Development set an ambitious sustainable development goal, which it described as "*development that meets the needs of the present without compromising the ability of future generations to meet their own needs.*" This goal encapsulates the transformation and contribution to sustainable development that Latin American ports have had over the past years.

These "structured guidelines" for sustainability reporting have been promoted through the GRI (Global Reporting Initiative) Standards, through which ports can identify their significant impacts on the "*economy, the environment, and/or society and disclose them in accordance with a globally-accepted standard*."[37]

Some of the aspects that ports deem important to report include promoting transparency in their management and sustainability actions, strengthening their performance, allowing communication with their stakeholders and meeting their expectations and responding to clients and competition, as well as developing a solid corporate image and a valuable reputation over time.

The GRI reporting standards are currently the most widely used guidelines throughout the world for sustainability reporting, because it is a set of standards recognized worldwide that uses a common language for ports or organizations, enabling comparison of quality of information about impacts. "*The Standards are designed to enhance the global comparability and quality of information on these impacts, thereby enabling greater transparency and accountability of organizations*."

Furthermore, these standards provide key elements for planning sustainability management, promoting transparency and accountability in the reporting of ports or organizations. "*Sustainability reporting based on the GRI Standards should provide a balanced and reasonable representation of an organization's positive and negative contributions towards the goals of sustainable development*," which also "*allows internal and external stakeholders to form opinions and to make informed decisions about an organization's contribution to the goal of sustainable development*."[35]

6.2 Reporting principles and core content

[37] GRI 101: Foundations – Introduction (2016).

The GRI establishes that the sustainability reporting principles are important and necessary for their development and quality, even noting that reporting ports and organizations are required to implement them, because they serve to determine content, ensure quality of information and proper presentation.

All of the principles are made up of a Requirement and a Guideline for the implementation of the principle, as well as a test to evaluate whether the principle has been correctly implemented.

Plate No. 6 (source GRI[38]) establishes the principles for defining the content and quality of the Sustainability Report.

Principles for defining report content	Principles for defining report quality
• Stakeholder inclusiveness • Sustainability Context • Materiality • Completeness	• Accuracy • Balance • Clarity • Comparability • Reliability • Timeliness

Plate No. 6

6.2.1 Principles for defining report content.

6.2.1.1 Stakeholder inclusiveness

The port "*shall identify its stakeholders, and explain how it has responded to their reasonable expectations and interest*."[39] Stakeholders are defined as individuals or entities that can be affected by the port's activities or services or, otherwise, whose actions can affect the ability of the port to implement its strategies and objectives. Stakeholders can include employees and other workers, contractors, suppliers, local communities, public services, other civil society organizations, among others.

The expectations and interests of stakeholders should be taken into account in order to determine whether a topic raised by them is material, that is to say, a matter important to the company that entails addressing its major economic, environmental and social impacts (whether positive or negative), that can affect normal development and sustainability over time.
For this purpose, stakeholder engagement should be promoted to identify and understand expectations, interests, and information needs.

[38] GRI 101 : Foundations – Reporting Principles (2016).
[39] GRI 101 : Foundations – Principles for defining report content – Stakeholder Inclusiveness (1.1) - (2016).

Systematic stakeholder engagement is likely to result in ongoing learning for the port and for the stakeholders, strengthening trust and credibility between the port and the stakeholders over time.

6.2.1.2 Sustainability Context

The report must present the reporting organization's performance in the broadest context of sustainability,[40] which means that the sustainability report must include aspects and actions of the port that contribute, or aim to contribute in the future, to the improvement, or cause the deterioration, of the economic, environmental, and social conditions at the local, regional, or global level.

6.2.1.3 Materiality

Ports can face a wide range of topics or matters on which to report. Relevant subjects or topics to be included in the report, "*are those that can reasonably be considered important for reflecting the organization's economic, environmental, and social impacts, or influencing the decisions of stakeholders*," on the economy, the environment and/or society (positive or negative). A topic can be relevant —and so potentially material — based on only one of these dimensions.

"*Materiality is the principle that determines which relevant topics are sufficiently important* that *it is essential to report on them. Not all material topics are of equal importance, and the emphasis within a report is expected to reflect their relative priority.*"[41]

The port must identify in a participatory way the relevant topics or matters, selecting those that reflect the economic, social, urban, and environmental impacts of the company and that also have a direct bearing on the views and decisions of stakeholders.

This analysis and identification process will serve to determine whether a topic or issue can be turned into an opportunity or strength (when its impact is positive) and/or weakness or risks (when its impact is negative).

In short, relevant topics are matters that directly or indirectly impact the company's ability to create, maintain, or distribute economic, environmental, and social value for itself, its stakeholders, and the community at large.
A materiality matrix is an important tool for assessing whether a relevant topic is material. It is based on a process of prioritization, by both internal and external stakeholders, of the level of importance of each relevant topic.

The relevance level of each topic can be assessed using a system of three scores: low (1), medium (2) and high (3), and the values are entered into a matrix with two axis:

[40] GRI 101 : Foundations – Principles for defining report content – Sustainability Context (1.2) - (2016).
[41] GRI 101 : Foundations – Principles for defining report content – Materiality (1.3) - (2016).

Assessment by Stakeholders (vertical axis) and Assessment by Company (horizontal axis).

6.2.1.4 Completeness

"The report shall include coverage of material topics and their boundaries, sufficient to reflect significant economic, environmental, and social impacts, and to enable stakeholders to assess the reporting organization's performance over the reporting period."[42]

Completeness encompasses three concepts or dimensions that must be considered in reports: list of material topics covered in the report, topic boundaries, and time (period covered by the report).

List of material topics: the topics covered in the report are expected to be sufficient to reasonably and adequately reflect or explain the port's significant economic, environmental and/or social impacts, and to enable stakeholders to assess such impacts.

Topic boundaries: topic boundary is a description of where the impacts occur for a material topic, and the organization's involvement, not only through their own activities but also as a result of their business relationships with other entities.

Time: the report needs to specify the period of analysis of the economic, environmental, and social impacts and the information must be complete for the time period specified by the report.

6.2.2 Principles for defining report quality

6.2.2.1 Accuracy

"*The reported information shall be sufficiently accurate and detailed for stakeholders to assess the reporting organizations performance*."

The information contained in the reports can be expressed in many different ways, which can vary depending on the source of the information. Even so, it is advisable to heed the tests suggested by GRI such as ascertaining that: "the report indicates the data that have been measured," "The measurements for data, and bases for calculations, are adequately described, and can be replicated with similar results," "The report indicates which data have been estimated, and the underlying assumptions…"[43], among other things.

6.2.2.2 Balance

[42] GRI 101 : Foundations – Principles for defining report content – Completeness (1.4) - (2016).
[43] GRI 101 : Foundations – Principles for defining report quality – Accuracy (1.5) - (2016).

"The reported information shall reflect positive and negative aspects of the reporting organization's performance to enable a reasoned assessment of overall performance."[44]

This principle goes to the content and presentation of the report reflecting a truthful image of the port and its performance, avoiding omissions, comments that are reasonably likely to unduly or inappropriately influence a decision or judgment by the report reader.

6.2.2.3 Clarity

"The reporting organization shall make information available in a manner that is understandable and accessible to stakeholders using that information."[45]

This means that the information presented in the report is expected to be fully comprehensible, accessible, and usable for any stakeholder, whether in print form or through other channels. The information must be continuously available and easy to access.

6.2.2.4 Comparability

"The reporting organization shall select, compile, and report information consistently. The reported information shall be presented in a manner that enables stakeholders to analyze changes in the organization's performance over time, and that could support analysis relative to other organizations."[46]

This principle is important for comparing and evaluating a port's performance, inasmuch as it enables stakeholders to compare information on current environmental, social, and economic performance with past performance, and against the performance of other organizations.

It is important to maintain consistency in the methods used in reporting over time.

6.2.2.5 Reliability

"The reporting organization shall gather, record, compile, analyze, and report information and processes used in the preparation of the report in a way that they can be subject to examination, and that establishes the quality and materiality of the information."[47]

The veracity of the contents of the report, as well as the ability of stakeholders to validate the information contained in these documents, is very important, in keeping with reporting principles.

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[44] GRI 101 : Foundations – Principles for defining report quality – Balance (1.6) - (2016).
[45] GRI 101 : Foundations – Principles for defining report quality – Clarity (1.7) - (2016).
[46] GRI 101 : Foundations – Principles for defining report quality – Comparability (1.8) - (2016).
[47] GRI 101 : Foundations – Principles for defining report quality – Reliability (1.9) - (2016).

6.2.2.6 Timeliness

"The reporting organization shall report on a regular schedule so that information is available in time for stakeholders to make informed decisions."[48]

In addition to the usefulness of information, reports must be made available on time. This entails regularity of delivery of information, particularly when relevant material topics need to be disclosed and explained.

[48] GRI 101 : Foundations – Principles for defining report quality – Timeliness (1.10) - (2016).

CHAPTER 7.
COMMERCIAL, SOCIAL, AND ENVIRONMENTAL BENEFITS AND ADVANTAGES TO PORTS FROM IN SUSTAINABILITY REPORTS

A Sustainability Report is an informational document that is publicly released by a (public or private) organization about its economic, social, and environmental impacts as a consequence of its activities, over a specific period of time, to the different stakeholders. The Report includes other aspects of the organization such as corporate governance model, strategic objectives, values, among other ones.

The benefits of reporting are many and sufficiently compelling to incentivize organizations to issue Sustainability Reports.

A Sustainability Report enables the organization to evaluate, in advance, processes or activities that can potentially cause harm to its stakeholders. In turn, disclosing environmental, social, and economic aspects of the organization helps to increase transparency and credibility, and is an effective means of engagement with its value chain and stakeholders, adding value to its corporate reputation and thus turns into a competitive advantage.

In this chapter, based on the aspects of sustainability as defined by the GRI Standards, we explain the benefits and advantages of a Sustainability Report, drawing a distinction between internal and external benefits and, in this way, facilitate analysis and comparison between these benefits.

7.1 Analysis of internal and external benefits to the organization

Over the past years, Latin American port entities have increasingly been issuing Sustainability Reports, in order to disclose and convey to their stakeholders their economic, environmental, and social impacts and performance.

With the development and growth that ports have experienced, the new awareness of the need to adequately preserve our natural resources, the advent of the shared value and social role that ports play and must develop, the need to implement strategic actions linking ports to their surroundings or area of influence, has become evident and essential. On this score, there is no question that ports are long-term ventures because of the significant investment involved in building and maintaining them and because the economic, social, and environmental impacts of ports are intimately tied to surrounding local communities, current and future relationships with relevant stakeholders must be nurtured.

Ports can have a variety of impacts on their surroundings. Some of the most important ones we can mention are: i) Environmental impacts: hazardous waste, impacts on soil quality and marine habitat, wildlife, emissions, impacts from handling hazardous goods; ii) Economic impacts: impacts on recreational or gastronomic activities in their area of influence, changes in land assessments, vehicular and river traffic congestion; iii) Social impacts: lengthy travel time for citizens due to larger

transportation vehicles entering or leaving the port premises, unappealing effects on the landscape, among other impacts.

Consequently, a port is currently unable, on its own, to keep up the pace of its own development over time, unless it implements proactive policies and practices to eliminate, prevent, and reduce any negative impacts they may have on their surroundings, communities, and environment.

Stakeholders' expectations and compliance obligations have gradually led ports to develop, implement, and communicate sustainability strategies to prove (either successfully or unsuccessfully) adequate port management, with high ethical and corporate, social, and environmental standards, that allow them to identify their risks and continue in business.

In the context of ports, a sustainable development strategy has become increasingly more relevant, inasmuch as not only is such a strategy implemented by private port companies, but also by national port authorities. This means that, more and more out of necessity, ports are prioritizing the three dimensions of sustainable development (the economic, environmental, and social dimensions), using for this purpose structured methodologies that make the concepts more applicable and enable them to be communicated (Figure 2).

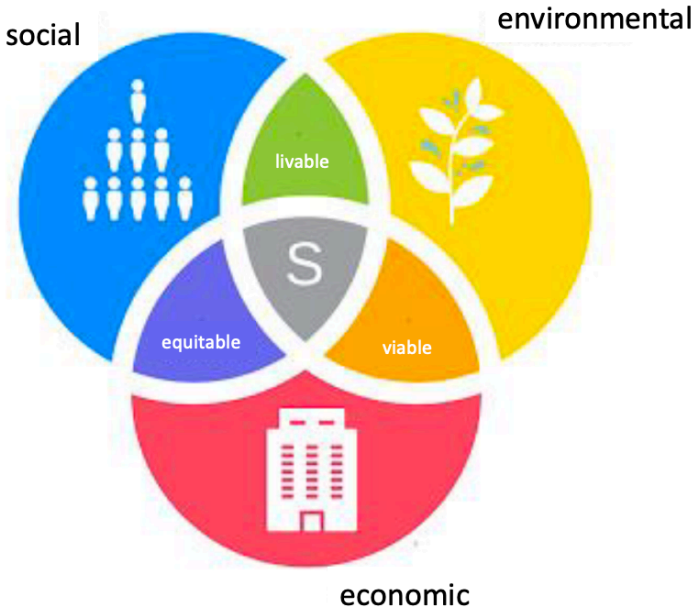

FIGURE No. 2

As for the economic dimension, a port needs to be economically viable in order to ensure its development and growth over time, providing its shareholders, employees and suppliers (internal context) with an adequate level of profitability. The way the port achieves this goal revolves around its primary line of business: increasing its transfer capacity and new cargo by proper business management, meeting the expectations of users and shipping agents by good performance in its operations management, maintaining its profitability margin by managing costs and by making

profitable any investment projects and initiatives that may be necessary and suitable in order to continue operating or attracting new clients.

When this is viewed from the standpoint of the community where the port operates, the expectation is that the port indeed maximizes its revenue and economic outcomes, to give rise to further investments enabling expansion of port activity and, thereby, garner indirect social benefits.

While the environmental dimension requires proactive management to eliminate or reduce the impact that port operations can have on the surrounding environment, in order to preserve the availability of resources for the future development of port activities, as well as the impact on the ecosystems of its area of influence.

A variety of methodologies can be used to meet this objective, some of which have been examined above in this document, such as implementing an Environmental Management System to effectively help to establish a commitment and develop actual awareness at the port to not cause any environmental damage in any way, taking actions to prevent, mitigate or eliminate such effects. It is expected that the port will be able to carry out actions to promote complementary initiatives for the improvement of the environment around it, such as energy efficiency measures, minimizing its greenhouse gas effect, reducing levels of noise pollution, among other measures.

Finally, the social dimension requires examining the internal and external effects and impacts of a port.

From the internal point of view, the protection and care of persons working under the control of the port is essential and a priority, from any standpoint, in order to be successful at continuing port operations, avoid any hold ups of business due to unwanted conflicts and failure to be proactive in adequately monitoring such events. Often, these conflicts arise due to lack of a proactive approach and forward looking vision of labor relations.

From the external point of view, active engagement with stakeholders is essential within the port's area of influence in order to set expectations and the vision of what stakeholders expect the port to be. Common expectations include the need to contribute to the wellbeing of different neighboring social organizations, to promote and generate actions of shared value, improve and expand public areas or spaces, endeavoring to improve the quality of life of the inhabitants of the port environs.

Sustainability reports are the principal tool available today to a port to establish a close tie to its surroundings (stakeholders), in terms of disclosure, to communicate its performance and impacts, both positive and negative, with the guidelines promoted by the Global Reporting Initiative being very helpful for such reporting (as was examined in the previous chapter).

The principal value of a Sustainability Report actually lies in writing it. That is because it helps the port to evaluate and recognize best practices for its business, align sustainability criteria, identify risks and opportunities, generate awareness among employees and upper management about issues linked to sustainable development and, especially, engage with all its stakeholders (clients, suppliers, investors, and communities), by means of processes of participation and consultation setting goals for improvement in the aspects it deems key.

The GRI Standards are a structured methodology that is highly valued by the ports that have implemented them for sustainability reporting, setting forth a set of principles that guides us in how to present a report as well as provide us with a framework for its content. Thus, it has become the most widely used and recognized reference model for that purpose. This has led to an increase in, and greater appreciation of, Sustainability Reports over time.

The commercial, social, and environmental benefits and advantages to a port that implements the sustainability standards, as an integral and strategic part of the conduct of its activities, include enhanced risk management, operational continuity, increased profitability, improved reputation and social impact, greater transparency, asset appreciation.

Sustainability Reports provide greater clarity and transparency of the port's activity, by means of detailed, systematic information that can be compared to previous reporting periods.

Adopting sustainability reporting creates benefits that can be categorized as internal or external.

7.2 Internal Benefits

1. Strategic Vision

As we have described, sustainability reporting enables the port to expand its vision of its surroundings and area of influence in order to incorporate into its evaluation or medium- and long-term strategic vision, aspects of sustainable development.

Strategic analysis involves determining whether or not it is advisable to change the guidelines a port is following at the present time in order to improve its future. This entails conducting an analysis of trends and challenges to gain insight into the surroundings of the business.

Constant change or evolution of society, the regulatory environment, environmental requirements, among other things, forces a change in the pattern of conduct of ports in order to anticipate and prepare to change their strategic vision of resource use in order to achieve its fundamental objectives.

These changes in strategic vision will determine actions, targets, and objectives that, when implemented during the execution phase, will necessarily lead to processes of continual improvement and alignment with the new sustainability trends.

2. **Financial Outcomes**

Implementing sustainability policies or strategies at ports requires a variety of actions of proactive change and continual improvement to be taken in order to achieve sustainable development. All of these actions will be well watched by the market where a port operates, by its own shareholders, by third party investors and also by other relevant stakeholders that we will examine below, because when the market is informed through a Sustainability Report, reactions are positive and the port is valued higher. A Sustainability Report on its own will not lead to higher revenue for the port. It is the underlying actions that will add value to its performance.

3. **Risk Management**

Sustainable management is intrinsically linked to risk management. Ports that write Sustainability Reports are necessarily more capable of predicting and managing the risks existing as a result of their activities and operations. Thus, these ports are able to predict, draw up plans of action and improve their processes.

When writing Sustainability Reports, the Global Reporting Initiative (GRI) Standards establish certain elements to be considered, which are:

- The precautionary principle or approach (Content 102-11), which is part of risk management in operations planning.
- Principal impacts, risks, and opportunities (Content 102-15), which means describing and classifying economic, environmental, and social topics with their respective risks, the mechanisms that have been established to manage them, and the opportunities that said management involves.
- Other principles associated with the governance of the organization for identification and effectiveness in management of economic, environmental, and social impacts, opportunities, and risks (Content 102-29, 102-30 and 102-31).

Risk management helps to deal with exposure to risk by reducing losses from unforeseen but identifiable situations in terms of likelihood of occurrence. By identifying and evaluating risks throughout the port's value chain, an action/management plan can be drawn up with regard to these risks, which involves prevention and mitigation of their potential impacts, because of a greater understanding and analysis of the port's activity or operations.

4. **Innovation, waste reduction and efficiency**

Both in the continuing process of sustainability reporting and the process of continual improvement of their processes and activities, ports are able to define and plan initiatives that, in the medium and long term, have a significant social and/or

environmental impact (sustainable initiatives) with a return on investment, which could pose an opportunity to transform the quality of life and economy of their surrounding area.

Several ports have environmental policies in place establishing their commitment and have been implementing different initiatives to improve their indicators and sustainable development over time, as well as taking actions that encourage the use of technology, efficiency and energy innovation, which may all lead to savings, and minimize social and environmental impact.

The purpose of these initiatives is to have an environmental and social impact while achieving a financial return, which does not necessarily have to be consistent with the profit-making motive of the port business as such. It is motivated by something else.

Implementation of some of these initiatives listed hereunder is dependent upon the particular operations performed at each particular port:

- Energy efficiency, encompassing the efficient use of energy by taking actions to reduce energy consumption levels and CO_2 emissions, without impacting productivity. It goes hand-in-hand with the use of renewable energy sources.
- Water and water resource management, inasmuch as it is a vital and irreplaceable, non-renewable and limited resource, which requires efficient use and/or consumption.
- Waste management, encompassing activities related to the life cycle of waste, taking into consideration the traceability of waste, including everything from collection and transfer to treatment.
- Circular Economy (innovation), in some ways linked to waste management, which involves the utilization of waste by transforming it into resources and reusing them. This management model can very effectively link the port to its surroundings by indirectly promoting and generating jobs, outside of its own business activities.

All of these initiatives, when incorporated into Sustainability Reports, will help to create a positive environmental and social impact, with communication to stakeholders and follow-up on performance being key.

5. **Motivation and loyalty to the persons working under the control of the organization**.

In developing and implementing sustainability at ports, the commitment of employees must also be taken into consideration. By this we mean having an involved team where members must be incentivized and trained to follow this practice at all levels of the company. In order to reap the benefits, all means and strategies must be deployed to engage and motivate all persons working under the control of the company and foster a suitable atmosphere to improve habits.

It is paramount for personnel to be familiar with the tasks that they can perform on a daily basis in any action linked to sustainability. It is helpful to carry out awareness-raising campaigns, using different media to internally disseminate port policy, its objectives and commitments.

In order to develop awareness and a culture of sustainability, there must be training. Educating and knowledge disseminating are needed to put sustainability actions into practice.

The evolution of these activities (awareness-raising and training) over time will bring about significant development of awareness and pave the way for the generation of new ideas, loyalty of the work teams and advancement in all subjects linked to sustainability.

Disseminating sustainability reports will spark interest and lure professionals into participating in port activities (in both management and operation) as well as engaging people who wish to join an organization that manages its environmental and social impacts, while cultivating loyalty of those working under the control of the organization.

6. **Timely compliance with legal requirements and other rules and regulations.**

Compliance with regulations and legal requirements in the area of sustainable development is closely tied to sustainable environmental management. Full compliance with laws and regulations applicable to ports in the context and country where they do business is absolutely essential.

As established in previous chapters, statutory requirements and other regulations must be linked to environmental aspects and operational control guidelines must be established to improve environmental performance. To comply with this suggestion, there must be available access to these legal requirements through some means in order to be able to determine how they apply to the port, in each instance, and periodically assess compliance with each one.

Notwithstanding, more broadly, ports must comply with all legal requirements and rules regulating their business activities so that identifying, following up on and enforcing these compliance obligations serves to prevent (not be the cause of) repercussions on its functionality and operational continuity.

Thus, through Sustainability Reports, ports can prove compliance with legal requirements, describing the actions taken for this purpose. It is recommended to create a matrix of compliance obligations to identify obligations that must be complied with, any updates of these obligations, and evaluation of compliance. Stakeholders will be able to review and examine port performance using this matrix.

7.3 External Benefits

1. Corporate Reputation

A port's reputation must be regarded as a valuable asset that merits protection and being part of the strategic plan.

Ports that have released Sustainability Reports over time or for several periods or fiscal years, for the most part, are the most transparent ports, because of the ongoing development of the methodologies involved in the reporting process and the benefits stemming from them. The reports greatly contribute to making a port's activities transparent in different areas such as the labor, environmental, social and other spheres, including its economic outcomes and governance. This all gives rise to a flow of information that is then disclosed and shared with their stakeholders, allowing for the review and analysis thereof.

This means that increasing transparency by showing how a port acts in response to, and manages, environmental and social impacts represents an important strategic initiative to build confidence among its stakeholders and helps to keep the port operation in business and reinforces the organization's leadership. The Sustainability Report becomes a powerful tool available to ports to build or win back that confidence in the face of crisis situations, reducing the risk of failing to gain social acceptance through transparent communication.

Transparency about the non-financial performance of a port is closely tied to the objective of reducing risks to reputation. When real and tangible commitments are demonstrated in terms of concern over environmental and social aspects and continually creating value, this also turns into a competitive advantage.

A port's reputation is based precisely on compliance and progress with a wide range of stakeholder expectations, the quality of its services and strict compliance with legal requirements and other regulations.

The port can be operating and functioning just fine, but it could face complications and challenges that tarnish its image and reputation if operations do not take into consideration respect for the dignity of the personnel or if rules or regulations are broken. All of this can have consequences and lead society, authorities and its stakeholders to call the port into question. Issues such as bribes and acts of corruption, environmental damage, ethical or social problems, can significantly harm a port's reputation.

2. Competitive Advantage

Ports must strive to gain a competitive advantage since it is the determinant factor in providing services to users and clients, in addition to ensuring that these advantages endure over time.

The competitive advantage of Sustainability Reports lies in actually going through the reporting process, as well as their content (identifying, measuring, managing, and communicating their input and impacts). This gives rise to a plethora of differentiating factors, thus promoting competitive advantage. Maintaining those sustainability initiatives over time enables the port to reinforce them as differentiating elements, which enhances its image as a better company compared to others in the same line of business.

3. **Access to Capital or sources of financing**

There is evidence from global studies[49] suggesting that entities that publish their Sustainability Reports more readily gain access to new and less costly sources of capital, in addition to having positive repercussions on the investment decisions of potential shareholders, who prefer to invest in transparent companies "*because of their commitment to the stakeholders and more accurate projection analysis of the entity.*"

Moreover, there is growing availability of green funding reserved exclusively for companies that demonstrate their responsibility toward society and the environment, offering advantageous conditions, where Sustainability Reports are an essential requirement.

4. **Stakeholder Engagement**

It is essential for stakeholders to be involved in Sustainability Reporting.

An adequate stakeholder mapping exercise should be completed to individually identify the major stakeholders along the value chain and those involved in the areas of influence of the port's operations, focusing on the community, regional and national levels, as appropriate.

In this identification process, an analysis must be conducted of why each stakeholder ought to be included, ranking them by importance and influence, and profiling how they are organized, the geographic boundaries of their area of action, mechanisms of participation, and other aspects. By correctly identifying stakeholders, it will make it possible, at subsequent stages, to define whether the port's impacts are consistent with their interests and expectations, so that the Sustainability Reporting is credible and transparent.

A positive and proactive internal and external stakeholder engagement strategy will be projected through each port's policy. The purpose of engagement is to link sustainability actions and projects to the demands and needs of stakeholders, generating shared value for both parties. This engagement should go hand-in-hand with the port getting into the habit of actively listening on an ongoing basis to the groups that have fundamental issues with, and are impacted by, its operation.

[49] «Value of Sustainability reporting» - A study by Ernst & Young LLP and The Boston College Center for Corporate Citizenship (2013).

Through these engagement activities the port must identify, in a participatory way, important topics or issues, selecting those that reflect its economic, social, urban and environmental impacts. Accordingly, the "materiality" of the topic is analyzed to determine whether it warrants being raised. This analysis and identification process will serve to determine whether a topic or issue can be turned into an opportunity or strength (when its impact is positive) and/or weakness or risks (when its impact is negative).

In summary, relevant topics are matters of direct or indirect impact on the ability of the port to create, maintain, or distribute economic, environmental, and social value for itself, its stakeholders, and the community at large.

Through this strategy it is possible to monitor progressive compliance with actions and projects, by implementing a plan of action linked to the expectations of stakeholders.

Another engagement practice involves the use of tools such as materiality surveys, which can improve the rapport of organizations with their stakeholders.

Stakeholders' expectations and interests are key benchmarks to Sustainability Reporting.

CHAPTER 8.
SUCCESSFUL EXPERIENCES OF SUSTAINABILITY REPORTING PORTS IN LATIN AMERICA

Over the past thirty years, businesses have been playing an increasingly accepted and important role in society worldwide in terms of the impacts they have on the environment and the need to communicate and make that important social role more transparent (taking responsibility) and take concrete environmental protection/mitigation actions.

Today, there is a wide range of options and types of reporting available (environmental, social, CSR– Corporate Social Responsibility reports, among other ones). Nonetheless, the most widespread method is Sustainability Reporting under Global Reporting Initiative (GRI) Standards.

There are several cases of Latin American port terminals which, in striving to make their actions transparent, have led the way in implementing different reporting initiatives. While these have been multiyear endeavors, significant progress has been made in terms of how these businesses accept their social, environmental, and their own development roles, standing as proof that there is no single path to success and enhanced value and reputation of a port.

This chapter aims to identify Sustainability Report publications of Latin American Port terminals and explain why these ports are outstanding examples (process involved, number of years in place, frequency, communication, among other factors).

8.1 Successful Cases of Sustainability Reporting Port Terminals in Latin America

In Latin American ports, development and implementation of the sustainability strategy has been slowly gaining ground, though it is still an emerging topic, except in a few specific instances, and has not yet spread with the same intensity as it has in the Ports of Europe.

Some port operators –private companies – have spearheaded its development and introduced sustainability at the core of their operations and, for some years now, have been releasing Sustainability Reports covering a variety of different topics.

Successful cases of sustainability reporting in Latin American are la Sociedad Portuaria Santa Marta (Colombia), Puerto Ventanas (Chile) and Terminal Internacional del Sur Tisur (Peru), which have also implemented an Environmental Management System and have PERS - EcoPorts. Other outstanding examples are the reports of Terminal Pacífico Sur TPS (Chile) and of Terminal Puerto Arica (Chile).

Other Latin American port terminals have stood out for their sustainable practices, though there is no evidence of their sustainability reporting under GRI methodology.

8.1.1 List and brief description of outstanding Latin American port facilities -successes- in Sustainability Reporting

Hereunder, we succinctly describe each port facility that has stood out because of its Sustainability Reporting. The information has been obtained from the respective web pages, reports and public information available from each port terminal, citing the respective source.

Sociedad Portuaria Santa Marta - SPSM (Colombia)[50]

The SPSM came into being under Law 001 of 1991, an act that put an end to the State monopoly on port administration and led to the liquidation of Colpuertos. Under this new arrangement, the Office of the Superintendent General of Ports (Superintendencia General de Puertos), the Regional Port Corporations (Sociedades Portuarias Regionales) and the port operators, entities with administrative autonomy and their own assets, were all created. Then, through a concession, the State handed over to the Regional Port Corporation of Santa Marta (Sociedad Portuaria Regional de Santa Marta), administration and operation of the infrastructure of the Sea Terminal.

The objective of the Colombian State was to create a new port corporation (Sociedad Portuaria) with a totally different and modern administrative mode, an entity that would reduce operation costs. As a response to this initiative, the Sociedad Portuaria Regional de Santa Marta was chartered and was geared towards providing quality and caring client service.

The Sociedad Portuaria de Santa Marta, which launched operations in 1993, is a partially state owned corporation (empresa de economía mixta), founded by 60 companies, including banana-producer organizations, shippers, the Department of Magdalena, the District of Santa Marta and other business persons. That institutional backing enabled it to obtain authorization from the Office of the Superintendent of Ports to do business as port operator.

Santa Marta has a highly important seaport to Colombia, because of its geographic location and because of the natural depth it boasts of up to 60 feet at some of at its docks. It is appealing and advantageous to shipbuilders and shippers alike, because of this physical configuration that enables it to accommodate post-Panamax type ships.

One of the comparative advantages of the port of Santa Marta is that it is characterized by favorable natural circumstances, including shelter and depth, variables that no other Colombian port can boast. The port has 7 docks and more than one kilometer of mooring shield, with depths of up to 60 feet, which requires no maintenance in terms of dredging.

Plate No. 7 shows an overview of the port facilities of Sociedad Portuaria Santa Marta[51].

[50] https://www.puertodesantamarta.com/Puerto/Historia

[51] Image obtained from the web page of the SPSM - https://www.puertodesantamarta.com/

PLATE No. 7

Terminal Pacífico Sur S.A. – TPS (Chile)[52]

Terminal Pacífico Sur Valparaíso S.A. (TPS), founded in 2000, is a company with a concession to develop, maintain, and operate the principal berthing front of the Port of Valparaíso in Chile. Headquartered in Valparaíso, TPS holds the concession of the container carrier and multipurpose ship terminal with a capacity for 1,300,000 TEU per year, up until 2029. It is located 110 kilometers northwest of Santiago, the capital city of the country. This proximity makes it a strategic point in commercial distribution, since the central zone of Chile hosts more than 50% of the population and national economic activity.

It has a total of 1,006 meters of mooring front, the principal front of which stretches 740 meters in length, with a maximum depth of 14.1 meters, thus enabling it to accommodate Post-Panamax ships simultaneously in berthing spots 1, 2, and 3. Its secondary front extends 266 meters in length, with a maximum depth of 9.4 meters, to accommodate smaller sized vessels as well.

It has a total of 9 ship-to-shore gantry cranes, including some of the largest of the west coast of South America, with a 62-meter reach and lifting capacity of 65 tons. Additionally, it has 15 RTG mobile gantry cranes.

[52] https://www.tps.cl/tps/site/artic/20130814/pags/20130814172205.html

Plate No. 8 shows an overview of the port facilities of Pacífico Sur[53]

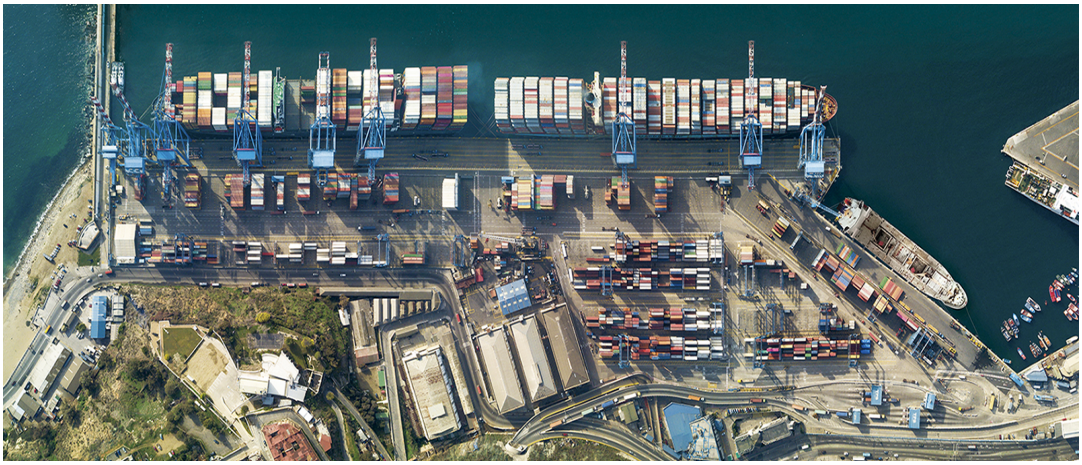

PLATE No. 8

Puerto Ventanas S.A. – PVSA (Chile)[54]

Puerto Ventanas S.A., is the principal bulk cargo port of the central zone and one of the most important in the country. Located on Quintero Bay, town of Puchuncaví, it conducts its business with a commitment to the economic, environmental, and social development of its stakeholders, and particularly to the communities where it operates.

Its sea port has the largest capacity of the central zone of the country. Its facilities have four deep-sea berthing slots and are outfitted with mechanized systems for loading and unloading up to 24,000 tons per day, accommodating liquid and solid bulk and general cargo ships of more than 70,000 tons and 14.3 meters draft. In terms of logistics, it is fully equipped with warehouses and transportation capacity for handling cargo in transit with efficient operation and high safety, quality and environmental standards. Plate No. 9 shows an overview of port facilities of Puerto Ventanas.[55]

PLATE No. 9

[53] Image obtained from web page of TPS - https://www.tps.cl/
[54] https://puertoventanas.cl/
[55] Image obtained from 2019 Sustainability Report of PVSA.

Terminal Internacional del Sur - Tisur (Perú)[56]

Terminal Internacional del Sur (TISUR) company, has been doing business over the years at Matarani Port Terminal. On the cost of South America, specifically on the bay located at the north end of Puerto de Islay, 120 kilometers from Arequipa, Peru. It is interconnected through the national roadway network to the binational Peru-Brazil and Peru-Bolivia highways.

TISUR kicked off its operations on August 18, 1999 when, through its Ministry of Transportation, the Peruvian State awarded it the Matarani Port Terminal concession for 30 years. With more than 15 years of concession under its belt, the company has successfully run the Terminal Portuario de Matarani, greatly contributing in this way to the development of the region along the three lines of action (economic, social, and environmental). TISUR has become the principal support of port activity of the Southern Region of Peru, providing a high quality, cost, and time efficient service.[57]

It has four docks, which enables it to accommodate large vessels 365 days a year, without interruption. It has an interior harbor formed by two 650 and 145 meter breakwaters. Docks A, B, and C have 10-meter drafts; dock F, 18 meters. Its loading service include facilities for solid bulk cargo storage, both mineral ore and grains, storage tanks for vegetal oil and alcohol. It has fully equipped storage areas, 75,000 ton capacity grain silos, covered tanks for mineral ore concentrate with a 120,000 ton capacity, 22,332 square meters of indoor warehouses for sacking and foodstuff, 157,754 square meters of outdoor storage space, 3,150 cubic meters of alcohol storage tanks, in addition to 1,630,525 square meters of reserve area available for expansion, as required by clients.[58]

Plate No. 10 shows an overview of the port facilities of Terminal Pacífico Sur[59]

PLATE No. 10

Terminal Puerto Arica - TPA (Chile)[60]

[56] https://www.tisur.com.pe/es/nosotros
[57] Tisur Sustainability Report 2, pg. 20.
[58] https://www.tisur.com.pe/sites/default/files/escritorio/informe-pers-es.pdf
[59] Image obtained from Tisur web page - https://www.tisur.com.pe/es

Terminal Puerto Arica won the concession in the public tender of the Port of Arica as part of the modernization process of Chilean sea terminals in 2005. Its operations were launched in October of that same year and the concession is for a period of 30 years. The Port of Arica is located in northern Chile in Region XV of Arica and Parinacota, a strategic location on the borders of Peru and Bolivia, in addition to becoming the entryway and exit door to the Asian Pacific for several South American countries. Terminal Puerto Arica has a mooring front of 1,234 meters, divided into 6 slots and a maximum depth of 12.4 meters (slot 2B).[61] TPA is a multipurpose port suitable for moving containers, bulk cargo (mineral ore, agro-industrial and liquid) and general cargo (project, loose, and vehicular cargo).

Plate No. 11 shows an overview of the port facilities of Terminal Puerto Arica[62].

PLATE No. 11

Port Group of Cartagena: Regional Port Corporation of Cartagena (Sociedad Portuaria Regional de Cartagena) – Container Terminal of Cartagena (Colombia)[63]

As was noted in Section 5.1, the Port Group of Cartagena and its terminals has stood out because of its environmental management and certifications, which include EcoPorts PERS, in addition to developing a strategy of sustainability and Corporate Social Responsibility (CSR). The Group, however, does not issue Sustainability Reports under GRI Standards.

8.1.2 Analysis of common and/or outstanding elements of each report

Report style and structure

Based on reviews of the latest versions of the Sustainability Reports of the ports listed above, we can say that all of them are different, there is no uniformity, the styles vary greatly and no single standard is adhered to by all of them.

- Some reports are released with economic outcomes or financial statements, such as the case of Puerto Ventanas, Terminal Internacional del Sur and Sociedad Portuaria Santa Marta. In the case of Terminal Pacífico Sur a simple breakdown of the monetary value generated and distributed without further specifics is included.

60 http://portal.tpa.cl/tpaweb/reporte-sostenibilidad/
61 http://portal.tpa.cl/tpaweb/nuestro-puerto/
62 Image obtained from TPA Sustainability Report - http://portal.tpa.cl/tpaweb/reporte-sostenibilidad/
63 https://www.puertocartagena.com/es/compromiso-social-empresarial-puerto-cartagena

- One report follows the model guidelines for integrated reporting of the IIRC (International Integrated Reporting Council[64]), that is, the report of Puerto Ventanas, with some guidelines not being linked to the GRI Standards methodology.
- The report of Terminal Pacífico Sur (2017-2018) is written using the basic methodology version of the GRI Standards (Global Reporting Initiative).
- The report of Terminal Puerto Arica (2019) is written using the complete methodology version of the GRI Standards (Global Reporting Initiative).
- The reports of Sociedad Portuaria Santa Marta (2018) and of Terminal Internacional del Sur (2015-2016) are written in accordance with the guidelines or principles G4 of GRI (Global Reporting Initiative).
- Another important difference is the reporting years or periods. The most recent ones are Puerto Ventanas (2019) and Terminal Puerto Arica (2019), which report annually. Just behind them come Sociedad Portuaria Santa Marta (2018), Terminal Pacífico Sur (2017-2018) and, lastly, Terminal Internacional del Sur (2015-2016).

Report naming

As for the name of the reports of Terminal Internacional del Sur (2015-2016) Terminal Puerto Arica (2019) and Terminal Pacífico Sur (2017-2018), they are called "*Reporte de Sostenibilidad*" ('Sustainability Report'); that of Puerto Ventanas (2019) is called "*Memoria Anual Reporte Integrado*" ('Integrated Annual Report'); while that of Sociedad Portuaria Santa Marta (2018), is called "*Informe de Sostenibilidad*," using the synonym and more traditional word in Spanish for 'report' *informe.*

Evolution of reporting

La Sociedad Portuaria Santa Marta

In 2008, a program was launched as part of the strategy of Corporate Social Responsibility (CSR), which fostered dialogue with stakeholders, producing the first Sustainability Report, drafted under the G3 GRI principles.

A second report covers fiscal year 2009 and, between 2010 and 2011, after continually developing its CSR engagement policies, the port was nationally recognized as the Best Business of the Regional Economy and other distinctions for its outstanding performance in this regard.

By fiscal year 2012, it published the first Social Responsibility Report and another Environmental Sustainability Report, which it published again in 2013, as its second environmental report.

[64] International Integrated Reporting Council (IIRC).

In 2014, it released a new Environmental Sustainability Report, highlighting its EcoPorts 2013 certification (the first Latin American port to have this accreditation), and also receives the first Maritime Award of the Americas for CSR (OAS and CIP).

From 2015 to 2017, it issued no reports on its sustainability management, only financial statements, but in 2015 the port was recognized by the International Association of Ports and Harbors (IAPH) for its outstanding environmental management. The last report it released is for fiscal years 2018.

Puerto Ventanas - PVSA

As of 2009, Puerto Ventanas began to develop some aspects linked to environmental practices, mostly geared toward monitoring air and marine environment quality.

From 2010 to 2011, it took some environmental measures to enhance its operations (protective netting around cargo storage yards, dust suppression spraying, among other ones) and, reported its first social responsibility actions.

In 2012, Puerto Ventanas announced its "Sustainability Policy." It reflected the change toward a strategy of stating its environmental and social commitments, with no supporting methodology, though it began to notably engage with local stakeholders, and in 2014 stated that its sustainability strategy *"is one of the fundamental pillars in its vision and business management model."*[65]

Between 2015 and 2019, its reports were called Memoria Anual/Reporte Integrado (IIRC) ('Integrated Annual Report'), linking the company's financial performance to its sustainable management, highlighting the systematic effort to strengthen ties with the local community.

It's fitting to note that Puerto Ventanas has been awarded twice by the Inter-American Committee on Ports (CIP) of the Organization of American States (OAS), the Maritime Award of the Americas in the category of Community Engagement and Port-City relations." Puerto Ventanas was also was awarded EcoPorts certification in 2016.

Terminal Puerto Arica – TPA

TPA's first Sustainability Report was released in 2018, for the 2017 evaluation period, using the GRI G4 methodology.

In its third report, released in 2020, for the period of 2019, using on this occasion the GRI Standards, it noted *"As a company we have the conviction that our corporate and operational development, must go hand-and-hand with the contribution that as persons and members of the community we make to the environment, to thus conduct a responsible, clean, and sustainable operation, capable of projecting out in time in keeping with the needs of our stakeholders and environment."*[66]

[65] Annual Report (Memoria Annual) 2012 - Puerto Ventanas S.A.

[66] Terminal Pacífico Sur S.A. – Sustainability Report (Reporte de Sostenibilidad) 2019.

Terminal Internacional del Sur - Tisur

In 2009, Tisur conducted a self-assessment of the degree of integration of social responsibility in its strategies, policies, and processes, which enabled it to identify its stakeholders in order to design strategies and future actions for improvement of its relations with each of them.

In 2010, it launched the process of Sustainability Reporting releasing its first report in 2011 and its second one in 2013, for the 2011 and 2012 fiscal years, using the GRI G3 methodology (Global Reporting Initiative).

A third Sustainability Report was written using the GRI G4 methodology, for fiscal years 2013 and 2014. A fourth report was written for the 2015-2016 period, also with the GRI G4 guidelines.

Terminal Pacífico Sur – TPS

TPS's first Sustainability Report was published in June 2016 covering the evaluation period of 2013-2014, using the basic version of the GRI G4 methodology. TPS states in this first publication: "*With this exercise, we undertake to disseminate our responsible management on an annual basis and address in the same way the opportunities for improvement detected in this initial document, increasing quality in form and content, year by year.*"[67]

A second report was released in 2017 covering the 2015-2016 period, also under the same methodology as the previous report, emphasizing the processes of engagement with all of its stakeholders. A third report was published in 2019 for the 2017-2018 period, this time using the GRI Standards, setting it apart from the previous reports by including compliance with the United Nations Sustainable Development Goals (SDGs), to which Chile acceded in 2015.

Generalities and Outstanding Aspects of Reports

In all of the reports analyzed, one common thread is a description of the services offered by ports, their history, port facilities, infrastructure, equipment, their setting, organizational structure, relevant cargo movement statistics (in some instances, broken down by types), certifications and recognitions, the different types of businesses they are involved in, review of their main clients, investments, and projects, and economic management performance.

Additionally, aspects are highlighted such as mission, vision, each corporation's values and, in particular, corporate governance practices. All of them mention ethics and integrity of governance and explain the importance that these aspects represent to engagement with stakeholders.

[67] Terminal Pacífico Sur S.A. – Sustainability Report (Reporte de Sostenibilidad) 2014.

The report of Sociedad Portuaria Santa Marta stands out because it includes a section "Effectiveness verification of review of principles and values compared to performance based on ethics and integrity" (original: "Verificación de efectividad a revisión de principios y valores al desempeño basado en la ética e integridad"). It also adds a section on "Business ethics management in the supplier chain," noting that all supply management linked to internal control, and internal and external audits, are subjected to processes of regulatory compliance, ethical aspects, among other things.

Even though all the reports refer to their clients, the information provided by Terminal Internacional del Sur – Tisur is noteworthy because it includes results of the client satisfaction surveys and draws a comparison of its evolution over time to its compliance target, broken down by client and by aspects (operations efficiency, safety, infrastructure, and other ones) to determine its weaknesses and strengths. Sociedad Portuaria Santa Marta also provides results of client satisfaction surveys, though it does not analyze and compare the evolution of the results over time.

All reports have a section to communicate aspects about the persons working under the control of the organization, which includes a variety of information, such as staff size, diversity (by age range, seniority, gender, among other traits), equality of remuneration between men and women, labor practices and decent work; they explain performance evaluation methods, aspects of stability and shift rotation, remuneration and benefits policy, training, instruction, professional development, succession models, and other areas).

In some reports, the port company's commitment to the occupational health and safety of its workers is explained and, for that purpose, they report on indicators of accidents and their evolution over time, specific trainings on these subjects, management and involvement of internal groups made up of company representatives and of the workers themselves. On this score, in particular, we can cite the reports of Terminal Pacífico Sur, Terminal Internacional del Sur – Tisur, and Terminal Puerto Arica, for the analysis and development of the company's commitment, as well as for the detail in the information they cover and provide.

Terminal Internacional del Sur – Tisur and Terminal Pacífico Sur – TPS devote a section exclusively to information about their suppliers and their practices.

Also worthy of highlighting are energy management initiatives taken and reported by Puerto Ventanas. As for these initiatives, it wrote, "*Over the past five years, Puerto Ventanas has been developing systematic and successful energy management … in 2015 the company implemented an Energy Management System based on ISO 50001.*"[68]

With respect to innovation management, Puerto Ventanas has implemented programs with government agencies of Chile (Corfo) and local universities taking the

[68] Puerto Ventanas S.A., Annual Integrated Report 2019, Energy Management.

first steps in developing a culture of innovation and building innovation capacity, crafting a specific policy for this purpose.

An interesting strategic aspect, to illustrate that effort, is the innovation development reported by Terminal Puerto Arica: "Over the past 7 years, Terminal Puerto Arica has been working hard together with all personnel to create a culture that promotes innovation within its facilities. The commitment and hard work has instilled in the company the capacity to run successful innovation processes. Currently Terminal Puerto Arica is nationally recognized as one of the most robust cultures of innovation of our country."[69]

Community and Engagement

All reports analyzed contain a special section on engagement and management vis-à-vis the communities living in their area of influence.

Hereunder, we provide a specific analysis of each port's initiative in this regard.

Sociedad Portuaria Santa Marta

This is probably the most developed port in terms of community engagement and that is highlighted by its continual reporting on that aspect. In its statement on CSR, SPSM notes that it draws its social conscience on the following values: respect, solidarity, cooperation, and ecoefficiency.

Since 2008, it has been developing and managing the SPSM Foundation, the community link of which has been its great asset and the engine of its engagement. The foundation boasts countless initiatives and programs:

- Awareness-raising and Outreach Program in Area of Influence, linked to engagement with social leaders of the communities of the area of influence, community leadership development, community infrastructure development, environmental improvement, social and participatory work.
- Educational Improvement Program -targeting children and adolescents, which manages, among other things, child nutritional wellbeing, culture and values building.
- Program for Health and Integral Wellbeing, which has included wellbeing activities for older adults, assisting people with disability, medical care days for children, healthy communities initiatives.
- Environmental Conservation Program, education campaigns on the environment "beyond our facilities."
- Income improvement Program, intended to provide job training and skills development, and artisanal fishing production development.

[69] http://portal.tpa.cl/tpaweb/wp-content/uploads/2020/07/Reporte_sostenibilidad_2019_WEB.pdf

These initiatives and programs are the reasons why SPSM's CSR management has been internationally recognized.

Puerto Ventanas

The port Terminal has followed community engagement management guidelines that are similar to those of Sociedad Portuaria Santa Marta. It states in its report that "*the relationship with its neighboring communities is fundamental to the sustainable development of the company.*"

It has a Strategic Community Engagement Plan, whose objectives are "*to generate long term links of trust to the community, contribute to the quality of life of its residents, communicate transparency, be major players of the development of the town, and contribute to positioning of Puerto Ventanas as a company that is growing alongside of it.*"

To implement this Strategic Plan, in 2012 it created the Open Port Community Center (Centro Comunitario Puerto Abierto), as a non-profit corporation, the mission of which is to contribute to the social and cultural development of the town.

The Community Center has carried out over time a series of outreach programs and actions, such as Port Visit Programs, Dual Education Program (on-the-job training for students in technical careers at establishments of the community), Training and Entrepreneurship Program for Artisanal Fishermen, among other outstanding programs.

As for community engagement management, Puerto Ventana's report underscores the evaluation it conducts with respect to the perception of engagement and outreach with its surrounding community, which has been carried out by an external organization since 2011. This practice has not been seen in any other report.

Terminal Internacional del Sur – Tisur

Unlike the port terminals examined thus far, Tisur does not have a foundation to implement community engagement. The port terminal boasts several social investment projects to benefit community development in its area of influence. In its report, it mentions initiatives linked to the community in areas such as health, education, infrastructure, environment, and social wellbeing. In the area of health, it highlights initiatives such as free comprehensive health care campaigns, economic support to the town's medical center, annual medical check-ups for children, and nutrition talks. As for education, it reports on several initiatives such as Tisur Scholarship (training in areas of maintenance, accounting, and computer science), delivery of school supplies, among others. In the area of infrastructure, initiatives include small public works improvements, such as green areas, potable water installations, different construction and repair works. As to the environment, it mentions initiatives of visits to environmental monitoring stations of its own facilities, arborization of areas nearby the terminal, beach clean-up campaigns, recycling activities. For social wellbeing, a variety of initiatives and programs were

reported, the principal one also linked to artisanal fishermen, emergency services, support for older adults, soup kitchens, support for the municipal government, and other ones.

Terminal Pacífico Sur TPS

This port terminal reports four pillars of community action and engagement: sports, culture, education, and quality of life and businesses. Under the pillar of sports, several initiatives are noted: partnership and sponsorship with the most accomplished soccer team of the community, nautical sports workshops and sailing school, TPS half marathon—going on its thirteen consecutive year. As for the pillar of culture, there are several large events such as festivals and expositions of different types. With regard to education and quality of life and business, the port terminal collaborates with different community institutions.

Terminal Puerto Arica TPA

The company has a Corporate Social Responsibility (CSR) program, that is called "Arica, my Port City (*Arica, mi ciudad Puerto*), the objective of which is to create close ties between the community and the port, and in this way take part jointly in activities that highlight the tasks of the port, doing its part to meet the needs of the community. This initiative has four pillars of community action and engagement: education, culture, environment, and sports. The "Safer Port Arica" initiative, which engages the different organizations operating at the Port of Arica in developing a culture of prevention, safety, and occupational health.

Port Group of Cartagena

As was noted above, the group does not issue Sustainability Reports. However, it excels in its commitment and social action. The Group states: "*The quest for balanced socioeconomic growth that gives rise to social wellbeing and ensures adequate utilization of natural resources is the engine that powers all actions of the Port Group of Cartagena. Both logistical and port operations, and its relationship with the city and the communities, are carried out in an active, responsible, and sustainable manner.*"[70]

In 2005, the organization created the Port of Cartagena Foundation, in order to promote the Group's social investment, actively engaging its stakeholders in four pillars of action: i) Education, culture and environment, aimed at improving education quality and promote awareness of artistic culture in vulnerable communities, especially with children, parents, and caretakers; ii) Community development, aimed at developing leadership skills, mainly among young people, to join the members of the community in implementing social projects; iii) Income generation, aimed at developing entrepreneurship, among young people and adults, to create their own businesses and employability, in order to improve their quality of life; and, iv) Community infrastructure, which includes social investment projects for the improvement of urban spaces of vulnerable communities to foster neighborly interaction between citizens.

[70] https://www.puertocartagena.com/es/compromiso-social-empresarial-puerto-cartagena

Environmental management

In all reports evaluated, the environmental aspect and its importance to every port terminal is examined.

- All port terminals have an Environmental Management System and ISO 14.001:2015 certificate.
- Terminal Internacional del Sur, Terminal Sociedad Portuaria Santa Marta, Puerto Ventanas, Sociedad Portuaria Regional de Cartagena and Terminal de Contenedores de Cartagena, also have EcoPorts certification.
- Puerto Ventanas is the only port terminal that has energy efficiency policies and has implemented an Energy Management System based on ISO 50.001 certification.
- Except for the report of Puerto Ventanas, all of the other ports report in detail environmental aspects linked to their activity, such as CO_2 emissions and their scope, materials consumption used in the operation, fuel consumption, electrical energy consumption, water consumption solid and liquid waste treatment, and biodiversity (protection, conservation and/or restoration of elements of the natural environment).

ANNEX 1

ENVIRONMENTAL MANAGEMENT SYSTEMS

ISO 14.001

- Several Latin American organizations perform or provide:
  - Preliminary environmental analysis.
  - Support services in implementing the standard.
  - Certifications of standard ISO 14.001:2015.
  - The following organizations may serve as references:
    ICONTEC (Colombia) https://www.icontec.org/certificacion-de-sistema/
    SGS (Several Latin American countries: Chile, Colombia Mexico, Argentina, Brazil, Peru) https://www.sgs-latam.com/
    TÜV Rheinland (Several Latin American countries: Chile, Colombia, Mexico, Peru, Argentina, Brazil).
    ATR (Mexico) https://americantrust.com.mx/

EMAS

- The following organizations may serve as references:
  CAVALA https://www.cavala.es/
  AENOR https://www.aenor.com/certificacion/medio-ambiente/reglamento-emas
  ANEXIA https://consultoria.anexia.es/medio-ambiente/certificado-emas

ECOPORT

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