United Nations Development Programme

Guidance for Implementing National Voluntary Carbon Footprint Programs in Latin America

June 2022

Author
Miguel Rescalvo, NEYEN CONSULTING SLU

Layout and graphic design
Domestic Data Streamers

Technical reviewers and collaborators
Gianluca Merlo, Lorenzo Eguren, Manuel García, Sebastián Garín, Rene López, Christian López, and Daniela Peris.

Disclaimers
The views expressed in this publication are those of the authors and do not necessarily represent those of the United Nations, including the UNDP, or Member States.

This product was developed under the UNDP's NDC Support Programme, in contribution to the NDC Partnership and Climate Promise initiative, with generous funding from the governments of Germany, Spain, and the European Union.

About the UNDP
The United Nations Development Programme is the lead UN agency fighting to end the injustice of poverty, inequality, and climate change. Working with our broad network of experts and partners in more than 170 countries, we help nations to build integrated, lasting solutions for people and the planet. Learn more at undp.org or follow @UNDP.

About the NDC Support Programme
The NDC Support Programme provides technical support for countries to achieve an integrated, whole-of-society approach that strengthens national systems, facilitates climate action, and increases access to financing for transformative sustainable development. In addition to providing direct support to countries, the UNDP facilitates the sharing of ideas and learning opportunities on NDC implementation at the global and regional levels by capitalizing on our close collaboration with the UNFCCC and other strategic partners.

Citation
United Nations Development Programme. 2022. Guidance for Implementing National Voluntary Carbon Footprint Programs in Latin America. UNDP, New York.

Cover photo
Colta Lagoon
Ministry of Environment, Water, and Ecological Transition, Ecuador

Table of Contents

Index of Figures

Index of Boxes

Index of Tables

Foreword

The climate crisis requires a collective effort by all sectors to deliver on the ambitious Paris Agreement roadmap to limit the average temperature increase to 1.5°C. Meeting this goal will require, on average, a 7.6 percent cut in global emissions per year up to 2030, and this steady progress must be maintained to have any hope of achieving net-zero emissions by 2050. However, after almost achieving this target circumstantially in 2020 as a result of the mobility restrictions imposed by the global pandemic, today we're finding that "emissions are rising at record levels and are on track to increase by 14 percent in this decade", as warned by the Secretary General at the United Nations General Assembly on September 20, 2022.

In this context, it is essential that the private sector take on a much more active role in global efforts to enable us to achieve a resilient pathway. Among the many ways in which the private sector can participate in climate action, we would like to highlight the following:

- Designing innovative financial incentives and mechanisms to support and stimulate investments in climate actions and in promoting technologies with fewer or zero emissions (green bonds / green finance taxonomies, mixed finance schemes);
- Carbon pricing schemes, market mechanisms, tax schemes, and subsidy systems designed to prevent negative social impacts while promoting greenhouse gas (GHG) reduction;
- Monitoring platforms based on voluntary carbon footprint mechanisms, in which the private sector, public institutions, NGOs, multilateral organizations, and regional and municipal authorities also participate.
- Regarding this last point, the NDC Support Programme and the UNDP's Climate Promise have contributed to establishing some of the first pilots in Latin America for developing National Voluntary Carbon Footprint Programmes. This has been a key goal for the UNDP, and since 2012 a joint project has been carried out in Chile with the Ministry of Environment that explores concrete ways to account for and monitor voluntary contributions to greenhouse gas (GHG) reduction — HuellaChile.

Today, Nationally Determined Contributions (NDCs) are increasingly aspiring to carbon neutrality by 2050. Against this backdrop, this type of program becomes even more important to fostering a participatory approach of all sectors of society towards the adoption of zero-emission goals at the national and local levels.

Based on lessons learned from Chile, the Peruvian Ministry of Environment established Huella de Carbono Perú (Peru Carbon Footprint — HC-Peru) in just over two years and, today, Ecuador is progressing with the establishment of the Ecuador Zero Carbon Program in less time. This accelerated momentum is also reflected in the most recent initiative in the region, Reduce Tu Huella — Corporativo (Reduce Your Footprint — Corporate) launched by the Panama Government in 2021.

To bolster this acceleration process, it is important to have tools in place that enhance government capacity building in the region. For this reason, this publication compiles, in great detail and for the first time, a document offering concrete guidelines and success stories in the region. This guide has been specifically designed for governments that want to develop similar initiatives inspired by the case studies mentioned above. Its objective is to consolidate a detailed technical description of successful experiences in the field and, in parallel, to systematize assistance needs, as well as to review areas that might need improvement.

The guide also highlights elements for a broad vision of sustainable development goals in addition

to climate change. The experiences gathered have shown successes in the adoption of relevant mechanisms, such as renewable energy certificates, product footprint, circular economy criteria, water footprint, gender equality seal, renewable energy certificates, or preferential purchase schemes as economic incentives.

The guide also outlines how this type of mechanism can serve as a gateway to channel significant financial resources by generating demand in a potential voluntary market for high-quality carbon offset certificates. In other words, there is an opportunity to generate solid, sustained demand as an ideal scenario for the emergence of a voluntary national carbon market. The possibility of intensifying and promoting domestic carbon markets or offset mechanisms contributes to the implementation of financial strategies that would channel additional funds to priority mitigation activities for NDC implementation.

For example, the UNDP is backing a pilot in Ecuador linking results-based payment systems for REDD+ programs to the emissions neutralization processes of participants in the Ecuador Zero Carbon Program. The launch of a voluntary carbon market is expected to create an important tipping point by making deforestation-free production and reforestation more attractive.

How much does it cost? What systems are needed? How many personnel are required? These are some of the questions that will be addressed in this guide. The elements that make up a voluntary carbon footprint program are presented in detail to build the capacity of governments considering such tools. The guide also addresses common bottlenecks, such as what happens when platforms begin to deal with a higher volume of participants.

In addition, this guide aims to offer a regional baseline that will provide a regional reference for further process improvement. It is intended to serve as a platform for South-South exchanges that will contribute to the development of common standards to stimulate regional accounting and simplify metric processes. The expectation is to be able to contribute to fostering innovative ideas to achieve an economy of scale (more countries with similar schemes), exploring mechanisms to reduce those costs associated with calculation and verification.

The UNDP's Climate Promise initiative will continue to support the Regional Programme for Latin America and the Caribbean (2022–2025) and UNDP country offices by advising on national carbon footprint programs, as these have proven to have a high impact on channeling private sector efforts to contributing to the NDCs.

Lyes Ferroukhi
Regional Team Leader, Nature Climate and Energy
UNDP Latin America and the Caribbean

Introduction

Climate change, caused by an excess of greenhouse gases (GHG) in the atmosphere, is considered one of the most challenging environmental problems for the modern world. In this context, reducing and mitigating GHG sources is a major priority in the fight against this phenomenon (together with adaptation to its impacts), an approach that requires knowledge of the contribution of human activities to the build-up of GHGs. This has given rise to the concept of carbon footprint, an indicator that reflects the amount of GHGs emitted by human and production processes.

Given the information it reflects, many governments and private sector associations around the world have promoted voluntary carbon footprint measurement programs. Over the last decade in Latin America, the United Nations Development Programme (UNDP) has continuously supported the implementation of four government initiatives — in Chile, Peru, Panama, and Ecuador — called National Voluntary Carbon Footprint Programmes (NVCFPs)[1]. These programs can be defined as a mechanism to encourage voluntary management of the carbon footprint produced by an organization, territory, or product, through public recognition of actions carried out to mitigate said carbon footprint. On the path to achieving this goal, these mechanisms have even shown to be an opportunity to boost other initiatives, such as domestic carbon markets, incentives for renewable energies, promotion of the circular economy, strengthening carbon pricing mechanisms, etc.

NVCFPs are characterized by a set of technical and administrative parameters, which will be presented and described in this guide. To this end, this document seeks to systematize the experiences of the governments of Chile, Peru, Panama, and Ecuador in the development of this type of program, in order to facilitate their scaling up in the Latin American region and to establish NVCFPs as a policy instrument for climate change mitigation that contributes to aligning the private sector with the implementation of the NDCs and the long-term goal of net-zero emissions. In this regard, it is important to point out that there are parallel initiatives that are similar to NVCFPs and that are promoted by non-governmental sectors — such as the private sector —, whose membership requirements differ from those of government-managed programs. Likewise, their objectives differ as they do not necessarily contribute to the national emission reduction targets that were formally set in the Paris Agreement. Examples of these initiatives include The Carbon Disclosure Project and The Climate Registry.

In Latin America, there have already been publications on carbon footprints, such as the working paper by the Economic Commission for Latin America and the Caribbean (ECLAC), *Carbon Footprint Calculation Methodologies and their Potential Implications for Latin America*. Developed in 2010, this document analyzes the level of preparedness of the region and the short-term requirements of developed countries in terms of carbon footprint measuring and reporting, in particular, that of goods produced in and imported from Latin America[2]. However, this is the first time that an analysis of voluntary carbon footprint programs promoted by the government for the achievement of the Paris Agreement mitigation goals has been prepared.

The document is organized into four chapters. The first describes the characteristics of NVCFPs, taking note of the experiences in Latin America with UNDP backing. The following chapter describes the advantages of implementing these programs for the government and the private sector in terms of meeting the country's climate pledges as well as generating value for participating companies. The third chapter establishes a roadmap for implementing this type of program. Finally, the fourth chapter offers recommendations on how to improve these initiatives based on the lessons learned from the countries analyzed.

1 In addition to UNDP backing, Panama received funding from the Regional Collaboration Center of the UNFCCC (RCC Panama), managed through the Collaborative Instruments for Ambitious Climate Action (CiACA) and the World Bank. In Peru, the Carbon Footprint Program also received funding from the World Bank.

2 ECLAC. 2010. Carbon Footprint Calculation Methodologies and their Potential Implications for Latin America.

Chapter 1

What is a National Voluntary Carbon Footprint Programme (NVCFP)?

UNDP Ecuador

Carbon footprint is defined as the total greenhouse gases (GHG) emitted directly or indirectly by the activity of an individual, territory, organization, or product[3]. The footprint, measured in units of CO2 equivalent (CO2eq or CO2e), is an indicator that makes it possible to identify the specific activities that contribute to the increase in GHG emissions and, based on this measurement, to manage eco-efficient measures to reduce them.

So far in the 21st century, numerous public and private actors have worked to design standards and methodologies for carbon footprint measurement, as well as on the development and implementation of mandatory and voluntary programs for the quantification of GHG emissions and removals. The obligation to report emission inventories in certain organizations and contexts has led to the development of calculation methodologies, especially in the energy and industrial sectors. This is the case of facilities under the emissions-trading system in Mexico or certain power plants in Chile. This, however, has not led carbon footprinting to gain enough relevance as a tool for GHG management. In fact, there are still very few organizations that adhere to voluntary programs that encourage the calculation of the carbon footprint. However, the success of the Paris Agreement's agenda for 2030 requires a massive effort, in which the participation of the private sector is critical. Nationally Determined Contributions (NDCs) are a way to consolidate national efforts on that path to 1.5°C, and there is now talk of achieving carbon neutrality by 2050. In this regard, voluntary contributions are key, and national carbon footprint programs are a valuable mechanism to account for and combine these valuable efforts.

For this reason, in Latin America, the UNDP has provided technical and financial support to several pioneering programs in the region, including in Chile, Peru, Panama, and Ecuador. NVCFPs can be defined as mechanisms or tools used by national governments to give recognition to the appropriate voluntary management of GHG emissions carried out not only by organizations (public or private), but also by territories (such as municipalities), and products (goods and services), operating at the local or national level.

This first chapter will provide an explanation of the basic concepts and elements of NVCFPs, with an introduction to the main objectives of this type of initiative in the first section. Moving forward, the second and third sections, respectively, outline the international standards for carbon footprint measurement, and the approaches to which each of these standards are directed. The fourth section describes the aspects that lend credibility to the program, addressing issues such as transparency and the risk of greenwashing, among others.

The fifth section deals with the management structure of NVCFPs, which is composed of the levels of emissions management that a program could encompass and the recognition system for reaching each of these levels. Subsequently, the sixth section presents the NVCFPs that the UNDP backs in Latin America and that are currently in operation. To supplement, the seventh section briefly describes voluntary carbon footprint measurement programs that have been developed by other national governments and/or backed by other cooperation agencies, in order to identify the similarities and differences that may exist among the various initiatives. Finally, the eighth section of this chapter explores three voluntary carbon footprint-related programs that are not linked to governments and are primarily targeted at the private sector.

Figure 1. Certificates and recognition awards (Panama, 2021).

3 ECLAC. 2010. Carbon Footprint Calculation Methodologies and their Potential Implications for Latin America.

1.1. NVCFP objectives

Without claiming to cover all the potential objectives that could support the creation and operation of a national and voluntary GHG measurement and registry program, below are some elements that have arisen from the ongoing experience in Latin America:

- **Motivate** organizations, territories, and products to quantify and consolidate information on their GHG emissions, and to report them through formats that are appropriate for national needs and purposes. This, in turn, could contribute to simplifying and cutting the costs involved in the generation/collection of information for the periodic construction of the National Greenhouse Gas Inventories (NGHGI).
- **Provide** transparent tools to help organizations, territories, and products prepare a GHG inventory that is representative of their actual emissions, through the application of standardized national and ideally regional/global approaches and principles.
- **Collaborate** in the monitoring of policies and/or programs that contribute to achieving NDC and Long-Term Strategy (LTS) goals, which may be implemented at an organizational, territorial, or product level.
- **Incorporate** voluntary (spontaneous) public and private sector initiatives in the efforts to meet national climate change pledges, undertaken in the framework of international agreements such as the Paris Agreement. Incorporating these contributes to the scaling and growth of the ambition of NDC and LTS goals.
- As a participation incentive, **award** recognition to organizations, territories, and products that voluntarily manage their GHG emissions.
- **Identify** and support the establishment of new GHG reduction and carbon neutrality strategies that contribute to increasing process efficiency and reducing sectoral carbon intensity.
- **Establish** and promote complementary mitigation instruments, such as carbon markets, renewable energy certificates, clean production agreements, access to public procurement, access to international markets, tax incentives, etc.
- **Support** the public and private sectors, and citizens in general, in capacity building/development on issues related to carbon accounting and the fight against climate change.

Governments, as part of their national NDC implementation strategy, should clearly and publicly determine what objectives an NVCFP pursues, as well as the approaches for which it will be designed and to which it will give recognition. To define this second aspect, it is necessary to know the international norms or standards that establish the approaches and determine the technical conditions for calculating the carbon footprint, in order to define which of them fit the needs of each country.

Santiago de Chile
UNDP, Chile

1.2. International norms or standards for GHG emissions quantification

The accounting and reporting of GHG emissions, in the specific context of an NVCFP, is carried out according to the international standards followed by the initiative. Once these have been defined, these norms or standards will make it possible to:

- **Prepare** GHG inventories in a simplified and standardized way, thereby cutting costs.
- **Provide** information to design GHG management and reduction strategies.
- **Improve** transparency in the accounting system at the national level, which could facilitate linkages that pave the way for potential integration in carbon footprint measurement at the regional or global level.
- **Compare** GHG inventories over time.

In addition, using international standards contributes to the development of a consistent registry indicating the limits, methods, and other elements that have been implemented to manage GHG emissions.

At present, there are three widely recognized international standards: a) the GHG Protocol; b) PAS Standards; and, c) ISO Standards.

a) The GHG Protocol, published in 2001, was the first initiative for emissions accounting. It was developed by the World Resources Institute in conjunction with the World Business Council for Sustainable Development.

At present, this guide comprises several different standards, including:

- *The Corporate Accounting and Reporting Standard*, which is the most widely implemented guideline by companies for quantifying their GHG emissions and preparing their voluntary reports.[5]
- *The Project Quantification Standard,* which serves to quantify GHG emission reductions from specific projects.[6]
- *The Global Protocol for Community-Scale Greenhouse Gas Emission Inventories*, which provides cities and local governments with a robust, transparent, and globally accepted framework for identifying, calculating, and reporting city-wide GHG emissions.[7]
- *The Mitigation Goal Standard*, which provides guidelines for designing sustainable climate strategies at national and subnational levels.[8]

Each of these standards establishes a global framework for measuring and managing GHG emissions generated by public and private companies, at the value chain level, and also integrates guidelines for mitigation actions. In addition, the GHG Protocol offers online training modules on using its standards and tools.[9] In the context of the Paris Agreement, these standards, tools, and training modules help national and subnational governments monitor progress towards their climate targets.

b) PAS Standards (Publicly Available Specification), developed by the British Standards Institution, respond to the specifications of the ISO Standards, as well as the recommendations of the GHG Protocol.[10] They include:

- **The PAS 2050 Standard**, published in 2007, which focuses on emissions generated during a product's life cycle. It was the first specification to make free software available to the public for calculating emissions, which contributed to its widespread dissemination. This guide differentiates between two types of life cycle:
- Business to Business, when a product's life cycle ends with its delivery to another organization, which will then use it to manufacture another product.
- Business to Customer, when the product's life cycle includes activities after it is delivered to the customer/user.
- **The PAS 2060 Standard**, presented in 2010, which calculates emissions by organizations and territories. This tool is relevant in relation to good practices for offsetting non-reducible emissions and is aimed at organizations seeking to become carbon neutral.

5 Standard available at https://ghgprotocol.org/corporate-standard.
6 Standard available at https://ghgprotocol.org/standards/project-protocol.
7 Standard available at https://ghgprotocol.org/greenhouse-gas-protocol-accounting-reporting-standard-cities.
8 Standard available at https://ghgprotocol.org/mitigation-goal-standard.
9 Training modules available at https://ghgprotocol.org/training-capacity-building.
10 These standards can be purchased at https://shop.bsigroup.com/search?query=&type=all.

c) ISO Standards (International Organization for Standardization) are based on GHG Protocol and PAS 2050 Standard guidelines, and arose from an international public and private consensus.[11] Standards related to NVCFPs include:

- **The ISO 14064 Standard**, which was last updated in 2019. This standard is divided into three parts: ISO 14064-1, organization-level specification and guidance for quantifying and reporting GHG emissions and removals; ISO 14064-2, project-level specification and guidance for quantifying, monitoring, and reporting GHG removals; and ISO 14064-3, specification and guidance for verifying and validating GHG claims.[12]
- **The ISO 14067 Standard**, introduced in 2018, which focuses on quantifying and communicating a product's carbon footprint. Quantification is based on life-cycle assessment standards: ISO 14040 and ISO 14044. Communication is based on environmental labels and declarations standards: ISO 14020, ISO 14024, and ISO 14025. It also provides guidelines for the quantification and communication of a product's partial carbon footprint. This standard is broad and can be applied to different product categories (goods and services); however, it does not address the issue of emissions offsets.

Parallel to these standards, there are other standards such as the *Bilan Carbone*, which was developed by the French Environment and Energy Agency in 2002. This tool, which is based on elements of the GHG Protocol and ISO 14064, takes account of company, territory, and product emissions. In view of the subsidies given by the French government to companies using this standard, and the speed and ease of converting data on production activities (energy consumption, number of vehicles and distance traveled, tons of steel purchased, etc.) into emissions values, the *Bilan Carbone* is the standard methodology in France for carbon footprint measurement. However, although the creation of a national standard can help in aligning the quantification and reporting of emissions to national needs, in general terms, this requires the investment of resources (economic and personnel) that cannot always be provided by the government and that could be better invested in a more robust implementation of an NVCFP in line with international standards.[13]

Additionally, these standards require the use of GHG emissions calculation methodologies. These methodologies have been developed over time by the international community, trying to strike a balance between the accuracy required in the calculations and the effort required to measure GHG emissions in all emission sources present in an industrial facility or other type of company. In this sense, as indicated in the GHG Protocol, the measurement of GHG emissions through direct monitoring/measurement is possible, and there are some regulated fixed sources that integrate measurement systems. However, direct measurement is not common as it is a costly and complex process, and is not used in most of the experiences detailed in this guide.

Taking into account this consideration, the most frequent approach to calculating emissions from a source is based on the application of emission factors to the activity data.

Activity data is the quantitative measurement of an activity that generates GHG emissions or removals. It is expressed in units of energy, mass, volume, distance, and quantity, among others. Emission factors, conversely, are ratios that are determined on the basis of actual measurements that are extrapolated (and even regionalized or nationalized), allowing a GHG quantity to be related to a unit of activity measurement (activity data) of a specific emission source. In this way, the emission values of a source are estimated over a period of time.

Activity data can be measured on the basis of a company's activity, while emission factors can be calculated at an organizational or national level, taking into account the dynamics of the processes themselves. In addition, there are international databases for these parameters that can be used in the absence of the technical and economic capacity to perform their own calculations.[14,15] The decision to build national data and factors or to use generic values depends on the capabilities of the country or the implications of using an approximate value (such as, for example, the fiscal implications derived from the level of emissions in power plants), and so it is advised to build own activity data and factors, based on internationally standardized calculation methodologies.

From the description above, it is clear that the standards address different approaches to carbon footprint measurement. Approaches refer to the boundaries that are drawn to consolidate GHG emissions, i.e., whether the carbon footprint is being measured in a corporate (organization), territorial (communities or municipalities, for example) context, or whether it looks at the life cycle of a product. For the design and implementation of an NVCFP, it is essential to know and select which of these approaches will be addressed, which is why the following section will discuss this topic in more detail.

Torres del Paine National Park
UNDP, Chile

11 These standards can be purchased at https://www.iso.org/obp/ui#home.

12 SGS. 2011. Understanding the requirements of the greenhouse gas inventory verification.

13 Table 3 indicates which of these standards have been adopted by UNDP-backed NVCFPs in Latin America, and which guide other similar programs around the world.

14 Table 3 indicates which sources of emission factors are used by UNDP-backed NVCFPs in Latin America, and which are used by other similar programs around the world.

15 More details about these parameters can be found in Table 11 (Chapter 3).

1.3. Approaches to carbon footprint measurement

There are multiple approaches to carbon footprint measurement, the main ones being:

- **Organizational**
- **Territorial**
- **Product (including goods and services)**
- **Individual**

NVCFPs can address all or several of the above-mentioned approaches, depending on the country's development conditions, objectives, and available resources. During the first commitment period of the Kyoto Protocol (2008–2012), these approaches integrated the measurement of six GHGs: carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). Subsequently, nitrogen trifluoride (NF_3) was also added for the second commitment period (beginning in 2013), as its warming potential is 17,200 times greater than that of CO2.[16] Emissions of these gases, especially the first three, have increased considerably since the industrial revolution due to human activity, and have become the main culprits of the Earth warming at this accelerated rate.

Each of the four approaches is described below, based on the technical standards issued for their operationalization.

1.3.1. Organizational

This approach is governed by the guidelines of the GHG Protocol and ISO 14064-1, and covers GHG emissions generated by all of an organization's own operations and subsidiaries over a given period of time (e.g., one year). An organization is defined as any entity — public, private, civil society, non-profit, etc. — that quantifies its GHG emissions.

Relevant to this approach is the concept of "operational control", which refers to the full authority that an organization or one of its subsidiaries has to introduce and implement policies in operations. On this basis, a company can account for 100 percent of the GHG emissions generated by the operations it controls and should not quantify emissions from operations in which the company has a stake but does not have control over.[17]

Within this approach, emissions are calculated according to three scopes, as illustrated in Figure 2.

- **Scope 1** or direct emissions covers GHG emissions from sources that an organization owns or controls directly, for example, from burning fuel.
- **Scope 2** or indirect emissions covers the third-party generation of purchased electricity, heating, or steam consumed by the reporting company. This would be the case of emissions caused by power consumption from interconnected networks.
- **Scope 3** or other indirect emissions, which are associated with GHG sources that are not owned or controlled by the reporting company, such as emissions generated by suppliers of raw materials or by the management and disposal of end-of-life products.

At a minimum, companies must separately account for and report all Scope 1 and 2 emissions. Scope 3 emissions are optional, although this is beginning to change in reporting programs.

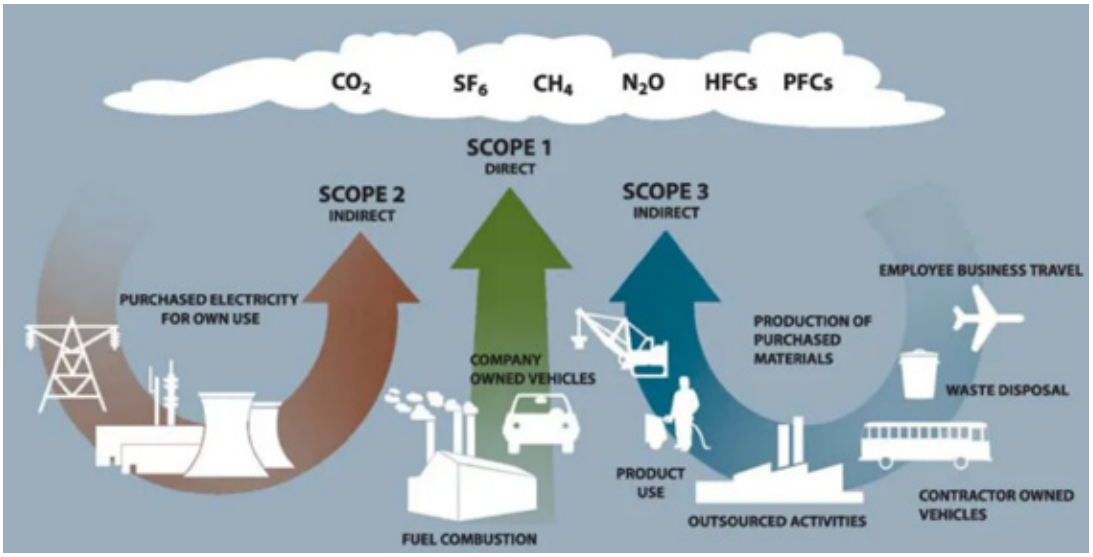

Figure 2. Scopes in measuring the carbon footprint of organizations.[18]

Table 1. Examples of carbon footprint from the organizational approach.

Scope	Source	GHG emissions (tCO2eq)		Total
		Partial	Total	
Company A. Mining company (Carbon footprint 2019) Activity: Production of mined precious metals (high-grade silver and gold).				
Scope 1	Generation of other power	425.18	25,645.26	44.00%
	Own transportation	24,823.67		
	Other source	396.41		
Scope 2	Electricity consumption	30,949.40	30,949.40	53.00%
Scope 3	Transportation of supplies	80.46	1,725.73	3.00%
	Other source	1,645.27		
		Total:	58,320.39	100.00%
Company B. Manufacturing company in the hydrocarbon sector (Carbon footprint 2021) Activity: Manufacture and marketing of lubricants and greases.				
Scope 1	Electricity generation	0.48	941.38	60.45%
	Generation of other power	867.65		
	Own transportation	62.63		
	Refrigerants	10.62		
Scope 2	Electricity consumption	213.28	213.28	13.70%
Scope 3	Water consumption	1.58	402.52	25.85%
	Paper consumption	1.33		
	Transportation of supplies	54.14		
	Waste generation	175.07		
	Home-to-work transportation	170.40		
		Total:	1,557.18	100.00%
Company C. Company in the fishing sector (Carbon footprint 2018) Activity: Extraction, transformation, and commercialization of hydrobiological resources for direct, indirect, and non-food human consumption				
Scope 1	Generation of other power	165,732.24	222,952.93	95.50%
	Own transportation	57,220.69		
Scope 2	Electricity consumption	10,585.95	10,585.95	4.50%
		Total:	233,538.88	100.00%

Prepared by: Author.

16 UNFCCC. 2012. Doha amendment to the Kyoto Protocol.

17 World Resources Institute and World Business Council for Sustainable Development. 2004. A corporate accounting and reporting standard — GHG Protocol.

18 World Resources Institute and World Business Council for Sustainable Development. 2004. A corporate accounting and reporting standard — GHG Protocol.

For a better understanding of the organizational approach and its scopes, Table 1 shows the GHG inventory data of three types of companies participating in the Peru Carbon Footprint Program.

A comparison of the data for the three companies shows that the volume of emissions varies depending on the production sector to which they belong. Thus, Scope 2 sources generate most GHG emissions for the mining company, while Scope 1 sources generate most GHG emissions for companies in the hydrocarbon and aquaculture sectors. It is also noted that Scope 3 sources represent a minimal contribution to total carbon footprint.

1.3.2. Territorial

Governed by the GHG Protocol guidelines, this approach seeks to determine the quantity of GHG emissions of a geographic territory, which may be a municipality, a prefecture, a region within a country or a city, among others. As with the organizational approach, three emissions scopes are considered for territories, as shown in Figure 3.

- **Scope 1** or direct emissions, which come from direct sources that are within the boundaries established for the territory of interest.
- **Scope 2** or indirect emissions, which are produced by the generation of power outside the boundaries of the territory of interest, but which is consumed within the boundaries of the territory of interest.
- **Scope 3** or other indirect emissions, which are those that occur outside the boundaries of the territory of interest as a result of activities carried out within the boundaries of the territory of interest. Emissions from the exchange of goods and services between territories can also be included in this approach.

In particular, the carbon footprint of cities is a relevant indicator because, at present, between 60 percent and 80 percent of global GHG emissions are generated in these territories. In this vein, the transportation, industrial, residential, and solid waste sectors produce the highest emissions in cities, and therefore addressing these sectors can represent attractive management opportunities, both from an environmental and economic vantage point.[20]

To illustrate the measurement of a territory's carbon footprint, Table 2 shows the GHG inventory of the commune of Vitacura, located in the city of Santiago, province of Santiago, in the Metropolitan Region of Chile. This inventory corresponds to the year 2019 and was reported in the context of the HuellaChile program, administered by the Chilean government.

19 World Resources Institute. 2014. Global protocol for community-scale greenhouse gas emission inventories. An accounting and reporting standard for cities.

20 Proyecto Huella de Ciudades (Cities' Footprint Project). 2014. Carbon Footprint.

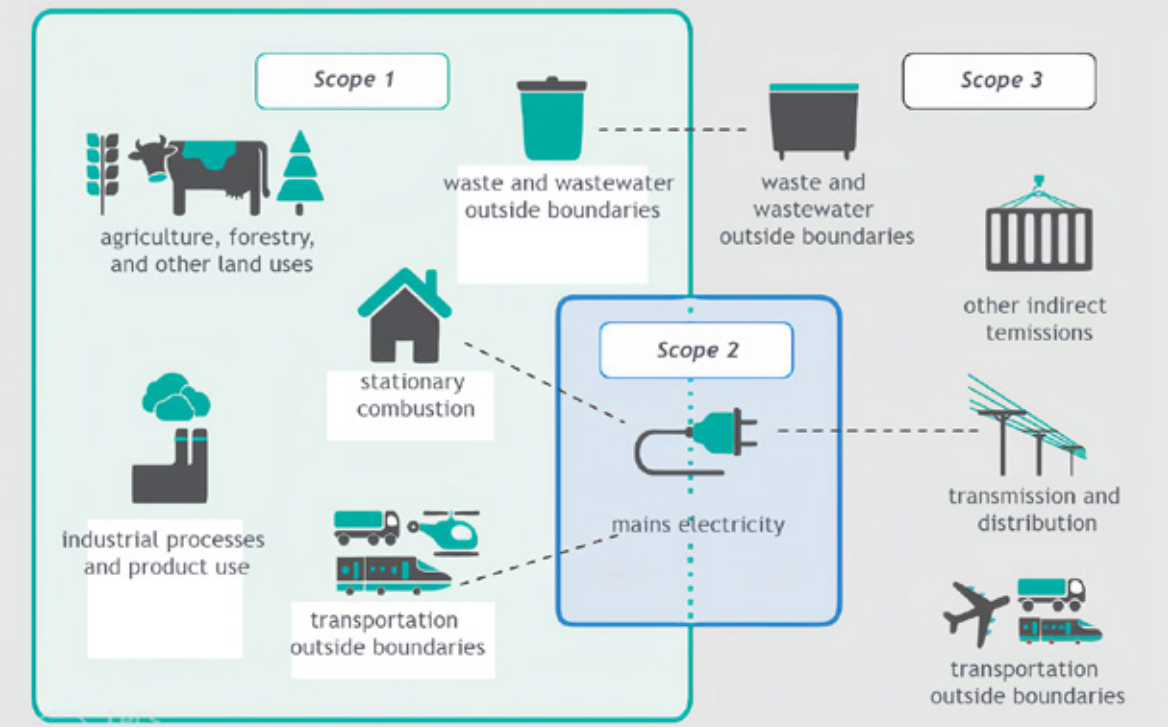

Figure 3. Scopes in measuring the carbon footprint of territories.[19]

Table 2. Carbon footprint of the Vitacura commune in Chile.

Sector	Emission source	GHG emissions (tCO2eq)		
		Scope 1	Scope 2	Scope 3
Stationary power	Residential buildings	NE	59,015	NO
	Commercial and institutional buildings	NE	71,693	NO
	Manufacturing and construction industries	NO	NO	NO
	Power industries	NO	NO	NO
	Generation of power supplied to the grid	NO	-	-
	Agriculture, forestry, and fishing	NO	NO	NO
	Subtotal by sector:	-	130,708	-
Transportation	Road transportation	Transportation	NE	NE
	Railroad	NE	NE	NE
	Maritime navigation	NO	NO	NO
	Aviation	NO	NO	NO
	Off-road	NO	NO	NO
	Subtotal by sector:	559	-	-
Waste	Solid waste generated in the city	NE	-	18,307
	Solid waste generated outside the city	NO	-	NE
	Biowaste generated in the city	NO	-	NO
	Biowaste generated outside the city	NO	-	NE
	Incineration and burning in the city	NE	-	-
	Incineration and burning outside the city	NO	-	-
	Wastewater generated in the city	NO	-	-
	Wastewater generated outside the city	NO		-
	Subtotal by sector:	-	-	NO
Industrial processes and product use		NO	-	-
Agriculture, forestry, and other land uses		NO	-	-
Other Scope 3 emissions		-	-	NO
	Subtotal by scope:	559	130,708	18,307
	TOTAL:	149,574		

Prepared by: Author (NE — Not Estimated, NO — Not Occurring).[21]

21 Information taken from: Adapt Chile Association. 2020. Report on experiences and lessons learned in local government in Chile.

In the Vitacura commune, commercial and institutional buildings generate the most GHGs, followed by residential buildings. In addition, for most categories related to transportation and waste, GHG emissions have not been calculated or these processes simply do not occur within the jurisdiction. This breakdown of information provides an overview of the territory's economy, which will allow its governors to design GHG reduction strategies that are adjusted to the reality of the people who live there.

1.3.3. Products: goods and services[22]

This approach is mainly governed by the ISO 14067 standard, which measures the GHG emissions generated during the different stages of a product's life cycle, whether it's a good or service, including its manufacture, assembly, marketing, distribution, export, import, and/or use by natural or legal persons, private or mixed, domestic or foreign, for profit or not-for-profit, inside or outside the national territory.

Calculating the carbon footprint of **goods** is complex, and due to its methodology, results are accompanied by a high degree of uncertainty. This measurement, as shown in Figure 4, begins with the procurement of raw materials, followed by manufacture and distribution, and culminating with the final disposal of the product (reuse, recycling, or disposal).
Specifically, each of these stages covers:

- **Procurement of raw materials.** Begins with the extraction of resources until the raw materials enter the production process. This stage includes mining activities (including emissions from the machinery used), waste generated during extraction and pre-processing of materials for production, fertilizers (production and application), transportation of materials for production, and temporary storage of raw materials, among other activities.
- **Manufacture of the good**. Begins with the entry of the raw materials into the production process and ends with the output of the manufactured good.
- **Distribution of the good**. Begins when the manufactured good leaves the production site and ends when it is acquired by a user. Distribution includes transportation activities, whether by land, air, sea, or other means, and temporary storage of the product.
- **Final disposal of the good**. Begins with the good being discarded by the user and culminates with it being returned to nature or allocated to the life cycle of another product. Final disposal activities include waste collection, packaging, and transportation; dismantling of end-of-life products; shredding and sorting; recovery of organic matter; incineration, etc.

In some cases, the product focus of an NVCFP may include the measurement of GHGs generated by the use or consumption of the good. This stage begins with the user taking possession of a good and ends when it is dispatched for final disposal. Moreover, depending on the program, the partial carbon footprint of the good can also be calculated. Accordingly, two types of measurement can be distinguished:

- Total product carbon footprint, comprising GHG emissions and removals throughout all the stages of the good's life.
- Partial product carbon footprint, which includes GHG emissions and removals from one or more stages of the production process under analysis.

For a **service**, the calculation of emissions always covers:

- Direct emissions from: a) stationary or on-site sources, such as electric generators; b) mobile sources, such as vehicles owned by the service provider; and c) fugitive sources, such as refrigeration systems.

22 Taken mainly from: MAATE (Ministry of Environment, Water, and Ecological Transition). 2021. Technical Standard for the Product Scope of the Ecuador Zero Carbon Program. First version.

23 Román López, Teresa. n.d. Life Cycle Analysis of a product, what it is, objective, origin, how it is performed, benefits.

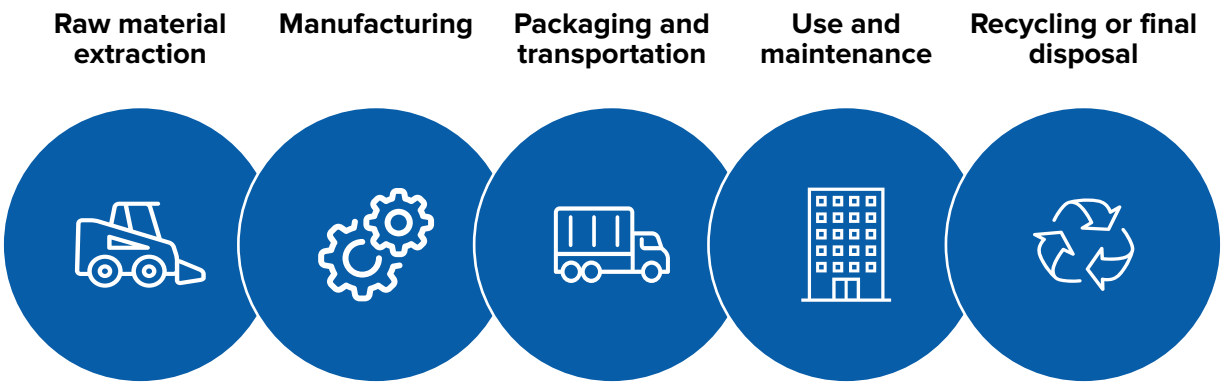

Figure 4. Stages of the product life cycle.[23]

- Emissions generated by the purchase of electricity;
- Emissions generated by journeys made by workers, contractors, and consumers/users of the service.
- Emissions generated by the accommodation of workers, contractors, and consumers/users of the service (if applicable).
- Emissions from the management of waste generated by the service.
- Embodied emissions from fuels used for the delivery of the service.
- Emissions from the transportation of products associated with the delivery of the service.

One particular case within the product-service approach is the measurement of the carbon footprint of an event. For this activity, the emissions described above are considered, in addition to those that have been produced by the services, materials, and power used before, during, and after the event.

One event that estimated and offset part of its carbon footprint was the Russia 2018 Soccer World Cup. Using the Climate Neutral Now calculator, managed by the United Nations Framework Convention on Climate Change (UNFCCC) Secretariat, the GHG inventory under FIFA's operational control was estimated to be 2,167,118 tCO2eq.[24] Of this, a total of 243,000 tCO2eq were offset with emission reduction certificates under the Kyoto Protocol's Clean Development Mechanism.[25] Likewise, 2.9 tCO2eq were neutralized for each air trip from abroad to Russia (indirect emissions), with a total limit of up to 100,000 tCO2eq. This meant that emissions from nearly 34,500 fans who attended the event were neutralized.[26] Table 3 shows the main sources of the World Cup's carbon footprint.

It is relevant to mention that two of the main obstacles to deploying the product approach are: a) the requirement of highly specialized techniques to perform the calculations, and b) the necessary inclusion of suppliers' emissions, which may limit the independence of the measurement and increase the degree of subjectivity.

24 FIFA. 2016. 2018 FIFA World Cup — Greenhouse gas accounting report.
25 FIFA. 2021. FIFA Climate Strategy.
26 UNFCCC. 2018. 2018 FIFA World Cup and the UN Score Climate Action Goal.
27 FIFA. 2016. 2018 FIFA World Cup — Greenhouse gas accounting report.

Table 3. Main GHG sources of the Russia 2018 Soccer World Cup in tCO2eq.

Scope	Main scope sources	GHG emissions (tCO2eq)		Percentage
		Partial	Total	
Scope 1	Stationary combustion	8,159	8,641	0.40%
Scope 2	Electricity consumption	21,776	21,921	1.01%
Scope 3	Travel	1,600,246	2,136,556	98.59%
	Accommodation	253,006		
	Food and beverages	105,695		
	Temporary facilities	91,792		
		Total:	2,167,118	100.00%

Prepared by: Author.[27]

1.3.4. Others: Individuals[28]

There is no specific quantification standard for this approach; however, for its emissions calculator developed for the Climate Neutral Now initiative, the United Nations (UN) follows the GHG Protocol guidelines as a general framework (although some of these principles may not be applicable to an individual's carbon footprint measurement).[29]

According to the aforementioned calculator,[30] the individual carbon footprint accounts for the generation of GHGs from a person's daily activities — travel, food, electricity consumption, among others — in a given country. Average individual emissions vary between countries, depending on their level of development and their inhabitants' access to resources. For calculation purposes, the individual carbon footprint can be divided into primary and secondary footprint.

The primary footprint is the sum of direct GHG emissions caused by the burning of fossil fuels, including domestic power consumption and transportation.

The secondary footprint covers indirect GHG emissions, i.e., emissions generated during the life cycle of products consumed by an individual, from manufacture to disposal.

In general, NVCFPs do not include the individual carbon footprint among their measurement approaches. However, if an individual is interested in learning their GHG emissions, there are free online tools available, such as the UN's carbon footprint calculator.[31] This application, whose interface is shown in Figure 5, takes into account domestic considerations — type of house, size, electricity consumption —, transportation and lifestyle habits — meat consumption, consumption of local products, waste management — to perform the quantification. The result obtained can be used as a guide to define the type of personal actions that could help reduce individual GHG emissions.

Having reviewed the approaches to carbon footprint measurement, it is now important to address the issue of NVCFP credibility. Credibility is a defining factor in the participation of public and private organizations, as it is a measure of the degree of trust and seriousness offered by the initiative.

28 Schneider, Heloisa and Joseluis Samaniego. 2009. Carbon footprint in the production, distribution, and consumption of goods and services.

29 United Nations Climate Change Secretariat. 2020. GHG Footprint Calculator for Individuals. Methodology.

30 Calculator available at: https://offset.climateneutralnow.org/footprintcalc.

31 Other free personal calculators have been developed by the Global Footprint Network (https://www.footprintcalculator.org/home/en), the Chilean initiative Mi Huella de CO2 (https://calcula.mihuella.cl/carbono/comenzar), and other organizations.

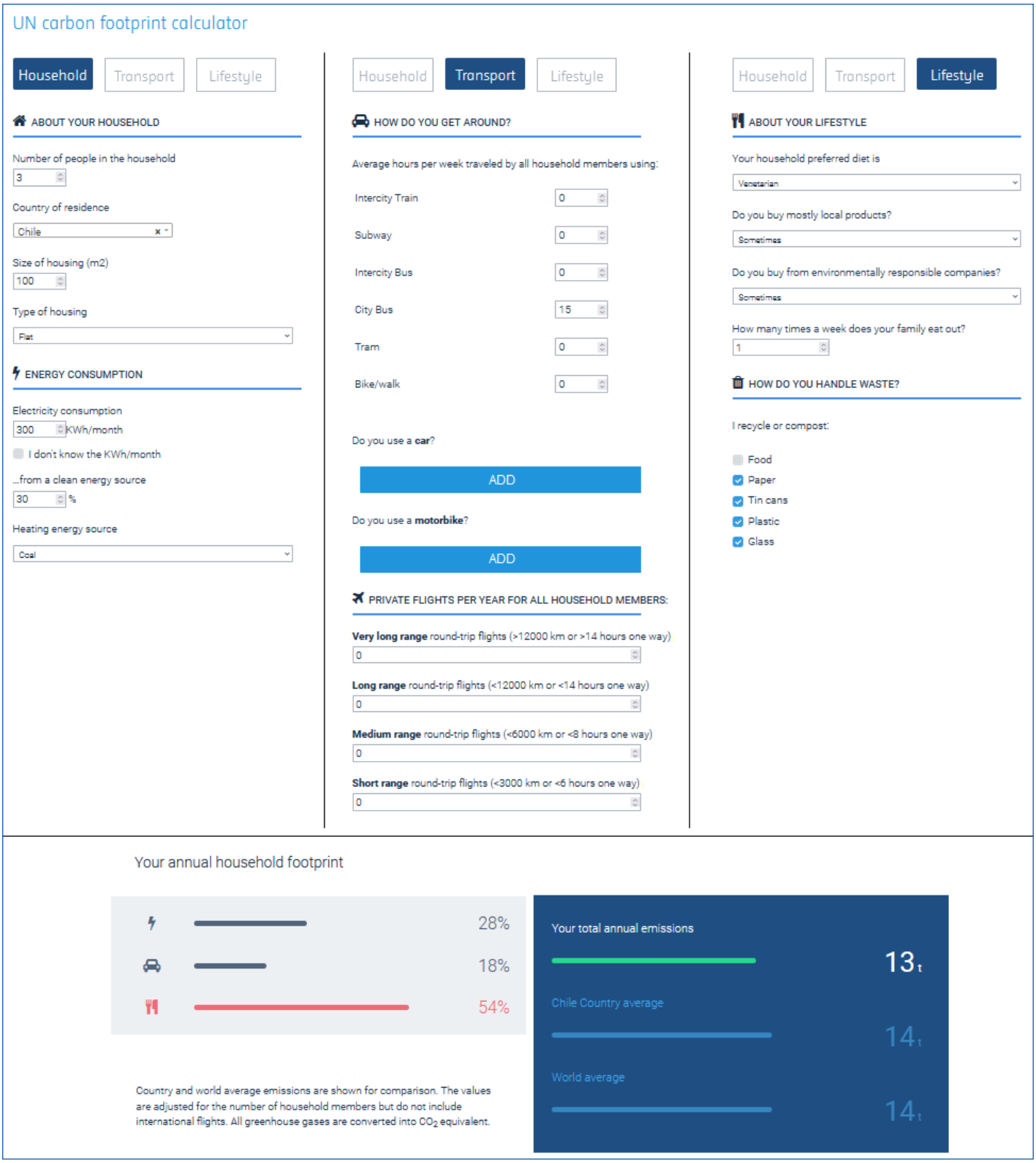

Figure 5. United Nations carbon footprint calculator interface.

1.4. NVCFP credibility[32]

In the design and implementation of a reliable and truthful NVCFP, it is imperative to address at least the following criteria:

- Transparency, due to the doubts that could arise about the purposes of the program or about the use of the information disclosed by participants.
- Reliability and accuracy of the results provided by the available online calculation and reporting tools.
- Clear explanation of the verification processes accepted by the program.
- Allowable level of use of carbon credits within participants' carbon neutrality strategies and the risk that there are program participants whose primary objective is greenwashing.

1.4.1. Transparency

Transparency works in two ways. On the one hand, when an organization, territory, or product has met the initial requirements and is officially accepted as a participant in an NVCFP, it is obliged to report all relevant information (GHG emission sources and reductions) and ensure that this is traceable. This includes any suppositions, assumptions, or omissions — which must be duly justified — that allow the results to be assessed and replicated.

In this regard, it is of utmost importance to properly select the boundaries of the inventory so that it reflects the essence and economic reality of the organization, territory, or product. These boundaries will depend on the characteristics of the process or entity being inventoried, the purpose for which the information will be used, and the needs of the users. The following must be considered when choosing these parameters:

- Operational boundaries: activities within the company's own facilities or those carried out externally, and processes, services, and impacts. This is related to the scopes or categories in the measurement of the carbon footprint, according to the (standard) quantification methodology used.
- Context of the organization, territory, or product: nature of the activities, geographical location, industrial sector.[33]

On the other hand, the NVCFP should present and publish in a clear, effective, neutral, and understandable manner the information related to the processes, procedures, and limitations under which it operates. Likewise, it should ensure that the data provided by the participants will be recorded, compiled, and analyzed only for the purposes established in the program. In this regard, it is vital that the NVCFP communicates the level of exposure that the recorded information will be given. A common practice, for example, is to present carbon footprint results by sector, i.e., the cumulative value of a sector's GHG management rather than a disaggregated exposure by organization.[34]

1.4.2. Accuracy and reliability of carbon accounting

Accuracy ensures that the quantification of GHG emissions and removals does not include systematic errors or deviations, be they over or under, in the actual values as far as can be technically assessed, and in such a way that the uncertainty of the process is minimized. In this regard, it is important to note that the calculation of emissions depends on several parameters, such as emission factors, GHG conversion factors, activity data, and others, which may be referential or based on specific data of the process under measurement. In any case, prior to their use, the representativeness and applicability of these parameters should be evaluated according to the characteristics of each organization, territory, or product, with the purpose of achieving an appropriate accuracy that allows system users to make decisions with reasonable confidence regarding the integrity of the information reported.

In general, NVCFPs usually offer online tools or programmed spreadsheets for initial GHG accounting. In these cases, programs should implement quality controls at points in the inventory where error is most likely to occur, such as the data-collection phase.

In terms of reliability, the NVCFP should ensure that the same methodologies and defined and updated set of data are used in successive calculations of emissions or carbon sinks.

32 The aspects covered in this section are discussed in more detail in the third chapter — online tools for GHG calculation, quantification methodologies, and verification processes — and the fourth chapter — risk of greenwashing — of this guide.

33 World Resources Institute and World Business Council for Sustainable Development. 2004. A corporate accounting and reporting standard — GHG Protocol.

34 A reference for this is the Peru Carbon Footprint Statistics module, which displays the GHG emissions reported by year and economic activity. Available at: https://huellacarbonoperu.minam.gob.pe/huellaperu/#/estadisticas.

1.4.3. Verification processes accepted by NVCFPs

The verification process comprises the actions aimed at validating the GHG emissions and removals quantification information (as the case may be) reported by organizations, territories, and products. This process shall be carried out by an independent third party, i.e., a body that is not involved with the program implementer (the government, in this case) or the program participant (party to be verified). Verification bodies shall ensure that organizations, territories, and products comply with the methodologies adopted by the program (GHG Protocol, ISO Standards, etc.) and other program provisions. At the end of the process, these entities should issue a certificate containing basic information such as the emissions measurement period, organizational boundaries, operational boundaries, excluded GHG sources and justification as to why, among others.[35]

Depending on the NVCFP, the verification bodies must be nationally or internationally accredited, in accordance with the corresponding national technical standards or their international equivalents.

1.4.4. Use of carbon credits and greenwashing risk

Greenwashing is the dissemination of false or incomplete information by an organization in order to present an environmentally responsible public image[36]. In the context of an NVCFP, an organization may adhere to the program and publicize this fact with the sole aim of improving its image when, in practice, it continues to carry out environmentally damaging actions (which may not be limited to the area of climate change but may reach other fields). In this vein, there have been cases of companies undertaking/supporting tree-planting projects, using them as a means of offsetting emissions, which then opt for fast-growing exotic species that deteriorate soils or cut down trees after a few years of existence.

As a result, public knowledge of this phenomenon may raise questions about the NVCFP's objectives and its mode of operation. This could discourage the addition of organizations that have a genuine commitment to environmental friendliness, and raise customer and consumer skepticism of companies and products that claim to be low in GHG emissions.

As for carbon credits, these may be considered excessive and unjustified, particularly if this activity is carried out outside of a comprehensive strategy that begins with verified emission reduction efforts by an organization or product. This could be perceived as greenwashing, as the company or product could be recognized publicly for proper GHG management, which would improve its image in the eyes of current and potential customers and investors, and would also give it a competitive edge in the market. In this sense, without clear criteria and transparent verification processes, an NVCFP could be taken as a mechanism that contributes to the greenwashing of an organization's image, thus completely deviating from its objectives.

From what has been explained so far, it is clear that in designing an NVCFP, national governments must address a number of aspects — objectives, international quantification standards, approaches, credibility — that should be tailored to the particular circumstances and purposes of the implementing country. Depending on how countries design and/or select these criteria, they will be able to provide their participants with relevant resources for determining actions that are economically and environmentally sustainable. In this regard, the following chapters provide recommendations that governments can follow to establish these elements (Chapter 3, Section 3.1.1, discusses the design of objectives and the adoption of standards and approaches; Chapter 4, Section 4.2, discusses the use of carbon credits and the risk of greenwashing).

While paying adequate attention to the above elements is vital to encourage greater private sector participation in voluntary carbon footprint measurement initiatives, the key attribute is the management structure proposed by the NVCFP. This structure will be described in the following section, addressing the possible levels of GHG management, the recognition system, and the general outline of the management structure.

35 World Resources Institute and World Business Council for Sustainable Development. 2004. A corporate accounting and reporting standard — GHG Protocol.

36 Furlow, Nancy. 2010. Greenwashing in the New Millennium. Journal of Applied Business and Economics.

1.5. NVCFP carbon footprint management structure

Having described the main characteristics of an NVCFP, this section explains its management structure, taking as a reference the UNDP-backed initiatives in Latin America, i.e., the voluntary programs administered by the governments of Chile, Peru, Ecuador, and Panama. For these cases, there is a clear view of how program implementation and management processes have evolved.

Management structure refers to the actions that organizations, territories, or products — as participants in an NVCFP — must take to measure and reduce their carbon footprint. This structure is made up of two main elements: the management levels and the system for recognizing the efforts of organizations to meet the requirements of each management level. These two elements are elaborated in the first and second subsections, culminating in a third section in which a general outline of the GHG management structure of an NVCFP is presented and explained.

1.5.1. Levels at which GHG emissions management is recognized

To assess GHG emissions and reductions, an NVCFP can establish several tiered levels of management. For a better understanding, these levels have been grouped into primary and secondary levels. The former directly address the purpose of the program, i.e., the measurement and reporting of the carbon footprint for a given approach. The latter comprise actions that may go beyond the context of the NVCFP, such as linking reduction measures to NDCs.

It should be noted that the primary and secondary levels described above are not the only ones possible; each NVCFP may establish different management structures according to its conditions and goals.

Primary levels:

a) Emissions quantification level

Includes organizations, products, and territories that have calculated their GHG emissions inventory as specified in the technical norms designed or standards adopted by each NVCFP.

b) Emissions reduction level

Made up of organizations, products, and territories that, after having calculated their GHG inventory, have implemented and quantified reduction actions in their emission sources, but have not yet neutralized their annually reported emissions.

c) Emissions offset level

Formed by the organizations, products, and territories that, after having implemented and quantified GHG reduction actions, have taken offsetting measures — through the mechanisms permitted by the national program — for part of their remaining emissions. Accepted offsetting mechanisms may be international (such as those linked to the CDM mechanism originating from the Kyoto Protocol), from international GHG programs such as Verra or Gold Standard for the Global Goals (GS), or national, based on reduction certificates from standards developed exclusively within the country.

d) Emissions neutralization level

Composed of organizations, products, and territories that, after having implemented and quantified GHG reduction actions and/or having partially offset their remaining emissions, have decided to offset the totality of their remaining emissions through the same mechanisms indicated in the previous level. The objective of this phase is for the organization, product, or territory to reduce its net GHG inventory to zero, in accordance with the mandatory scopes (Scopes 1, 2 and 3) set by the program.

To achieve each primary level, the actions corresponding to it shall be subject to verification by an independent third party, according to the requirements mentioned in Section 1.4.3 and in accordance with the provisions of each NVCFP.

The purpose of verification is to issue a statement of conformity of the report prepared and delivered by the organization at each applicable level, which shall indicate that the discrepancies between what is reported and what is verified do not exceed the established threshold. This verification step is so important that certain NVCFPs even consider it a management level *per se*, particularly in the case of verification of the initial GHG inventory.

To illustrate the operation of an NVCFP in terms of its GHG management levels, the case of Ferreyros S.A., a company devoted to the sale and maintenance of machinery and equipment in Lima, Peru, has been taken. In the context of the Peru Carbon Footprint (HC-Peru) program, this company reported its GHG inventories for 2016, 2017, 2018, 2019, and 2020. The Company verified its inventories over the last four years (2017–2020). Considering the provisions of the program, Ferreyros S.A. agreed to the recognition

PERÚ Ministerio del Ambiente

DIPLOMA

Huella de Carbono Perú

El Ministerio del Ambiente del Perú reconoce que

FERREYCORP S.A.A.

ha implementado el cuarto nivel de gestión de GEI **"Neutralización"** durante el periodo 2019, utilizando la herramienta Huella de Carbono Perú, considerando como alcance 1 y 2.

DIRECTORA GENERAL DE CAMBIO CLIMÁTICO Y DESERTIFICACIÓN

Ferreycorp and its companies Ferreyros, Unimaq, Orvisa, and Motored obtained the highest recognition after measuring, validating, reducing, and offsetting their carbon emissions in several of their main locations, and becoming carbon neutral in their Scope 1 and 2 emissions. Ferreycorp — which began measuring its carbon footprint in 2016 — reduced emissions by 25 percent from its administrative premises, located in the district of Santiago de Surco, and from its headquarters located in the province of Callao, which houses important logistics and training operations of its subsidiaries.

"We are inspired to be part of this platform and contribute to the commitment to reduce Peru's carbon footprint by 40 percent by 2030. Our efforts are part of our commitment to sustainability and ESG (Environmental, Social, and Governance) practices. We are excited to achieve the highest ratings on this platform, which has more than 300 registered companies, a third of which are already reporting and measuring their climate action initiatives," said Patricia Gastelumendi, corporate finance manager at Ferreycorp. The company acquired carbon credits from the VCS carbon standard to contribute to the conservation of protected natural areas in the Peruvian Amazon.

These are two projects to reduce emissions from deforestation and degradation (REDD+): the conservation of the Cordillera Azul National Park, which comprises 1.4 million hectares of Amazonian forests; and the project "Forest management to reduce deforestation and degradation in the Shipibo Conibo indigenous communities in the Ucayali region". At the same time, the company is committed to the circular economy. In this way, the company has been completely rebuilding machinery for several years, including large-tonnage mining shovels, giving them a second life. The corporation also promotes careful waste management among its companies. For example, it recycles scrap metal, oils, packaging, and other recyclable materials from imported goods through specialized waste-management companies. It has also managed to reduce energy and water consumption in offices, workshops, and warehouses through switches to more efficient lighting and water-saving systems, among other initiatives. It also highlights the use of solar energy in its Component Repair Center (CRC) located in La Joya, Arequipa, dedicated to mining. The company continues to work on improving the eco-efficiency indicators of its operations, for which it has created a working group to share best practices among its companies and centralize guidelines.

Box 1. A case of carbon neutral footprint in the Peru Carbon Footprint program.[38]

for GHG emissions reduction in 2018, 2019, and 2020. Finally, the company neutralized the emissions reported in 2019 and 2020, thus accessing the fourth and final level of recognition of HC-Peru.

The milestones achieved by FERREYROS S.A. can be seen in Figure 6.

Secondary levels:

e) Excellence in GHG management

An NVCFP could recognize the performance excellence of an organization, product, or territory when these have embedded measures that further GHG management as part of emissions reduction, offsetting, and/or neutralization levels. These measures may be related to: official pledges by decision makers to enhance GHG management, incorporating GHG indicators in the organization's systems and/or processes and territories, adaptation to climate change, compliance with the targets of the Sustainable Development Goals (SDGs), addressing issues of inclusion and cooperation with vulnerable sectors, inter alia.

f) Early action on GHG management

An NVCFP can ensure that the early and voluntary reductions of an organization, product, or territory are recognized, despite not having been achieved in the context of that program. Thus, for example, a company that reduced its emissions by replacing the use of fossil fuels with biogas in year X could be recognized by an NVCFP established five years later (X+5). This recognition, however, would be subject to the conditions established by each program, such as the base year or the contribution in terms of emissions reduction within the production sector, among others.

g) Contribution to the NDCs

By participating in an NVCFP and taking steps to advance to the reduction and neutralization phases, an organization, product, or territory contributes to reducing the country's GHG emissions. These reduction actions may be directly connected to one or more of the specific NDC actions proposed by the nation, so an NVCFP could give special recognition to highlight this link.

37 Peru Carbon Footprint. 2022. List of registered companies.

38 Ferreycorp. 2021. Peru Carbon Footprint Platform highlights Ferreycorp and five of its companies.

39 Diario Financiero. 2021. ISA INTERVIAL's strategy that allowed it to achieve the HuellaChile Seal of Excellence. Supplement.

Figure 6. Ferreyros S.A. and its carbon footprint management.[37]

Within the Chilean private sector, ISA INTERVIAL is one of the first companies in the road sector that has made concrete efforts to increase efficiency in its operations. Working in this direction, in 2019, the company took a step forward and initiated the process for measuring its carbon footprint in the context of the HuellaChile program. In the words of Eduardo Larrabe, ISA INTERVIAL general manager, "we began this process two years ago [2019], which seeks to obtain and learn about the emissions generated in the previous year. This meant the involvement of each of the organization's processes, detecting relevant consumption and activities to be included".

In this scenario, the enterprise has established a strategy called ISA 2030, which seeks growth with sustainable value based on three fundamental pillars: ensuring corporate validity, generating shareholder value, and creating positive social and environmental impact. As part of this last pillar, the organization has set a target of managing 2.5 tCO2eq in the road business. This commitment to the HuellaChile program has led the organization to be recognized on three occasions for the quantification of its GHG emissions, on two occasions for the reduction of its emissions, and in 2021, it was awarded the Seal of Excellence in management. Speaking about the recognition, Eduardo Larrabe indicates that "together with these two awards, which recognize our work in reducing and accounting for GHGs, today [2021] we are one of the six companies in the country to receive the Seal of Excellence in 2020, and that fills us with pride. At the same time, we have signed the purchase of bonds, so we are also waiting on the Carbon Neutrality Seal".

Specifically, ISA INTERVIAL constantly strives to reduce its GHG emissions from three main sources: the use of highways by users; construction work to improve roads; and road operations (e.g., maintenance work and attending to users who have problems on the road). In addition, the organization is committed to electromobility, installing five rapid electric charging points along the routes it oversees. This milestone allows users who own electric vehicles to travel with autonomy on the routes contracted out to ISA INTERVIAL, thus promoting the use of clean energy by individuals and private vehicles.

Box 2. A case of management excellence in the HuellaChile program.[39]

Regarding secondary levels, although some NVCFPs (such as HuellaChile) consider these for actions carried out during GHG management levels prior to neutralization, it is recommended that they be considered only after reaching the carbon footprint neutralization level. This recommendation means that an organization, territory, or product will only be eligible for secondary level recognition when it has neutralized its net GHG inventory. In this case, NVCFPs could be the ones to determine and verify the conditions for these recognition awards.

In other words, secondary levels can be qualified as the result of having achieved all the primary management levels, as they comprise actions that complement GHG management in a country. These complementary actions also provide an opportunity to recognize other key elements in a country's environmental (and even social) management, beyond the climate agenda. This could simplify government management by combining several incentives under one system.

Once any of the described levels (or others that may exist within the structure of each NVCFP) have been completed, the organization, product, or territory can access the recognition system that evidences its degree of commitment in relation to GHG management. Generally, this distinction is a seal or logo (image) that is given to the program participant during a public event organized by the program implementer. This recognition can be publicly displayed as proof of good carbon footprint management.

1.5.2. Recognition system

The recognition system comprises the actions that the program administrator — in this case, national governments — carries out to publicly evidence the efforts of organizations, territories, or products regarding GHG management. It is based on the issuance of seals and/or diplomas that can be awarded to program participants once they have met all the requirements of a GHG management level. In addition, in some cases, these recognition awards are publicized during public ceremonies held on program anniversaries.

The recipients of the seal and/or diploma may use them under the authorization and standards of the NVCFP that granted them, and associating them exclusively to the corresponding organization, territory, or product. Likewise, if an organization wishes to make statements about its recognition, these should adhere to the rules of the corresponding NVCFP, so as not to generate confusion or controversy about the nature and scope of its GHG management. In the case of a company, for example, the seals may form part of the advertising material it generates to publicize — to its stakeholders or to the general public — its actions related to Corporate Social Responsibility.

To illustrate the recognition, Figure 7 shows the seals awarded by the HuellaChile Voluntary Program as part of the organizational approach, and Figure 8 shows the diploma awarded by the same program as part of the product (event) approach.

The seals and diplomas shall be valid for the year for which they were issued. However, there are programs that decide to grant different periods of validity to these elements. Thus, a seal for quantification could be valid for one year, while one for reduction could be valid biennially, with an annual follow-up process. Once the term has expired, an organization, territory, or product may apply to renew its current seal and diploma or upgrade to the next level of recognition, provided that it follows the procedure and meets the requirements of the respective NVCFP. If the recognition is not renewed or upgraded within the period established for this purpose, the program will automatically withdraw the permits for the use of the badge of recognition and will communicate this to the beneficiary.

Obtaining recognition is also reflected on the NVCFP's online platforms, if available. Through its interfaces, a list of participants is usually presented with the GHG management levels they have completed, making this an additional means to visualize their achievements.

The repercussions of achieving these recognition awards can be both national and international. At the national level, they can enable an organization to meet certain requirements in the framework of

Figure 7. Recognition logos for organizations in the HuellaChile Program.[40]

green procurement systems, while at the international level, companies can improve their reputation and competitiveness in foreign markets. In this regard, for example, they can improve access to European Union markets, whose increasingly stringent environmental regulations allow the import of goods that have been manufactured with minimal emissions of certain GHGs. Further details on these benefits can be found in Section 2.2 of the second chapter of this guide.

40 Ministry of Environment. n.d. Graphic Standards Manual — Use of the HuellaChile Program Logo.

41 Ministry of Environment. 2020. HuellaChile awards first "Event Seal" for GHG emissions quantification initiatives.

Figure 8. Diploma of recognition for events in the HuellaChile Program.[41]

1.5.3. General outline of an NVCFP management structure

Figure 9 shows the general management structure of an NVCFP.

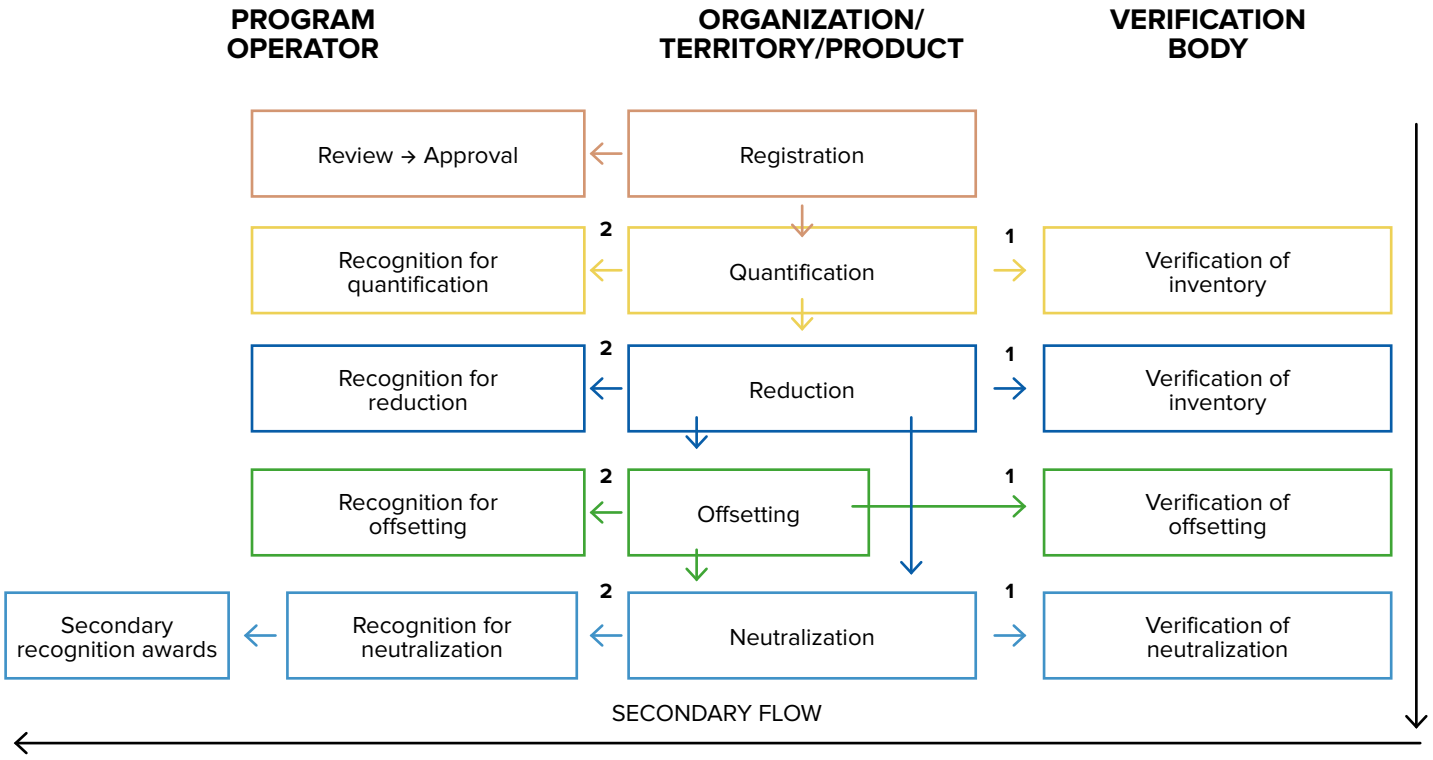

Figure 9. General management structure of an NVCFP. **Prepared by:** Author.

In this outline, two flows can be distinguished:

a) The primary flow (top-bottom) indicates the GHG management levels covered by the program. Excluding the registration stage, these begin with the quantification of the emissions generated and end with their neutralization. While it is not mandatory to advance to the last stage, the purpose of an NVCFP is to motivate its participants to take reduction, offsetting, and neutralization actions.

b) The secondary flow (right-left) comprises the actions that must be accomplished to achieve recognition of a specific level. These actions include the verification — by an accredited body — of the information shared by the program participant, and the subsequent awarding of the recognition by the program operator. In this regard, following the recommendation given for the approach to secondary levels of management, secondary recognition can only be obtained after recognition for neutralization has been achieved.

This section has given a general description of the levels and recognition awards that may be implicit in the GHG management carried out by an organization, territory, or product. This description can be taken as a basis for understanding, in practice, the operation and purpose of these initiatives. However, as indicated in previous sections, each country can adjust or adapt these guidelines to its development conditions and climate action objectives. The aim is for the program to succeed within its scope and be attractive to the private sector. In order to highlight some of the particularities of an NVCFP, the following section presents a brief summary of the UNDP-backed initiatives in Latin America.

Rubí Solar Power Plant
Ministry of Environment, Peru

1.6. Case studies of UNDP-backed NVCFPs in Latin America

Since 2012, the UNDP has encouraged the creation and strengthening of NVCFPs led by Latin American governments, currently with the assistance of the NDC Support Programme (NDCSP) and the Climate Promise initiative. These programs have strengthened the integration of the private sector in climate action in Chile, Peru, Ecuador, and Panama, countries that are already demonstrating concrete achievements in relation to the calculation, monitoring, and management of GHG emissions. The results reflect the effort and willingness of the private sector towards national goals in line with the Paris Agreement.

Generally, these programs provide an online tool for calculating emissions and, as described above, as part of their recognition structure they award seals to organizations, territories, and/or products that report, reduce, or ideally neutralize their carbon footprint. In addition, NVCFPs offer membership incentives based on reputation enhancement and value-added generation. Furthermore, these programs have proven to be a resilience-building element in the face of unexpected crises such as the COVID-19 pandemic. The following is a brief presentation of the NVCFPs in operation in Chile, Peru, Ecuador, and Panama.

1.6.1. Chile[42]

Since 2012, the UNDP has been providing ongoing support to the Chilean Ministry of Environment in the implementation of the HuellaChile program. The purpose of this government initiative is to promote GHG management in public and private organizations in the country in order to contribute to the mitigation of national emissions. To facilitate this process, HuellaChile provides a free online emissions calculation tool as well as training in emissions management to public and private actors that are interested in taking part in the program.

The effort and commitment of participating organizations is recognized through the award of seals that correspond to the level of management achieved: a) quantification, b) reduction, c) neutralization, and d) excellence (which acknowledges climate action that goes beyond GHG management). In order for organizations to achieve neutralization, HuellaChile encourages the acquisition of carbon credits from national projects, that is, it promotes the creation and maintenance of a national carbon market. To date, HuellaChile has awarded 904 seals of recognition and has trained more than 3,000 people on climate change impacts and GHG management.

This program focuses on organizations and territories and has been developed in accordance with the following standards: NCh-ISO 14064/1:2019 — quantification and reporting of GHG emissions and removals; NCh-ISO 14064/2:2019 — quantification, monitoring, and reporting of GHG emissions and removals; NCh-ISO 14064/3:2019 — validation and verification of GHG declarations; NCh-ISO 14069:2014 — guidance for the implementation of ISO 14064-1; ISO 14067:2013 — quantification and reporting of emissions with product focus; and, NCh 3300 — guidance for proving emission neutrality.

Since 2017, HuellaChile has been part of the official carbon management instruments in its country, having joined the 2017–2022 National Climate Change Action Plan (PANCC). This has allowed it to establish synergies with other national environmental mechanisms, such as the Municipal Environmental Certification System (SCAM) and the Clean Production Agreements (APL) of the Agency for Sustainability and Climate Change (ASCC).

1.6.2. Peru[43]

On November 21, 2019, the Peruvian Ministry of Environment (MINAM) — through the General Directorate of Climate Change and Desertification (DGCCD) — presented the Peru Carbon Footprint (HC-Peru) tool, which aims to promote and recognize the efforts of public and private organizations in managing their GHG emissions. This tool also contributes to achieving the national GHG emissions reduction target of 40 percent by 2030, a pledge undertaken under the Paris Agreement, as well as the long-term goal of achieving carbon neutrality by 2050. To date, 367 organizations report their footprint through this tool, and more than 700 are registered.

The MINAM has institutionalized HC-Peru through the regulation of the Framework Law on Climate

Change, as one of the tools for the measurement, reporting, and verification (MRV) of the results of mitigation actions — GHG reduction and removal — that will contribute to achieving the objective of the NDCs. In this regard, MRV processes operate in accordance with the updated version of the Peruvian Technical Standard NTP ISO 14064-1. This institutionalization has also led to the publication of the Guidelines for the Functioning of HC-Peru through Ministerial Resolution No. 185-2021-MINAM.[44]

HC-Peru includes four levels of GHG management. The first level covers the estimation and reporting of GHG emissions. The second includes the formal verification of the estimate. The third level considers the reporting of GHG mitigation actions, including the reductions achieved compared to the previous reporting year. Finally, the fourth level encourages participants to achieve at least one of the following three actions: a) GHG reductions over two consecutive years; b) support to a supplier to achieve the second management level; and, c) neutralization of emissions through the use of carbon credits from national projects. Figure 10 illustrates the operation of HC-Peru.

An organization can achieve each of these levels on an annual basis, by working towards the principle of GHG emissions reduction. Recognition, including the issuance of seals and diplomas, as well as the publication of the organization's name on the HC-Peru website, are given almost immediately. In addition, in an annual public event, the MINAM presents to the public the organizations that obtained the seals during the corresponding year.

The MINAM is currently designing a scheme for measuring the carbon footprint at product level. It is also weighing up the possibility of HC-Peru accepting Renewable Energy Certificates and establishing synergies with other Peruvian government programs or initiatives, such as Eco-efficiency and Public Procurement (prioritizing purchases with environmental standards) and the Water Footprint program of the National Water Authority.

42 Ministry of Environment. n.d. What is the value of joining HuellaChile?
43 Peru Carbon Footprint. 2018. What is Peru's carbon footprint?
44 Ministry of Environment. Ministerial Resolution No. 185-2021-MINAM.
45 UNDP. 2021. Launch of the Ecuador Zero Carbon Program (PECC).

In the year of Peru's 200th anniversary of independence, the Carbon Footprint Peru tool received the highest recognition in the Best Practices in Public Management 2021 contest, in the Effective Environmental Management category, Information Systems subcategory. This is thanks to the effort to generate a collaborative mechanism for the measurement and disclosure of achievements in the reduction of GHG emissions by public and private organizations. This climate action tool contributes to the country's commitment to reduce its GHG emissions by 40 percent by 2030 and to move towards a carbon-free future by 2050.

Box 3. Peru Carbon Footprint recognized as a best practice in public management.

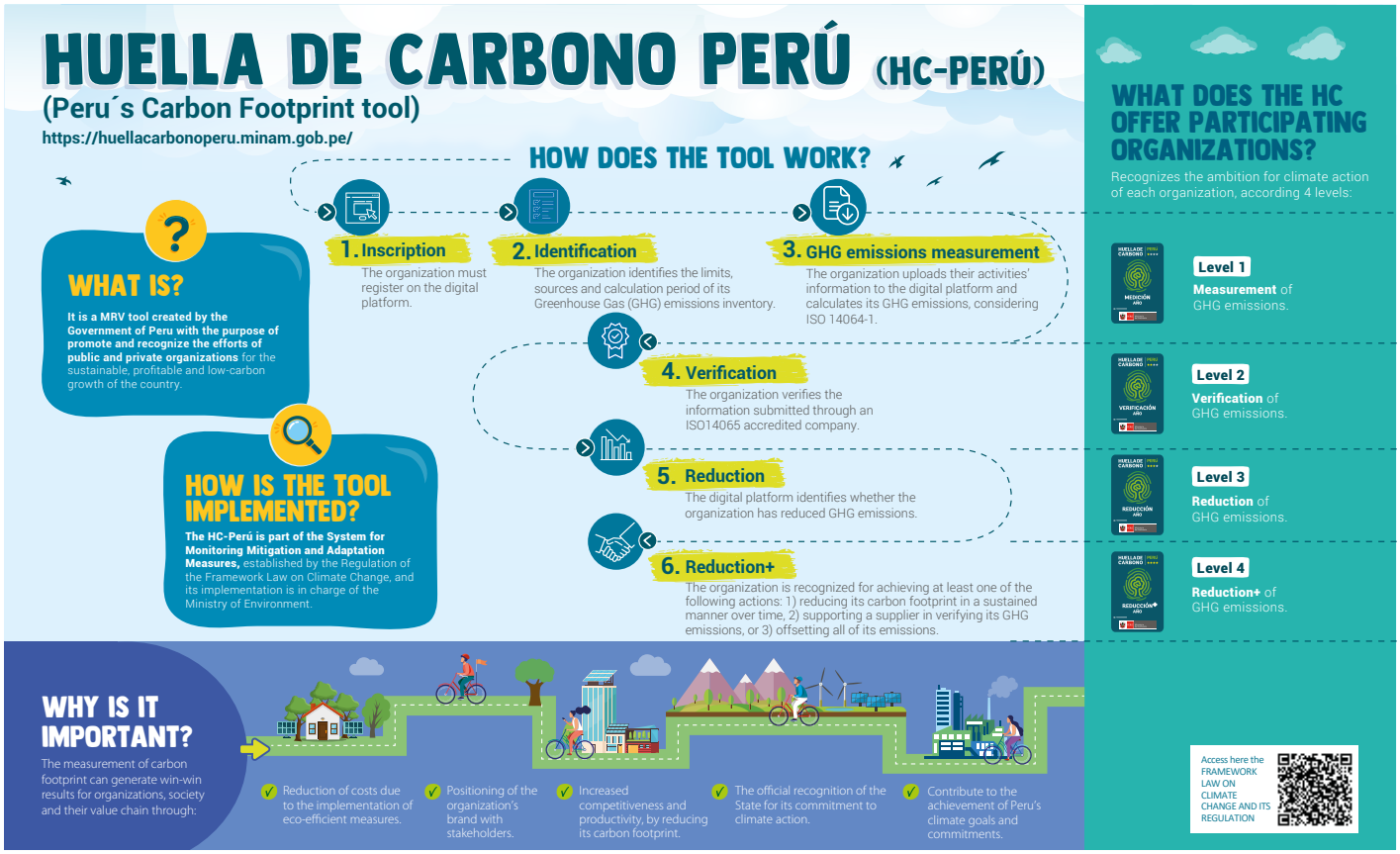

Figure 10. Operation of HC-Peru.

1.6.3. Ecuador[45]

ECUADOR CARBONO CERO

Officially launched in May 2021, the Ecuador Zero Carbon Program (PECC) is an Ecuadorian government initiative that recognizes organizations that measure, reduce, and offset their carbon footprint. Verification of reported GHG emissions is performed according to internationally recognized and validated methodologies and standards.

The implementation of the PECC seeks to help the country's production and service sectors raise their standards in the face of increasingly demanding global trade regimes. At the same time, the PECC expects to contribute to the accomplishment of the climate objectives established in Ecuador's first NDC.

The PECC is regulated by Ministerial Agreements No. MAAE-2021-018, No. MAATE-2021-046, and No. MAATE-2021-047, and its stakeholders are the Ministry of Environment, Water, and Ecological Transition (MAATE), registered companies, compliance assessors, and offset implementers (natural or legal persons in charge of a GHG emissions offset initiative duly registered in the PECC Offset Portfolio and implemented in Ecuadorian territory).

Adherence to the PECC and compliance with its guidelines provides companies with the following benefits: a) use of the eco-label; b) reduced GHG emissions; c) access to tax and labor incentives; d) reduced operating costs; e) improved corporate image; f) positioning in the domestic market; and, g) access to international markets.

1.6.4. Panama[46]

RTH Corporativo Carbono

The Reduce Your Corporate Footprint — Carbon (RTH Corporate — Carbon) program[47] is the first Panamanian state program for carbon footprint management at organizational level. The structure of this initiative is aimed at identifying, calculating, reporting, and verifying the GHG emissions of public, private, and civil society organizations that

are legally constituted in the national territory. In this way, Panama seeks to promote climate action in all economic sectors of the country, as well as to recognize good organizational practices in GHG management.

RTH Corporate — Carbon includes five categories in its recognition system: 1) Inventory, when the organization quantifies and reports its emissions according to established standards; 2) Inventory+, when the GHG inventory reported by the organization is verified by a third party; 3) Reduction, when the organization implements and verifies actions to reduce its carbon footprint; 4) Offset, when the organization, after having implemented and verified GHG mitigation measures, has partially offset its remaining emissions; and, 5) Neutrality, when the organization, after having implemented and verified GHG mitigation measures, has fully offset its remaining emissions. It is important to emphasize that these recognition awards are granted in a tiered manner, for example, level 4 recognition cannot be achieved without first obtaining level 2 recognition.

In addition to those described above, RTH Corporate — Carbon will grant special recognition to the first 50 organizations that commit to achieving carbon neutrality by 2050, through the declaratory initiative "50 First Carbon-Neutral Organizations". This distinction will be awarded to organizations that register in the RTH Corporate — Carbon program, report their GHG inventory annually, and submit their action plan under the required standards.

To accompany RTH Corporate — Carbon, Panama is working on the design and subsequent implementation of the voluntary programs RTH Municipal — Carbon and RTH Products — Carbon. These new mechanisms will provide standardized tools for managing the carbon footprint of municipalities and agricultural products, respectively.

Annex 1 includes a table describing, in greater detail, the main characteristics and experiences of three of the four NVCFPs that the UNDP backs in Latin America (HuellaChile, HC-Peru, and RTH Corporate — Carbon). This systematization was one of the results of the "South-South regional training workshop: experiences and lessons learned from national carbon footprint programs", an event held in 2020 in the context of the Latin American Network on National Greenhouse Gas Inventories (RedINGEI) initiative, with the participation of representatives of the programs HuellaChile, Peru Carbon Footprint (HC-Peru), Reduce Your Corporate Footprint — Carbon, and the Carbon Neutrality 2.0 Program in Costa Rica.

Currently, these lessons learned and good practices (together with those of the PECC) are being shared with Colombia and Paraguay, in order to consolidate a regional group — backed by the UNDP — to accelerate and improve the implementation of NVCFPs. In advancing GHG management, the UNDP has proposed coordinating these programs with other areas such as water footprint, renewable energies, circular economy, economic incentive schemes — taxes, for example —, public procurement systems, gender equality, among others. These linkages would, undoubtedly, give greater relevance to voluntary carbon footprint measurement, which could increase the level of adherence of organizations interested in addressing these areas.

1.7. Other NVCFPs around the world

Parallel to the four UNDP-backed initiatives in Latin America, there are other voluntary carbon footprint measurement and reporting mechanisms that have been implemented by other countries and in other regions of the world. In order to highlight this diversity of efforts, several of these other programs, operated by both public and private sector agencies, are described below.

Beginning with **Costa Rica**,[48] which in 2012 created the Carbon Neutrality Country Program (PPCN) with the support of the Climate Change Directorate of the Ministry of Environment and Energy. Initially focused on organizations, the PPCN now includes territories (municipalities), products (including events as a subcategory), and educational institutions (as a subcategory within organizations).

The structure of the PPCN is made up of five levels, including two "plus" levels that recognize outstanding efforts. Public and official recognition upon reaching each level allows citizens to identify an organization's degree of commitment to the long-term (2050) decarbonization goal set by Costa Rica. In this vein, the PPCN is a key component of national climate action, integrating more than 200 organizations and municipalities, and has trained more than 1,700 people in the organizational category and more than 400 in the municipal category.

Continuing with Europe, in 2014 **Spain**[49] created the National Registry of Carbon Footprint, Offsetting,

46 Ministry of Environment. 2022. What is the Reduce Your Corporate Footprint program?

47 This program is one of the two components of the larger Reduce Your Corporate Footprint initiative, the second component being the program for managing organizations' water footprint.

and CO2 Removal Projects, an initiative that includes the efforts of national organizations to calculate and reduce their GHG emissions. First, organizations must register their carbon footprint and submit a mandatory reduction plan. Second, when the organization is recognized as having reduced its footprint, the system allows for total or partial offsetting through the protection of forestry projects located in Spain and registered in the Registry.

Registered organizations will be able to use a seal of ownership of the Spanish Ministry for the Ecological Transition and the Demographic Challenge (MITECO), the institution administering the program. This seal serves two purposes: a) makes it easier for organizations to demonstrate their participation; and, b) reflects the degree of effort they have made in the fight against climate change. In this sense, the seal indicates the period of validity of the recognition (annual), and the level of GHG management achieved: calculation of the carbon footprint, reduction, and/or offsetting.

As of December 2020, the number of registered organizations is 1,389, with the manufacturing industry sector having the highest participation (218 organizations).

Moving on, but staying with Europe, **Italy**[50] has the Carbon Footprint Italy program, which is dedicated to communicating the GHG emissions and removals of products and organizations. As an initial requirement for registration, organizations must have a verification statement from an accredited third party regarding their GHG inventory. One of the benefits that organizations receive when they join the registry is a 15 percent discount on the surety bonds they are required to present when signing a contract with the public sector.

Following registration, the system has an emissions reduction stage based on the implementation of mitigation measures. After implementing GHG reduction actions, registered participants can reach the neutralization level through the purchase of reduction credits recognized by international standards.

According to the level of GHG management achieved, organizations and products can use a specific label to communicate the value of their carbon footprint in a simple, fast, and effective manner. However, the Italian program emphasizes that low carbon footprint values, while implying adequate GHG management, should not be interpreted as a general statement of low environmental impact.

Moving to Asia, in March 2012, the Japanese government transferred to the **Japan** Environmental Management Association for Industry (JEMAI) the management of its Carbon Footprint of Products (CFP) project, which had been in existence for three years up to then.[51] Since its transfer, the CFP has been renamed the CFP Communication Program and runs without any financial assistance from the government.

This program is voluntary and aims to highlight the carbon hotspots in a product's life cycle (goods and services) as well as promoting the communication between companies and consumers with a view to accelerate the move towards a low-carbon society.

Also in Asia, the **Korea** Environmental Industry & Technology Institute (KEITI) has been operating the Carbon Footprint Product Labeling System (CFP Labeling System)[52] created by the Korean Ministry of Environment in 2009. This system is aimed at the quantification of GHG emissions throughout a product's entire life cycle, including raw material acquisition, manufacturing, transportation, distribution, use, and disposal. Organizations that adopt this system can obtain: 1) the carbon footprint certificate, and 2) the low-carbon product certificate, which is only given to products holding the first certificate. As of 2017, 2,438 products from 285 companies have been certified, and the Korean labeling system is the fastest-growing among all Asian countries.

Table 4 presents a summary of the main characteristics of the Latin American UNDP-backed NVCFPs and similar ones implemented in other countries. The information presented in Table 4 shows that, with the exception of Japan, all programs are currently administered by government agencies. It is also relevant to point out that most initiatives are governed by international GHG quantification and reporting standards, such as the GHG Protocol and ISO standards. As regards emission factors, Latin American programs have adopted different sources for these parameters, ranging from direct measurement (where possible), through national databases (such as Infocarbono in Peru), to default values from databases such as those of the IPCC (and other sources) that are also relevant in the field.

Moreover, GHG management structures, again with the exception of Japan, have more than one level of management, starting with quantification and ending with offsetting and/or neutralization of the carbon footprint. Finally, in Latin America, the oldest NVCFPs are those of Costa Rica and Chile.

48 Ministry of Environment and Energy. 2022. Carbon Neutral Country Program.
49 Ministry for the Ecological Transition and the Demographic Challenge. n.d. Spanish registry of carbon footprint, offsetting, and carbon dioxide removal projects.
50 Carbon Footprint Italy. 2020. Carbon Footprint Italy.
51 CFP Program. 2019. CFP Program.
52 KEITI. 2015. Carbon Footprint of Products.

Ministry of Environment, Peru

Table 4. Characteristics of various voluntary initiatives for carbon footprint measurement.

Program data	Starting year	Operational approaches	Adopted standards	Emission factors used	GHG management structure	Electronic platform (registration web page)
Country: Chile **Name:** HuellaChile **Administrator:** Ministry of Environment (MMA)	2013	Organization Territory Events	• ISO 14064 • ISO 14067	• Default factors: IPCC • Default factors: DEFRA • Default factors: reliable literature • National sectoral factors • Sector-specific factors • Direct measurement	• Quantification • Reduction • Neutralization • Excellence in management	https://huellachile.mma.gob.cl/registro/
Country: Peru **Name:** Peru Carbon Footprint (HC-Peru) **Administrator:** Ministry of Environment (MINAM)	2019	Organization	• ISO 14064 • GHG Protocol • IPCC Guidelines	• National database: INFOCARBONO • Default factors: IPCC • Default factors: DEFRA	• Measurement • Verification • Reduction • Reduction+: • Continuous reduction • Strengthening the supply chain • Neutralization	https://huellacarbonoperu.minam.gob.pe/huellaperu/#/solicitudUsuario
Country: Ecuador **Name:** Ecuador Zero Carbon Program (PECC) **Administrator:** Ministry of Environment, Water, and Ecological Transition (MAATE)	2021	Organization Product	• ISO 14064 • ISO 14067 • GHG Protocol	• Direct measurement • National sectoral factors • Default factors: IPCC	• Measurement • Reduction • Neutrality	Under construction
Country: Panama **Name:** Reduce Your Corporate Footprint — Carbon (RTH Corporate — Carbon) **Administrator:** Ministry of Environment	2021	Organization	• GHG Protocol • 2006 IPCC Guidelines	• Direct measurement • Sector-specific factors • Default factors: IPCC	• Inventory • Inventory+ (Verification) • Reduction • Offsetting • Neutralization	https://rth.miambiente.gob.pa/
Country: Costa Rica **Name:** Country Carbon Neutrality Program (PPCN) **Administrator:** Ministry of Environment and Energy (MINAE)	2012	Organization Territory Product	• ISO 14064 • ISO 14067 • GHG Protocol	• National Meteorological Institute Factors • Default factors: IPCC • Default factors: reliable literature	• Inventory • Reduction • Reduction+ • Neutralization • Neutralization+	www.sinamecc.go.cr

Program data	Starting year	Operational approaches	Adopted standards	Emission factors used	GHG management structure	Electronic platform (registration web page)
Country: Spain **Name:** Spanish registry of carbon footprint, offsetting, and CO2 removal projects **Administrator:** Ministry for the Ecological Transition and the Demographic Challenge (MITECO)	2014	Organization	Does not require the implementation of a specific standard. ISO 14064, GHG Protocol, or others can be applied.	The MITECO provides emission factor data for each year on its website, based on official sources.	• Calculation • Reduction • Offsetting	https://www.miteco.gob.es/es/cambio-climatico/temas/mitigacion-politicas-y-medidas/inscripcion-registro.aspx
Country: Italy **Name:** Carbon Footprint Italy Administrator: N/A	N/A	Organization Product	• ISO 14064 • ISO 14067 • PAS 2060	N/A	• Quantification • Reduction • Neutralization	https://carbonfootprintitaly.it/en/the-programme/#1
Country: Japan **Name:** Carbon Footprint of Products (CFP) Communication Program **Administrator:** Japan Environmental Management Association for Industry (JEMAI)	2009	Product	• ISO 14040 • ISO 14044 • ISO 14067	N/A	• Carbon Footprint Certificate	N/A
Country: Korea **Name:** Carbon Footprint of Products (CFP) Labeling System **Administrator:** Korea Environmental Institute of Technology and Industry (KEITI)	2009	Product	N/A	N/A	• Carbon Footprint Certificate • Low Carbon Product Certificate	N/A

Prepared by: Author's compilation based on information available online for each country.

UNDP, Panama

1.8. NVCFPs vs. other non-governmental initiatives

Parallel to the programs created and operated by government agencies, there are initiatives implemented by other sectors whose purpose is also to report and recognize the efforts of organizations to quantify and reduce their level of GHG emissions. Among these initiatives are:

- **The Carbon Disclosure Project (CDP),**[53] a non-profit organization that runs an online system for collecting and disclosing the environmental impact of companies, cities, and governments around the world. Its objective is to study the implications of climate change for the business sector, and through this contribute to making decisions that are economically and environmentally sustainable. Globally, CDP reports are regarded as the standard for environmental reporting because its database on corporate and urban actions is the most comprehensive and easy to interpret.

Since its founding in 2000, the CDP has played a transformative role in driving climate action. This organization has now set out its 2021–2025 Strategy, which is a response to the urgent need to ensure that companies' and governments' stated intentions to reduce their GHG emissions are accompanied by concrete plans, with transition metrics and evidence of progress. Over these five years, the CDP will develop its processes to support greater transparency and accuracy of emissions accounting by companies, cities, and governments. It will also broaden its scope to cover a wider range of environmental issues, such as those related to the ocean, land use, biodiversity, agricultural production, and waste management.

The CDP reporting platform is open between April and July of each year, both for companies and cities. In the case of the former, they can access the questionnaires in two ways: a) a potential investor or customer can require a company to report on the impact of its activities on climate, forests, and water resources; and, b) if such request is not made, a company can voluntarily request to join the system.

Whatever the modality, being part of the CDP gives companies the following benefits:

- Protects and enhances reputation by being transparent and publicly responsive to growing concern about the state of the climate and the environment in general.
- Increases competitive advantage by allowing access to markets, capital, and tenders that enforce increasingly stringent environmental standards.
- Paves the way for mandatory compliance with future environmental regulations.
- May uncover emerging risks and opportunities that wouldn't have been noticed without the preparation of an adequate GHG emissions report.
- Ability to compare environmental performance with that of peers in the same economic sector and receive a summary of climate action progress each year.

As for cities, these must voluntarily express their interest in joining the CDP. Then, reporting information on their activities will make it easier for them to recognize the risks and opportunities of climate change for residents and businesses. In Latin America, 293 municipalities have joined the CDP initiative, which has enabled them to identify challenges related to urban planning, improvement of living conditions, and provision of basic services, as well as to develop plans and implement climate change adaptation measures for these sectors.

- **The Climate Registry (TCR),**[54] a non-profit organization that empowers North American companies to set ambitious climate action commitments. To this end, it provides a set of services and tools to help companies reduce their GHG emissions, which can be accessed through a membership fee whose cost depends on companies' reported profits.

As part of its resources, TCR has a Carbon Footprint Registry, which includes a training program, proprietary software for GHG quantification and reporting, and a recognition system similar to the one described for the NVCFPs. Recognition begins with organizations that have begun to develop their GHG accounting capabilities and ends with those that have implemented and verified reduction measures. With five levels of recognition, shown in Figure 11, and a set of benefits associated with each level, TCR communicates to its participants that they are taking action against climate change.

By joining TCR, companies can demonstrate their environmental and climate leadership to customers, investors, and regulators. TCR also provides accurate data enabling companies to set GHG reduction targets, cutting costs and making it possible to report actions to government agencies and programs such as the CDP.

53 CDP. 2022. Who we are.
54 The Climate Registry. n.d. About us.

◆ **The Science Based Targets initiative (SBTi)**,[56] a partnership between the CDP, the UN Global Compact, the World Resources Institute and the World Wide Fund for Nature that aims to show the private sector how much and how fast they need to reduce their GHG emissions to prevent the worst impacts of climate change. To this end, and in line with scientific principles, the SBTi defines and promotes best practices for achieving net-zero emissions and provides technical assistance and resources for companies to implement these practices. Considering this, the SBTi is not strictly speaking a carbon footprint measurement system, but rather it advances the setting of appropriate GHG reduction targets. However, it has been included in this section as it involves the quantification of the GHG inventory by adhering organizations.

The SBTi urges companies from all sectors and of all sizes to join the movement. However, this initiative is particularly interested in integrating companies in the sectors with the highest emissions, which play a crucial role in ensuring the transition to a carbon-free economy. In this regard, the SBTi does not currently evaluate the goals of cities, local governments, public institutions, educational institutions, or non-profit organizations. In addition, it should be noted that, like TCR, SBTi assessment costs are commensurate with the ambition of the goal set.

When comparing government initiatives with those implemented by other sectors, it is evident that adherence to the former is of greater benefit to organizations, since training and calculation tools are available free of charge. However, private initiatives — such as the Carbon Disclosure Project — have the advantage of being platforms that are already positioned in the large corporations sector, which use them to obtain information from potential suppliers, thus becoming tools that assist companies in their decision making.

Because of these characteristics, it is important for governments to know and understand how these parallel processes work in order to set objectives that do not overlap, but rather complement each other and increase the benefits of voluntarily managing the carbon footprint. In this vein, the advantages of NVCFPs will be presented and described in the following chapter.

55 The Climate Registry. n.d. Membership Benefits & Options.
56 Science Based Targets. n.d. About us.

Figure 11. Recognition by The Climate Registry.[55]

Rupí Solar Power Plant
Ministry of Environment, Peru

Chapter 2

Advantages of NVCFPs for Governments and Private Stakeholders

Ministry of Environment, Peru

Faced with the impacts of climate change on communities and ecosystems, national governments around the world have undertaken actions focused on designing and implementing public policies that allow for the introduction of emissions trading programs, voluntary programs for measuring GHG emissions, carbon taxes or taxes on excessive power consumption, and energy efficiency standards, among others. This guide focuses on guidelines for the implementation of a voluntary carbon footprint measurement program by national governments.

Adherence to and participation in any of these programs requires compliance with certain requirements and processes that may involve additional costs for the participant, but at the same time may bring benefits that will contribute to recovering these expenses, improving public image, and enhancing the efficiency/resilience of the organization's processes. In this chapter, we will discuss the advantages offered by NVCFPs both for the implementing country and for its adherents (companies or local governments) that voluntarily decide to participate in it. These two topics will be discussed in Sections 1 and 2, respectively.

To complete this information, a third section will delineate the links between NVCFPs and climate finance. Finally, the fourth section, as a case study, reveals the relationships in the practice of the HuellaChile Program and climate action in this country.

2.1. Benefits for the country: development priorities and climate objectives

As it is the national government that implements the NVCFP, ideally and conveniently, the objectives and criteria for its operation should be aligned with the country's environmental management and development objectives, although this is not a mandatory condition. Should such a link exist, the following are the advantages that voluntary carbon footprint measurement could bring to a country's government.

2.1.1. Support for NDC targets and national climate preparedness

Nationally Determined Contributions (NDCs) are a compendium of targets that reflect each country's ambition to reduce its emissions and adapt to climate change (in the context of the Paris Agreement), taking into account its national circumstances and capabilities. Therefore, one of the objectives of an NVCFP should be to channel spontaneous voluntary actions — such as the contribution of the private sector — to achieve the NDC targets, through the creation of a verifiable and transparent carbon footprint reduction, offsetting, and neutralization mechanism. In this regard, an NVCFP has the opportunity to:

a) Ensure that private actions — accounting and reporting — add to the reductions of the national GHG inventory, and encourage that these actions fit into the sectors considered in the NDCs.

b) Develop own quantification and reporting methodologies for the sectors prioritized in the NDCs.

c) Explicitly acknowledge organizations, territories, or products that consciously strive to achieve prioritized mitigation actions in NDC-relevant sectors.

d) Prioritize technical assistance to NVCFP participants, among other actions.

2.1.2. Support for LTS and zero-emission pledges

Concurrent to the NDCs, the Paris Agreement requires its parties to prepare and submit their Long-Term Strategies (LTS). These comprise the low-carbon development strategies for 2050, and are fundamental to achieving the goal of net-zero global emissions, limiting global warming, and preventing many of the worst impacts of climate change.[57]

These strategies guide short-term decision making to support climate change and long-term development objectives.

Ideally, NDC and LTS guidelines should be aligned to ensure consistency in a country's climate action, the use of common data and comparable projections, and implementation along the same development pathway. Thus, each NDC, which must be reviewed and updated every five years, has a ratchet effect, the result of which is expected to be the scaling up of climate ambition to achieve the goal of reducing about 45 percent of global emissions by 2030 and reaching net zero by 2050.[58] This alignment, in other words, ensures that NDC measures contribute to accomplishing LTS targets for development, decarbonization, and resilience.

In this regard, an NVCFP can help in the consolidation of these policies by providing truthful information on the productive sectors and territories that are contributing to GHG mitigation and to what extent they are doing so, as well as contributing to the identification of potential fields for adaptation, which might otherwise be neglected. Likewise, these

57 World Resources Institute. 2022. What is a Long-term Strategy?

58 United Nations. n.d. For a livable climate: Net-zero commitments must be backed by credible action.

programs can have a push effect by pressuring those who are not actively participating in national climate action, without ruling out the incorporation of incentives, benefits, and/or complementary tax reforms to accelerate the response.

Specifically, in relation to LTS, NVCFPs can accelerate the move by organizations towards neutralization so that they don't stop at emissions reductions, as well as explicitly reward companies, territories, and products that propose real initiatives to achieve net-zero emissions.

In this way, the NVCFP becomes an essential component for the achievement and acceleration of NDCs and the design and implementation of LTS. Particularly if an LTS aims at carbon neutrality, this type of platform has the potential to become one of the most important tools to achieve its implementation, management, and monitoring.

2.1.3. Accounting and monitoring of mitigation contributions

In the context of climate change, accounting encompasses the entire process, rules, and principles that are implemented to monitor the achievement of NDC targets.[59] In this regard, Art. 13 of the Paris Agreement states that parties shall account for "anthropogenic emissions and removals corresponding to their nationally determined contributions". As part of this task, "parties shall promote environmental integrity, transparency, accuracy, completeness, comparability, and consistency, and ensure the avoidance of double counting".[60] These guidelines will be mandatory as of the second NDC (i.e., the first updated NDC) and shall be enforced through:

- Conformity with the methodologies and measurement systems assessed by the Intergovernmental Panel on Climate Change (IPCC).
- Methodological consistency in calculations.
- Inclusion of all categories of emissions or removals in the NDCs, and justification in cases of exclusion.

These principles are fully aligned with the credibility criteria described in the first chapter of this guide. In this sense, for optimal results, there should be a direct link between NDC targets and carbon footprint management programs, so that the information collected in the context of the latter can contribute to the integrity and reliability of the accounting process, as well as being useful for developing training programs and identifying sectoral climate finance measures.

This is provided that there is a mass participation of organizations (making the information obtained from these representative), whose processes for measuring and reporting emissions must coincide, applying the same territorial definition and including the same gases and methodologies. This is why it is important to create coherent management instruments.

2.1.4. Support for local government climate change management

NVCFPs that include the territorial approach, as described in the first chapter of the guide, are tools that support climate action by local governments. They also represent an opportunity for these governments to anticipate the possible future obligation to include climate change criteria in the design of their government plans and development policies. We must not forget that achieving the 2030 reduction targets, or carbon neutrality by 2050, necessitates a significant change in the current socioeconomic structure.

Thus, whether they are municipalities, provinces, departments, or any other political division of the territory, being part of an NVCFP allows them:[61]

- To have technical, verifiable, and transparent information to identify and implement actions that reduce the contribution of urban activities, for example, to the build-up of GHG emissions. Among these actions, two of the most important are transportation and solid waste management.
- To define medium- and long-term carbon footprint reduction goals that integrate sectors such as the residential and industrial sectors.
- To reduce the operating costs of public activities and services.
- To raise awareness among public officials and the general public on the proper use of resources such as electricity and water. In this regard, water footprint and renewable energy certificates are already beginning to be utilized by several of the NVCFPs that are referenced in this guide.
- To have indicators that make it possible to compare the environmental performance of local governments with their peers in other countries and regions. This information could be relevant for investors who have emission reduction goals for their organizations and so wish to work in certain locations that offer environments that are suitable for their objectives.
- To promote the leadership of local governments in the fight against climate change, thereby legitimizing the issuance of certain environmental policies and ordinances.
- To elaborate territorial development plans aimed at GHG management, including a portfolio of specific

measures, sources of finance, and the necessary institutional arrangements for their implementation.

- To implement pilot actions for demonstration purposes that have the potential to be replicated and scaled up to amplify their impact on GHG reduction.
- To obtain additional financing, which in turn offers co-benefits related to the improvement of territories' resilience.

2.1.5. Channeling private investment for national climate action

Climate action requires significant financial investment.[62] In this regard, the IPCC indicates that investments of between $1.6 and $3.8 trillion are needed each year between now and 2050 just to sustain the supply-side energy transition, while the NDCs' financial assessments anticipate an annual investment of between $3.5 and $4.4 trillion to meet their emissions reduction targets.[63] In either case, the level and pace of investment needed to transition to a low-emissions, climate-resilient future is far from being achieved.

In this regard, public funding (essentially from taxpayers) is key to support actions that are not attractive to the private sector. However, between 2017 and 2018, this funding stream totaled an average of $253 billion annually, a small fraction of what is required to meet global climate goals.[64] To close the gap presented by this scenario — with just under a decade remaining to achieve the Paris Agreement targets — mobilizing more private capital is imperative. To this end, a fundamental task of the public sector is to become the driver of private investment growth for coordinated, effective, and efficient climate action. In this regard, it is important that the NVCFP be coordinated with the NDC's financial strategy. Through the benefits granted under its recognition system, private organizations can be motivated to implement actions that contribute to reducing their emissions, building resilience to climate change, and/or sustaining third-party reduction measures (by offsetting emissions). In these measures, moreover, private financiers can see the clear advantages of bringing a diverse and different range of expertise and new technologies that can reduce costs, improve efficiency, and drive innovation in the fight against climate change.

Other ways in which the public sector can promote private investment for climate action are through green procurement systems and the promotion of a national carbon market.

For the former, the results obtained from the participation of bidding companies in an NVCFP may help to meet some of the requirements for the submission of bids or during the evaluation of bids. This is the case with goods intended to enter the European Union, a region whose environmental requirements for imports include "refrigeration equipment, air conditioning equipment and heat pumps, high-voltage switchgear, footwear, tires, aerosols, or fire protection systems into the EU" that produce minimal emissions of fluorinated greenhouse gases under the Kyoto Protocol (HFCs, PFCs, and SF6).[65] The latter (domestic carbon markets), focused on neutralization purposes, can mobilize private finance for emissions reduction projects that commonly face financial difficulties (such as those in the forestry and agricultural sectors).

59 GIZ. 2018. Accounting for Nationally Determined Contributions.
60 UNFCCC. 2016. Paris Agreement.
61 CAF and CDKN. 2014. Synthesis Report. Cities' Footprint Project La Paz — Quito — Lima.
62 United Nations. n.d. Why finance climate action?
63 UNDP. 2020. Private investment in climate action.
64 Ibid.
65 Inter-American Development Bank. 2015. Environmental requirements for imports into the EU.

2.1.6. Linking NVCFPs to gender and just transition issues

According to the UN, gender equality refers to equal rights, responsibilities, and opportunities for women, men, girls, and boys.[66] For its part, just transition is a multidimensional approach that seeks to maximize the benefits of decarbonization, while minimizing potential negative impacts on economic activity, workers, communities, and territories.[67]

Pursuing these two objectives is part of the global development agenda, and is specifically related to Sustainable Development Goals 5 and 13. In this scenario, the NVCFP can be one of the means to bolster work to reduce gender gaps and ensure that the needs of all sectors are met in the transition to a low-carbon society.

For this purpose, it should be remembered that an NVCFP is made up of different levels of management and recognition. Then, the criteria for reaching each level, in addition to those directly linked to GHG management, could include considerations that promote gender equality and just transition. To illustrate this, a carbon footprint program could assess whether GHG reduction and neutralization actions implemented by an organization:

- Optimize the tasks that women and children usually perform (e.g., in the rural sector, collecting firewood, or collecting water).
- Improve the living environment of women and children (e.g., improving air or water quality).
- Use community-based participatory approaches that give all stakeholders the opportunity to learn about projects and contribute to decision making.
- Promote the generation of new local sources of employment.
- Have no adverse impacts on women and children.

Incorporating these aspects into the management of an organization could bring one or several special recognition awards within the framework of an NVCFP, which, as will be seen in the following section, have repercussions on image improvement, access to new markets, and corporate social responsibility actions.

2.1.7. Long-term planning and resilience building against the climate crisis, considering lessons learned from the COVID-19 pandemic

The COVID-19 pandemic dealt a severe blow to the world economy and has forced governments to take short-term measures to provide liquidity to markets, support unemployment insurance, and strengthen healthcare systems. At the same time, medium- and long-term economic recovery programs are being developed around the world, and more and more public and private organizations are committing to a green recovery.

Green recovery comprises a series of economic measures aligned with the achievement of climate change and sustainability objectives. For this reason, stimulus programs to be implemented in the aftermath of the global pandemic crisis will have to be carefully evaluated to ensure their economic, social, and environmental effectiveness. Efforts are aimed at consolidating a roadmap that reinforces the transition to a socioeconomic model that is climate neutral, resilient, sustainable, and inclusive.

Initiatives that support the promotion of green stimulus measures arise from different areas of society. Thus, various United Nations agencies have launched campaigns to align economic programs with the Sustainable Development Goals. In this regard, the World Bank has developed and published a list of sustainability criteria to evaluate economic policies and programs for approval and implementation.[68] This list includes aspects such as job creation (short-term) and resilience to future shocks (long-term).

As for the private sector, its presence has intensified in initiatives promoted by multilateral organizations such as the United Nations Global Compact, which is the largest voluntary corporate social responsibility initiative in the world.[69] In line with this involvement, organizations such as the Energy Transitions Commission — a global coalition of energy sector leaders committed to achieving zero net emissions by 2050 — have set priorities for a green economic recovery.[70] These include:

- The mass deployment of investments to build an electricity system based on conventional and non-conventional renewable technologies.
- Boosting the green building and infrastructure construction sector.
- Promoting electromobility in urban transportation and reducing fossil fuel subsidies.
- Eliminating new coal plants.
- Forging connections between government economic recovery measures and corporate commitments to climate action.
- Conditional support for innovative low-emission activities.
- Strengthening existing regulations and mechanisms for carbon pricing.

Along the same lines is the New Mission Innovation Missions platform, whose objective is to encourage collaboration between European Union governments and the private sector to catalyze investment to accelerate technologies that facilitate urban transitions, eliminate emissions from industry, and facilitate carbon removal and the production of fuels from renewable

sources. The set of actions undertaken in these three areas aims to unlock affordable decarbonization pathways for the sectors responsible for 52 percent of current global emissions.[71]

The issues discussed in this section indicate that implementing an NVCFP has significant implications for a country's development. In this sense, it is not only climate action — in the short and long term — that benefits from having instruments that contribute to meeting national pledges. Other aspects such as local GHG management, gender equality, and just transition can also be addressed through these initiatives. Complementing these advantages, the following is an analysis of the benefits that an NVCFP can offer to private organizations wishing to join the system.

66 Ayuda en Acción. 2018. What is gender equality? What does it involve?
67 Euroclima+. 2021. Just Transition: an approach to linking the climate, economic, and social agendas.
68 Hammer, Stephen and Stéphane Hallegatte. 2020. Planning for economic recovery from COVID-19 (coronavirus): A sustainability checklist for policymakers.
69 United Nations. n.d. COVID-19 Impact Brief.
70 Energy Transitions Commission. 2022. Building Energy Security Through Accelerated Energy Transition.
71 UNFCCC. 2021. New Mission Innovation Missions.

2.2. Benefits for the private sector

The Paris Agreement recognizes the important role of the private sector in a country's climate action and in achieving short- and long-term goals. To perform this function, the private sector must be able to identify and understand how its activities become sources of GHG emissions. The more comprehensive and inclusive GHG accounting is, the better companies' understanding of their emissions profile will be, which will enable them to manage appropriate actions to reduce and even neutralize their GHG sources.

The role of the private sector goes beyond being just a user, as NVCFPs generally offer a window of participation in the design of this extremely high-priority national platform. This contribution space, which includes participating organizations, verification companies, among other actors, facilitates the alignment of private climate action with national climate goals.

Thus, an organization's backing of an NVCFP not only provides it with a standardized and reliable framework for reporting its emissions, it also provides it with technological tools that are adjusted to its realities. These mechanisms can bring benefits that will help to improve long-term competitiveness, and to prepare progressively for future national and international policies related to the fight against climate change and environmental protection. In other words, they contribute to improving the company's resilience.

Indeed, while a company's main motivations for managing its GHG emissions include reducing energy-related costs, reducing its dependence on fossil fuels, taking advantage of new business opportunities, or improving its reputation,[72] the sum of these actions sets the stage for improving its resilience. In developing processes, and with the advent of the COVID-19 pandemic, the practices and skills acquired in the context of an NVCFP prepare the company for a new socioeconomic landscape, that is, they strengthen its permanence in the face of changing conditions.

For example, at the international level, regulations are being developed to prevent carbon leakage, known as carbon border adjustments. These regulations seek to tax imported goods based on their carbon footprint with the objective of limiting emissions leakages and leveling domestic industries that produce goods with a lower GHG emissions footprint compared to imports that may be cheaper but have a higher GHG footprint.[73] In this regard, the European Green Deal, which embodies the new growth strategy for the European Union (EU), states that should differences in levels of ambition worldwide persist, as the EU increases its climate ambition, the Commission will propose a carbon border adjustment mechanism. This is to ensure that the price of imports more accurately reflects their carbon content. Several of these benefits are described below.

2.2.1. Improved process efficiency

The calculation of the carbon footprint is an important element for decision making. By having information on GHG emissions, organizations can identify those processes or inputs that require adjustments or need to be changed, with energy being one of the most relevant aspects in this regard. Although this may require an initial investment, implementing energy-efficiency measures not only reduces a company's carbon footprint but also slashes costs. In this way, process re-engineering, equipment replacement, and habit modification can help to achieve greater efficiency and, at the same time, provide a quick return on investment. Likewise, the management of waste and residues to avoid emissions generated by their decomposing is a measure derived from a carbon footprint calculation process.

2.2.2. Improved reputation and competitiveness

As mentioned in the previous chapter, NVCFPs promote the implementation of GHG reduction measures, supporting organizations to achieve the neutralization of their emissions inventory. For a company, having processes and products that generate fewer emissions is a differentiating factor in national and international markets. Indeed, complying with environmental sustainability criteria strengthens a brand, increasing its competitiveness. Even when organizations do not have to contend with concrete, mandatory environmental requirements, being ahead of such requirements is highly valued in international markets, either by marketing and distribution channels or by consumers or end-users. These advantages are especially attractive to small- and medium-sized companies, which understand that having an emissions reduction certification can open up new markets for them.

In addition, by maintaining and furthering work on carbon footprint, opportunities arise to make progress in other environmental issues, such as waste and water management (aspects that are linked to improved process efficiency). These areas have also been included as requirements in national and international markets. Although incorporating these variables requires a significant economic and human effort, the profit opportunities deriving from enhanced reputation

and product acceptance can compensate for it. In this aspect, the environmental management actions undertaken by an organization and the dissemination of their results can affect the perception of the value of a product or company, which to a greater or lesser extent determines purchasing decisions.

2.2.3. Technological resources and capacity building

One of the benefits of joining an NVCFP are the technological tools and the support and training offered for building organizations' capacities in the preparation of GHG inventories.

As regards technological tools, it should be noted that as the implementation of the NVCFPs progresses, the programs create and improve the functionalities of their IT platforms in order to encourage the integration of organizations into the programs. A good example of this are online applications or spreadsheets for drafting the initial GHG inventory. Available free of charge, and supported by user manuals, these tools require companies to input activity-specific information in order to quantify emissions. In line with these calculators, the registration and approval of organizations can also be done virtually (depending on the development stage the NVCFP is at) to cut down on time spent on this activity.

As regards support, it is common for programs to set up a virtual help desk for interested parties, through which they can clear up queries about admission requirements or about the information that should be shared.

In terms of training, the government agencies administering the programs can implement activities and develop products aimed at bringing the concepts of emissions management closer to the employees of the companies or local governments that decide to participate in the NVCFP. These activities include training workshops that are open to the public or aimed at certain productive sectors. Products include written and audiovisual material (manuals, guides, etc.) available on the online platforms of each program. Alongside these, NVCFPs can also promote the creation of networks for exchanging experiences between organizations that are already part of the initiatives and those that are taking their first steps in GHG management.

For these benefits to be delivered successfully, a relevant aspect the government administering the program must consider is the recurrent challenge posed by the lack of appropriate technological equipment and the few permanent personnel assigned to running the platforms. If they exist, these shortcomings could cause inconveniences at the registration stage, for example, since the online platform may not be able to support the traffic of documentation submission requests from organizations wishing to join the NVCFP. In this sense, institutionalizing initiatives can help improve these aspects, together with a commitment of explicit and official support from governments.

2.2.4. Access to green procurement systems

The main objective of a green procurement system is to implement environmentally friendly practices in the goods, services, and works purchased and contracted by the public sector.[74] These practices, which can become mandatory requirements for participating in tenders, contribute to the implementation of policies aimed at achieving a country's environmental objectives. According to Five Winds International,[75] the benefits of "green procurement" include:

- Decreasing the use of energy, water, fuel, and other resources.
- Increasing the use of reusable and recyclable products.
- Supporting sustainability strategies and principles (including climate change).
- Improved corporate image and brand.
- Increased shareholder value.

Because of these benefits, the world's leading companies have also turned to green procurement practices for the procurement of inputs and raw materials that they use in the products and services they offer. In this way, green procurement systems have become a means to improve production processes in terms of environmental care, risk reduction, total manufacturing costs, and supply chain performance.

With different emphases, green procurement requirements for both the public and private sectors have four main focuses:

- Acquisition of eco-labeled products or services.
- Internal assessment of products or services.
- Independent assessments of products or services.
- Supply chain initiatives.

Because of the management levels and recognition system in the structure of an NVCFP, being part of these initiatives makes it easier for companies to participate in green procurement tenders. An

72 Frohmann, Alicia and Ximena Olmos. 2013. Carbon footprint, exports, and business strategies in the face of climate change.

73 Bell, Randolph and Elena Benaim. 2020. Carbon border adjustment: a powerful tool if paired with a just energy transition.

74 González-Cruz, et al. 2018. "State of Art of "Green Spanish Public Procurement", current situation and evolution in the last decade". 22nd International Congress on Project Management and Engineering.

75 Five Winds International. 2003. Green procurement: good environmental stories for North Americans.

obvious case is that of the seals awarded to goods and services that have reduced and even neutralized their GHG emissions, distinctions that could justify the environmental performance of products within the framework of tenders. Similarly, reports from the verification processes required by carbon footprint programs can be a resource for informed green procurement decisions and a logical component of effective supply chain management.

2.2.5. Tax incentives and financing facilities

By joining an NVCFP, a company may be able to receive tax incentives to help it achieve its GHG reduction and other environmental management goals. Thus, a company that has established concrete and verified GHG reduction commitments may be exempt from taxes when it needs to import elements, equipment, and/or machinery for environmental improvement processes, according to the terms and conditions of each country. This equipment includes energy-efficient equipment, emission control systems (end-of-pipe technologies), wastewater treatment plants, and waste management systems. At present, the high cost of these systems and the lack of tax incentives for their importation are one of the main barriers to making progress on environmental protection issues.

Again in the tax field, companies could be given income tax deductions by making direct investments to control and improve the environment, provided that these investments do not exceed a fixed threshold of their net income. In this respect, investments could be motivated in the context of the NVCFP.

In relation to financing, through the well-known "green credit lines" offered by various financial entities, companies that demonstrate greater environmental responsibility — undoubtedly linked to participation in an NVCFP — have greater opportunities for financing. Green credit lines are loans to finance projects that contribute to improving the quality of life of the population and have a positive impact on the environment. To be approved, these initiatives must have a review and verification of the environmental benefit they will produce, such as GHG mitigation, information that is directly linked to participation in an NVCFP. Access to these environmental credits is more attractive since they can reimburse a part of the investment as part of their benefits, depending on the scale of the project's result.

UNDP, Ecuador

2.2.6. Links to Corporate Social Responsibility (CSR)

Corporate Social Responsibility (CSR) is a company's commitment to contributing to sustainable economic development through collaboration with its employees and families, the local community, and society at large. A socially responsible organization is characterized by:

- Executing actions that add value to the community, beyond mandatory national and international laws and regulations.
- Voluntarily taking on initiatives to improve the community and its environment.
- Including all stakeholders in its actions, such as employees, suppliers, consumers, and even its competition.

CSR includes three lines of action — environmental, social, and economic — which should be linked to the company's core business and involve a commitment from top management. Voluntary actions are determined and designed around these lines, which can be in the following areas: a) human rights; b) consumer interests; c) environmental management and climate change; d) fraud and corruption prevention; e) improvement of labor and employment practices; among others.

Based on the characteristics and areas of action, the NVCFP will necessarily be aligned with an organization's CSR, particularly with regard to environmental management and measures to address climate change. In this sense, for example, the results of a GHG emissions reduction plan implemented in the context of a voluntary carbon footprint program can also be taken as CSR actions. Moreover, if the NVCFP expands its scope and branches out to other fields such as water footprint, energy efficiency, or waste management, it could justify a broader range of environmental management within an organization. All this with the sponsorship and legitimization of the government.

2.2.7. Establishment of public-private partnerships for climate action

As mentioned above, given that public funding is limited, private investment and expertise will play a key role in climate action. This means that in the implementation of national policies and programs aimed at addressing the fight against climate change, barriers to large-scale private investment in climate-smart mitigation and adaptation actions must be removed.

In this regard, depending on how national legislation allows for the design of the NVCFP, it could itself become a means to establish public-private partnerships aimed at developing climate-friendly projects. A case in point is the situation in countries that do not allow emissions trading. In these contexts, corporate emissions can be neutralized by contributing to a trust fund, the purpose of which is to sponsor national carbon sink management projects overseen by community or civil society organizations.

In this way, this offsetting modality makes it possible to build collaborative channels where all parties benefit: the private sector by being able to offset its emissions, the public sector by contributing to its mitigation objectives, and society by being able to preserve sinks (such as non-forest territories).

This section has described the advantages for the private sector in joining an NVCFP. It is crucial that these advantages be reinforced and disseminated — as carbon footprint measurement programs gain experience —, since motivating the mass participation of the private sector in climate action is of vital importance to achieving the GHG reduction targets set in the Paris Agreement.

2.3. Climate finance considerations

The United Nations Framework Convention on Climate Change (UNFCCC) defines climate finance as local, national, or transnational financing drawn from public, private, and alternative sources to support climate change mitigation and adaptation actions. In other words, climate finance seeks to enable actions that reduce emissions and increase GHG sinks, as well as actions that reduce vulnerability and increase the resilience of human and ecological systems to the impacts of climate change.

Given these objectives, climate finance is closely linked to NVCFPs, in particular through the three mechanisms explained below.

2.3.1. Considerations on results-based payments

Results-based payment is a financing model in which payments are conditional on the achievement of results and/or social impacts, verified by an independent third party. In the area of climate change, this mechanism is mainly linked to the AFOLU sector (Agriculture, Forestry, and Other Land Use). This linkage has allowed countries such as Ecuador and Costa Rica to receive non-reimbursable funds from international cooperation due to their verified actions

to reduce deforestation and forest degradation.

In the context of NVCFPs that promote emissions offsetting through national ecosystem preservation and restoration projects, the offsetting mechanism designed by the Ecuador Zero Carbon Program (PECC) is an excellent example illustrating how a non-market oriented scheme promotes economic retribution to the benefit of actors that voluntarily manage the preservation and restoration of forest ecosystems that are outside the REDD+ approach. Thus, in addition to channeling private funds towards nature conservation, NVCFPs contribute to improving the country's land use indicators, which in turn increases the country's chances of being eligible for an international results-based payments program. Section 4.5 of Chapter 4 elaborates on this PECC scheme.

In line with the same purpose, an NVCFP can promote sustainable and integrated natural resource management by requiring its participants to provide deforestation-free goods and services, or boost the bioeconomy through the commercialization of non-timber forest products.

2.3.2. Connections to carbon markets in the context of the Paris Agreement

Offsetting is one of the most economically effective mechanisms for reducing GHG emissions, as it allows companies to offset emissions by financing an equivalent carbon dioxide saving elsewhere. This premise has prompted the creation of a carbon market, which a significant number of companies and institutions now adhere to.

In Latin America, the NVCFPs of Peru, Panama, and Chile promote the creation of national carbon markets for companies to offset their non-reducible GHGs through mitigation projects implemented in their own country. This mobilizes climate finance for national mitigation efforts, helps prevent the international transfer of carbon credits, and thus keeps reductions in national accounting. At the same time, other countries (such as Ecuador) have designed alternative mechanisms to carbon markets in order to facilitate the offsetting of emissions by NVCFP participants through retributive schemes that benefit voluntary ecosystem conservation/restoration initiatives. More detail on these schemes is provided in Chapter 4, Section 4.5.

In particular, regarding domestic carbon markets — as elements that can support NVCFPs — the UNDP has developed a service that includes the handling of these markets and emissions trading schemes for national carbon neutrality programs. Among the most outstanding issues are institutional arrangements, accounting for emissions and removals, the development of positive lists of projects and programs aligned with the NDC, among others.

From a broader perspective, other NVCFPs also allow for offsetting through international GHG reduction projects. Countries adopting this scope must necessarily take precautions with respect to double counting. Double counting occurs when GHG reductions are recorded as part of the emissions management of two countries: a) the country where the reduction is generated, and b) the country of the company purchasing the reduction. Given this possibility, if an NVCFP is to contribute to transparent compliance with the NDC targets — and thus with the Paris Agreement targets — its legal and regulatory framework must integrate the corresponding adjustment (CA) criterion.[76]

The corresponding adjustment is an approach introduced by the Paris Agreement that seeks to ensure that emission reductions/removals that have been traded between countries are only accounted for in one country's NDC. In particular, if a country wishes to import any emissions reductions/removals and count them towards its NDC, such reductions/removals will have to be accompanied by a CA to ensure that the country of origin does not count them a second time. In other words, CAs effectively subtract emissions from the inventory of the importing country and add an equivalent number of tCO2e back into the inventory of the country of origin, thus ensuring accounting integrity under the Paris Agreement.
By adopting this criterion, NVCFPs that allow offsetting through international emissions trading (or Internationally Transferred Mitigation Outcomes — ITMOs — as they are called in the Paris Agreement) could contribute to the sum of countries' emissions reflecting the real state of the global GHG balance, an indicator that is essential for taking action on climate change.

2.3.3. Private sector participation in international cooperation

Funds aimed at fighting climate change, such as the Green Climate Fund, for example, allocate part of their resources to financing mitigation and adaptation measures proposed by the private sector. To date, the main focus of interest has been on GHG reduction projects, so companies that have a baseline of the emissions that their activities produce

76 Srinivasan, Sandhya, and Manu Sharma. 2021. Managing the Risk of Corresponding Adjustment.

have an advantage. In this sense, participating in an NVCFP can facilitate the development of such a baseline, since it would have the technological tools and resources provided by the government.

2.4. Case study: HuellaChile and its link with the public and private sectors

Chile has decided to address the challenges posed by climate change with intent, urgency, and responsibility. Following this decision, the Chilean government has exponentially increased efforts to reduce national GHG emissions and vulnerability to climate change through a multi-sectoral transformation that paves the way for sustainable, emission-neutral, and climate-resilient development. Even in the difficult context spawned by the COVID-19 pandemic, Chile has progressed with strength and conviction in the accomplishment of the commitments undertaken under the Paris Agreement. As a result, in March 2022, the National Congress ordered the enforcement of the Framework Law on Climate Change, a document that formalizes and makes binding the goals and commitments that Chile has expressed before the UNFCCC.

In line with this vision, the HuellaChile Program — implemented since 2013 by the Ministry of Environment — encourages the contribution of the public and private sector to achieve national emissions reduction goals. To this end, HuellaChile has been considered a key element in the Framework Law on Climate Change, which aims to achieve carbon neutrality by 2050. Specifically, Art. 30 provides for the official creation of the Voluntary Certification System for Greenhouse Gas and Water Use.

Similarly, HuellaChile is linked to the objectives established in the National Action Plan for Climate Change 2017–2022, through Mitigation Measure 22, which commits the government to the implementation and maintenance of the program.

In the same way, Management Measure 12 of this plan states that the measurement of GHG emissions of municipalities shall be carried out through HuellaChile.

HuellaChile also explicitly supports the goals of the updated NDC (2020), which defines that the national GHG inventory for the 2020–2030 period will be 1.1 billion tons of CO2eq, and that peak emissions shall occur no later than 2025. As indicated in Adaptation Contribution No. 7, letter b), by 2025, parallel to the recognition system for GHG management, HuellaChile will have implemented a system of distinctions according to the level of water consumption management at organizational level.

Likewise, this program is associated with Goals 1.1, 1.3, 1.4, and 3.1, as well as Chapter 6 (incentives and climate change management at the regional and local level) of the Long-Term Climate Strategy (LTCS), a policy that also recognizes it as one of the monitoring instruments in its MRV process. This document outlines the roadmap to be followed over the coming decades for Chile to achieve carbon neutrality and climate resilience.

To ensure these links are effective, HuellaChile does not act alone, but creates synergies with other government agencies such as the Environmental Management Department of the Ministry of Environment, the Sustainability and Climate Change Agency, the Energy Sustainability Agency, the Ministry of Public Works, among others. With the collaboration of the latter, it has worked on embedding a carbon footprint management plan into public works projects. This plan seeks to establish the reporting of GHG emissions and removals during the construction and operation phases of projects. The first project including these new requirements was presented on December 31, 2021, through the Bidding Terms and Conditions (BALI) of Route 68.

Another public-public partnership is the one established with the Municipal Environmental Certification System (SCAM), which seeks to promote climate change management at the local (communal) level. Similarly, HuellaChile has partnered with the Santiago Chamber of Commerce (CCS) to develop two days of training workshops on the quantification and preparation of GHG inventories, emissions reduction reports, and strategies to support carbon neutrality.[77]

These partnerships show that HuellaChile can collaborate with any organization, association, guild, sector, or initiative that voluntarily expresses its intention to progress in low-carbon development. Collaborations may be of a technical nature (capacity building, experience exchanges, contribution to NDCs), recognition and accreditation, and promotion of participation and dissemination.

In addition, the HuellaChile Program has recently expanded its scope by integrating gender-inclusive language in all its graphic materials for dissemination and training. This is accompanied by the addition of a requirement to achieve the seal of excellence, which limits organizations facing current legal proceedings for gender issues from applying, while awarding extra points to organizations that have gender equality policies or strategies. This last milestone takes into account cross-cutting criteria for integrating a gender perspective into climate change management proposed by the Climate Change Unit of the Ministry of Environment (Figure 12).

In addition, in order to respond to and complement the commitments related to water use management, the HuellaChile Program — together with the team

of the Climate Change Adaptation Department of the Ministry of Environment — headed a consultancy service to design the basis for a system that recognizes improvements in water availability, access, conservation, and sanitation in Chile. This initiative will link voluntary water management systems with voluntary GHG management proposals.

In short, HuellaChile brings national climate policy down to earth for public and private sector actors, facilitating its implementation, helping to strengthen the technical capacities of both sectors, promoting their coordination, fostering a sustainable and green economy, and ensuring Chile's path towards carbon neutrality.

77 Santiago Chamber of Commerce (CCS). 2021. CCS and the "HuellaChile" program hold meeting on carbon neutrality.
78 Climate Change Office of the Ministry of Environment. 2020. Checklist for integrating a gender perspective into climate change management instruments.

No.	Action
1	Incorporates the relationship between Gender and Climate Change, through disaggregated data and analysis, in the different sections of the document.
2	There is a balanced representation of men and women in the different working bodies of the instrument, as well as in the participatory process.
3	Throughout the entire process, a gender point person (with experience) or gender expert is incorporated to advise at all stages. If the institution does not have a professional in charge, it is suggested to designate and train one.
4	The text uses inclusive and non-sexist language.
5	The products created from the instrument do not contain gender stereotypes.
6	The checklist is applied to each of the studies or consultancies related to the management instruments.

Figure 12. Cross-cutting criteria for incorporating a gender perspective into climate change management instruments.[78]

Chapter 3

Establishing a National Voluntary Carbon Footprint Program

San Rafael Waterfall
Ministry of Environment, Water, and Ecological Transition, Ecuador

The first chapter of this guide provided a general review of the characteristics of NVCFPs and their structure. Likewise, the existence of internationally accepted GHG measurement approaches and methodologies, which have served as a basis for designing programs around the world, were presented. This chapter also demonstrated that the initiatives have similar management levels, which start with the measurement of emissions, through to reduction, and culminate with the neutralization of the GHGs that organizations, territories, and products generate. In addition, an introduction to the UNDP-backed NVCFPs in Latin America (and similar ones around the world) was provided.

The second chapter outlined the benefits of NVCFPs for national governments and the private sector. For the former, the design of programs that contribute to accomplishing the national commitments undertaken in the context of international agreements (such as the Paris Agreement) is relevant. For the latter, the technological resources and capacity building provided under the initiatives, as well as the recognition they receive for meeting the conditions of each level of management, help them to improve their image and process efficiency, which are fundamental aspects for addressing markets with ever-increasing environmental demands.

In both the first and second chapters, the topics were approached from a theoretical point of view. In this chapter, these issues will be approached from a practical perspective by referencing the experiences of the four Latin American countries that have received technical and financial backing from the UNDP for the implementation of national carbon footprint programs: Chile, Peru, Panama, and Ecuador. Chile has the most extensive experience, having initiated its program in 2013 as a pioneer in the region and before the Paris Agreement was established (2015). Peru follows, with three years of operation. Panama and Ecuador are the most recent, both having been created approximately one year ago, and the context of their contribution to the NDCs is already part of their genesis.

The good practices and obstacles identified by these four initiatives during their implementation processes are compiled here with the aim of providing recommendations/references to other countries on how an NVCFP can be built and put into operation. For this purpose, this chapter is divided into two sections. The first section presents and describes the phases of the roadmap for an optimal design and implementation of an NVCFP. These phases have been divided into four groups:

- Definition of administrative aspects.
- Definition and design of technical aspects.
- Program dissemination.
- Implementation of the GHG registration and management system.

The second section addresses the costs involved in developing the phases of the roadmap and in maintaining the program in operation.

3.1. Roadmap or phases for optimal NVCFP implementation

The first chapter introduced a series of elements that make up an NVCFP. In this section, we will recommend the phases in which these elements can be designed and/or implemented in order to launch a voluntary carbon footprint program. We have classified these phases into four main groups of activities.

The first group addresses the definition of the administrative aspects that will support the constitution of the program and outline its subsequent implementation, including the legal and governance frameworks. The second group encompasses the definition of the technical aspects that will support the operation of the NVCFP, considering the registration mechanism, GHG management levels, monitoring, reporting, and verification procedures, and the recognition system. The third phase deals with the dissemination of the program to the target sector (the private sector, for example), in order to pave the way for future participation. The fourth and final stage comprises the implementation of the program's GHG registration and management system, that is, the construction of the tools that will help in quantifying and reporting the GHG inventory, in accordance with the guidelines defined in the first two phases of this roadmap.

3.1.1. First phase: definition of administrative aspects of the program

The purpose of this phase is to outline some considerations that are important to take into account when defining the guidelines that will guide the management of the carbon footprint measurement program, as well as the legal and governance frameworks that will underpin its design and implementation.

3.1.1.1. Definition of the general program objectives

The objectives are the basis that will support the design of the NVCFP's operation, since they indicate the purposes of the NVCFP. These objectives may change over time as the program matures. Given the current context of climate change management — mitigation actions must come from all Parties to the UNFCCC and

not exclusively from developed countries — the three fundamental objectives of an NVCFP are:

a) Encourage the voluntary participation of the private sector and territories in the efforts to implement the actions proposed in the NDCs.

b) Link and monitor the contribution of NVCFP participants to the national carbon footprint and compliance with the NDCs.

c) Motivate, guide, and train NVCFP participants so that their GHG management is not limited to the quantification of emissions, but progresses towards reducing and neutralizing them.

For these three objectives to contribute to a country's effective climate action, two relevant aspects must be identified.

The first is the classification of economic sectors in terms of their level of GHG emissions (this information can be obtained from the GHG inventories that are periodically developed for the National Communications and Biennial Update Reports). Then, if the sector with the highest emissions is food production and processing, for example, the initial goal of the program could prioritize greater adherence by companies in this sector. In line with this priority, the NVCFP's dissemination strategies should contribute to this purpose, without neglecting or limiting the participation of sectors with lower emissions.

The second aspect to identify, where possible, is the size of the organizations adhering to the program. Although the participation of small and medium-sized companies is important, they may not have the means (economic, technical, human) to quantify their GHG emissions, let alone implement reduction measures. In addition, the contribution of these companies to a country's total GHG emissions should be analyzed. Considering this, focusing initially on large companies that may even have already implemented GHG reduction actions (such as energy efficiency or efficient waste management plans) could be of greater benefit to meeting the NVCFP's objectives.

These two aspects are also relevant in the territorial approach, since identifying the largest and highest-emitting companies within a jurisdiction can contribute to prioritizing or relaxing the boundaries applied for calculating a territory's carbon footprint. Achieving the participation of large companies in the sectors that generate the most GHGs will depend on the program's dissemination strategies and the benefits it provides. In this regard, although the improvement of the corporate image and the possible opening of new international markets may be attractive benefits for the private sector, at the national level the creation of a green procurement system, as described in the second chapter of the guide, could be a better incentive.

3.1.1.2. Definition of the program scope

In defining the program scope, first, it must be established that the program seeks to quantify, reduce, and neutralize GHG emissions, the latter through GHG reduction projects. In this regard, although partial offsetting of emissions can be one of the management levels, it is recommended that the carbon footprint management process ends with neutralization (net-zero emissions), in order to make a relevant contribution to each country's NDCs and LTS (even if these have not yet been designed). As mentioned in the first chapter of the guide, GHGs include carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF6), and nitrogen trifluoride (NF3).

Secondly, the scope comprises:

- **Defining the nature of the program**. NVCFPs are voluntary initiatives, i.e., within the framework of its functions, it cannot require companies to adhere to it, nor can it stipulate penalties for them.
- **Defining the approaches to be addressed in the program.** As explained in the first chapter, an NVCFP can be focused on organizations, territories, and products (goods and services). It is recommended that the three approaches not be addressed simultaneously in the program start-up, but that one of them be selected based on the advantages and barriers it may present within the national context. To determine what this initial approach might be, Tables 5, 6, and 7 summarize the advantages and barriers of the organizational, territorial, and product approaches, respectively.

Based on what has been identified for these two aspects, it can be said that in order for a carbon footprint program to represent a relevant contribution to compliance with the NDCs, it must achieve the mass participation of companies whose GHG inventories are the largest contributors in the sectors with the highest emissions at the national level. Therefore, the NVCFP should encourage this group of companies to present plausible commitments to reducing emissions and striving towards carbon neutrality, as it would be useless for these companies to participate in the program but only measure and verify the carbon footprint.

Box 4. How to make an NVCFP relevant to a country's climate action?

Table 5. Advantages and barriers of the organizational approach to carbon footprint measurement.

Advantages	Barriers	Mitigation actions
It is possible to focus on the sector with the highest GHG emissions in a country. It is possible to focus on the companies with the highest GHG emissions, regardless of the sector to which they belong. Makes it possible to reach a larger number of participants. Companies that have prepared their GHG inventories and implemented mitigation measures prior to the NVCFP can be incorporated by complying with certain requirements.	Companies may not have the means (financial, technical, human, cognitive) to: • Collect the information required to calculate their GHG inventory, especially SMEs. • Design and implement GHG reduction measures. Companies may not have the financial resources to carry out verifications at each management level.	Development of digital calculation tools and online reporting systems, with their respective guides, to facilitate company participation. Use of simplified quantification methodologies for certain service activity sectors. NVCFP support for the development of company personnel's technical skills, through virtual workshops or MOOC courses, among other options. One example of this are the virtual carbon footprint cycles developed by the HC-Peru program, whose purpose is to strengthen the capacities of different organizations to manage their GHG emissions. NVCFP support for the development of GHG reduction plans, showing the possible reduction in operating costs that the company could achieve. Through public procurement systems, awarding additional points for implementing mitigation actions that improve a company's chances of winning a bid.
	Companies may be hesitant to participate in the program because of the level of exposure their GHG emissions information will have.	The program should allow the organization to choose whether to authorize the program to disclose its GHG information and reports individually or in aggregate, as part of a sectoral statistic. The program should clearly establish in its operational guidelines the use and level of dissemination it will give to the information received by the program. This document would be the instrument that would ensure the confidentiality of the organizations' data. Upon acceptance into the NVCFP, the administrator may submit a signed statement to the organization specifying the use and disclosure to be made of the information it reports.
	Companies do not identify the advantages and benefits of participating in the NVCFP.	The program should disseminate the recognition and benefits it grants to organizations in the sectors of interest and to the general public. To this end, it can develop communication campaigns focused on organizations with the highest GHG emissions, as well as provide more information on GHG management levels. In the case of HC-Peru, for example, the MINAM created Nono, the carbon footprint bear, a character that has enabled the creation of closer relationships with organizations. Directly linking NVCFPs with green procurement systems (if any). Disseminate the fact that the GHG management certificates granted by the NVCFP can be used in international green procurement tenders.

Advantages	Barriers	Mitigation actions
	Organizations may be unwilling to undergo third-party verification processes in anticipation of possible sanctions.	The program should clearly and explicitly communicate that the verification process does not imply the determination or execution of sanctions in case of failure. The program should communicate clearly and precisely that if the verification process is not passed, it can be carried out again.
	There are no verification bodies that can be authorized by the NVCFP manager.	Incentivize companies that provide verification services to be part of the program according to its conditions, as this would mean the opening of a new market for them. Certify the program as complying with international carbon footprint standards in order to be able to use internationally accredited verifiers. As part of the NVCFP governance framework: • Include the verification sector so that they are aware of the program's scope and operating conditions. • Start a dialog with the national accreditation body to establish the participation criteria for verification bodies in a way that promotes national capabilities (which in turn may reduce the cost of using international bodies) following international best practices.
	Companies wishing to participate in the program may have ongoing environmental sanctions (related to environmental quality parameters, for example) or have committed environmental crimes (related to biodiversity, for example). If this is the case, admitting them into the program could set a bad precedent or even be considered greenwashing.	The program, as part of its operational guidelines, may establish principles and mechanisms for governing the assessment of these cases and, after determining the extent of the sanction or offense, allow or deny a company's participation in the program. The NVCFP may limit the entry of organizations that have unresolved environmental sanctions or have committed environmental crimes. This is how HC-Peru operates, for example. However, this restriction could discourage large companies in litigation with civil society organizations, such as mining and oil companies (whose GHG emissions could be significant), from joining.

Prepared by: Author.

Table 6. Advantages and barriers of the territorial approach to carbon footprint measurement.

Advantages	Barriers	Mitigation actions
It is a comprehensive approach as it includes GHG emissions generated by various sectors (transportation, industry, residential, solid waste, among others). As territorial divisions (provinces or municipalities) are numerically smaller than the number of companies in a country, the calculation of the national carbon footprint/national GHG inventory could be simplified, provided that a mass adhesion of the jurisdictions is achieved.	Private organizations located in the territories may not be willing to share information on their GHG emissions.	Calculate a Tier 1 inventory based on statistical activity data and default emission factors. However, this information may not be sufficiently representative of the facts for designing mitigation measures. Creation and formalization of local or national regulations that oblige companies to share information on their carbon footprint to build a Tier 2 inventory. **NOTE:** Tiers are defined as the level of methodological complexity used in the calculation of GHG emissions.[79]
	Lack of the necessary means (economic, human, and cognitive) to compile the information required for the calculation of the GHG inventory, corresponding to the different levels of management of the NVCFP.	NVCFP support for the development and strengthening of the technical capacities of local government personnel involved in the preparation of GHG inventories. Recruitment of new personnel that would have as one of their main activities the preparation of GHG inventories at the territorial level (this may prove complicated as the public sector budget is generally limited). Expansion of the budget so that the government agency or department in charge of preparing the GHG inventory can build it through the contracting of consulting services (this presents the same limitation as the previous measure). Carrying out the GHG inventory through consulting services that are sponsored by international cooperation agencies (this measure should ensure an effective transfer of knowledge from the consultants to the public officials who are responsible for preparing the inventory).
	Scarce resources (economic and knowledge) for the design and implementation of GHG reduction measures, for example, in areas such as public transportation or waste management.	NVCFP support for the development and strengthening of the technical capacities of local government personnel involved in the design of mitigation measures. Expansion of the budget of the government agency or department in charge of the design and implementation of GHG reduction measures (this is a complex measure due to the narrow fiscal margin states work with). Access to financing (reimbursable or non-reimbursable) from international cooperation (in addition to an effective transfer of knowledge from consultants, this measure poses the risk of generating dependence on donor contributions that would then complicate financing the long-term vision of the territories to reach and maintain the stages of neutrality).

79 Vicuña, Sebastián. 2014. Greenhouse gas emissions inventories. An analysis for Chile, El Salvador, Mexico, and Uruguay.

Advantages	Barriers	Mitigation actions
	Lack of financial resources to contract verification services.	Expansion of the budget for the government agency or department that would be in charge of GHG inventory development (this is a complex measure due to the narrow fiscal margin states work with). Access to financing (reimbursable or non-reimbursable) from international cooperation agencies to contract verification services (in addition to an effective transfer of knowledge from consultants, this measure poses the risk of generating dependence on donor contributions that would then complicate the financing of the territories' long-term vision to reach and maintain neutrality). As the NVCFP participants belong to the state sector (local governments), third-party verification could be replaced by a thorough review of the quality of the inventories that would be carried out by the personnel administering the program (this would depend on the level of expertise and number of technicians working for the program).
	Lack of specific departments or units (within local governments) dealing with environmental management or climate change issues.	Creation of departments or units responsible for environmental issues, in general, and climate change, in particular. This should include the allocation of personnel and budget for the operation of the unit. Official delegation of environmental and climate change issues to one of the existing departments within a local government. This designation should include the personnel and budget necessary to fulfill the new tasks assigned.
	Specific competencies to carry out GHG measurement and reporting in their jurisdictions have not been granted to local governments.	Expand the competencies of local governments. This would involve the modification of codes, laws, or even a country's own constitution. In addition, it may require the expansion of the local government budget, or funds to be subtracted from other activities.
	There are no verification bodies that can be authorized by the NVCFP manager.	The same as those specified for the organizational approach.

Prepared by: Author.

Table 7. Advantages and barriers of the product approach to carbon footprint measurement.

Advantages	Barriers	Mitigation actions
It is an approach that encompasses the life cycle of a product (including its use). This implies that the calculation of the carbon footprint is more comprehensive, as it considers the activities of all the companies involved in the production process, distribution and storage; the individual carbon footprint of the consumer; and the emissions produced at the end of the good's useful life.	GHG quantification is accompanied by a high degree of uncertainty in results, due to the multiple variables integrating the modeling systems. This makes it difficult to compare the carbon footprint between products of different brands that have the same or similar uses.	The seals issued under the NVCFP recognition system, in the case of products, could contain an indicator (traffic light type, for example), in which each color represents a range of carbon footprint values that would be set by the program. This involves the design of specific seals for this approach.
	The labels communicating the carbon footprint would differ between domestic and international products. NVCFPs in Latin America report the level of management (measurement, reduction, etc.), while international products may contain carbon footprint data in units of CO2eq. This could create confusion among consumers and result in a possible disadvantage for domestic products.	In this case, it would be necessary to identify the requirements of international markets regarding the carbon footprint of products. Based on this analysis, effective mitigation actions could be designed and implemented, one of which could be related to the NVCFP recognition system. In relation to this, the seals could contain an indicator (traffic light type, for example) that reflects the level of GHG emissions with respect to a reference level set by the program (this would imply the design of specific seals for this approach).
	The quantification methodology involves not only the activities of the company that manufactures the product (primary manufacturer), but also those of its suppliers (secondary manufacturers) and the users of the product. This makes the calculation of the carbon footprint more complex.	The NVCFP could prepare a national calculation methodology that simplifies the quantification process and reflects the reality of the country's production processes. This, however, is not recommended because of the time (development can take years) and the specialized-knowledge personnel it requires.
	Suppliers of inputs and raw materials may not be willing or even have the information required to calculate GHG emissions.	Support provided by the manufacturer to encourage its suppliers to implement information collection systems associated with the calculation of the carbon footprint. This commitment, for example, may involve purchasing a larger quantity of inputs from suppliers that have reported their carbon footprint within the same NVCFP.

Advantages	Barriers	Mitigation actions
	Requesting data on GHG emissions generated by suppliers could raise doubts or questions about the use that would be made of such information. This could result in speculation about sanctions.	The NVCFP, as part of its operational guidelines, should clearly state that it is voluntary and that its functions do not include imposing sanctions on its participants. The NVCFP may issue a statement, signed by the competent authority, stipulating that this initiative may not impose sanctions of any nature on its participants.
	This approach cannot be limited to activities carried out in the national territory, which could lead to double-counting issues.	Implementation of a monitoring and reporting system that requires certification that emissions from input and raw material suppliers have not been accounted for as part of other countries' GHG inventories. This may prove complicated, as it depends on the environmental regulations of other countries.
	There are no verification bodies that can be authorized by the NVCFP manager.	The same as those specified for the organizational approach.

Prepared by: Author.

Having identified the barriers for each approach, as well as the implications of possible actions to mitigate them, it is recommended that the NVCFP should begin its first phase with an organizational approach. By working under this approach, the public sector does not have to bear the costs that program participants would incur (as in the territorial approach), and the initiative would not face the high uncertainty of calculating the carbon footprint of products. Then, the best practices and lessons learned during the experience with organizations can serve as a basis for expanding the scope of the program to more technically and financially complex sectors.

- **Selecting organizational boundaries**.[80] The NVCFP should clearly define and inform its participants in a timely manner about which organizational boundaries it accepts within its GHG quantification context. As the name indicates, these boundaries are specifically associated with the organizational approach, and there are three possible ways to establish them:
  - Shareholding-related boundaries, which are defined by the percentages of ownership of shares held by the organization in its operations, subsidiaries, and/or affiliates.
  - Financial control-related boundaries, which consider whether the organization directs financial policies and makes decisions that affect its operations, subsidiaries, and/or affiliates.
  - Operational control-related boundaries, which consider whether the organization can introduce and implement changes in the operating structure of its operations, subsidiaries, and/or affiliates.

It is more straightforward for organizations to identify these boundaries when they have no subsidiaries and only one physical location owned by a single owner. However, the definition becomes more complex when the organization, in addition to its own operations, comprises the operations of subsidiaries and affiliates. For this reason, it is recommended that the NVCFP adopt the operational control-related boundaries as the sole approach to emissions consolidation. This is intended to reduce the risk of double counting and also to facilitate the implementation of mitigation plans in the facilities of the organization, its subsidiaries, and affiliates.

- **Defining the sources of emissions to be considered**. In order to simplify the calculation of the GHG inventory for organizations and territories that are pioneers in their adhesion to an NVCFP, it is suggested that during the start-up stage, only the measurement of Scope 1 and 2 emissions sources should be mandatory, leaving Scope 3 sources optional. Scope 3 emissions could be addressed once the NVCFP has a solid base of participants whose technical capabilities have been strengthened through the initial GHG reporting processes.
- **Defining the type of institutions invited to participate.** This means deciding on the admission of entities that are: a) public, private, mixed, and/or civil society; and, b) that carry out their activities within and/or outside national boundaries.

In this sense, although the program is focused on integrating private companies in a country's climate action, it is recommended that the initiative should also include public, mixed, multilateral, NGO, civil society, etc. entities. The involvement of public entities and local multilateral offices, for example, lends legitimacy to the initiative, since it is inconsistent for the public sector to promote the reduction of emissions generated by the private sector when its own agencies do not take action in this regard. All these entities must be legally constituted in the country, and may be national and/or foreign domiciled in the national territory, for-profit or non-profit.

Whether to include activities conducted within or outside the national territory depends on the approach being taken. Thus, for the organizational approach, it is suggested that program participants consider only

From the information presented in this section, it is recommended that NVCFPs progress from quantification to neutralization of the carbon footprint. During its start-up, it is suggested that it should focus on private sector organizations, but also integrate public sector and mixed institutions. All these entities must quantify and report Scope 1 and 2 GHG emissions, which make viable only the activities that they develop within the national territory. In addition, these organizations must be legally constituted and may be national or foreign, for-profit or non-profit.

Once the organizational focus has been consolidated, the NVCFP could expand its scope to products (or some of its subcategories, such as events), and eventually to territories.

Box 5. Key aspects to defining the scope of an NVCFP.

those processes they carry out within the geographical boundaries of the country. This is in order to avoid the double counting that can occur with international GHG inventories from the aviation and maritime sectors, for example, and to generate a report that contributes with certainty to the country's NDC goals.

3.1.1.3. Adoption of the principles that will govern the operation of the program

The principles outlining the operation of the program can be the same principles defined by current international standards for carbon footprint quantification and reporting (GHG Protocol and ISO Standards, mainly). These principles include relevance, completeness, consistency, transparency, and accuracy, among others.[81]

3.1.1.4. Identification of the legal framework for the creation of the program

The legal framework for the creation and implementation of an NVCFP should include the laws, rules, legislation, and any other national and international regulations applicable to environmental and/or climate change issues within a country. The guidelines stipulated in these documents will underpin the actions and activities of the program. To schematize the constitution of this framework, Figure 13 shows the different legal instruments that it could include, depending on the legislation in force in each country.

Within national instruments, the main backing are the articles of the Constitution that support environmental management and, if they exist, those that specifically support management to prevent and address the impacts of climate change. After the Constitution, the respective chapters of codes and laws that address environmental and climate issues (e.g., environmental codes) should be deployed. If any articles in the regulations of these codes and laws are relevant in the context of an NVCFP, they could also be included. Sometimes, in addition, there are provisions in other codes or laws that support national climate action (such as production codes that guide production processes towards eco-efficient forms of energy use). Mentioning them in the legal framework would also be relevant.

Lower-ranking instruments include resolutions and decrees through which certain government decisions are made official. If any of these are related to climate change management (such as an executive decree making NDCs officially a state priority or policy),

80 World Resources Institute and World Business Council for Sustainable Development. 2004. A corporate accounting and reporting standard — GHG Protocol.

81 An example of a description of these principles is shown in Annex 2.

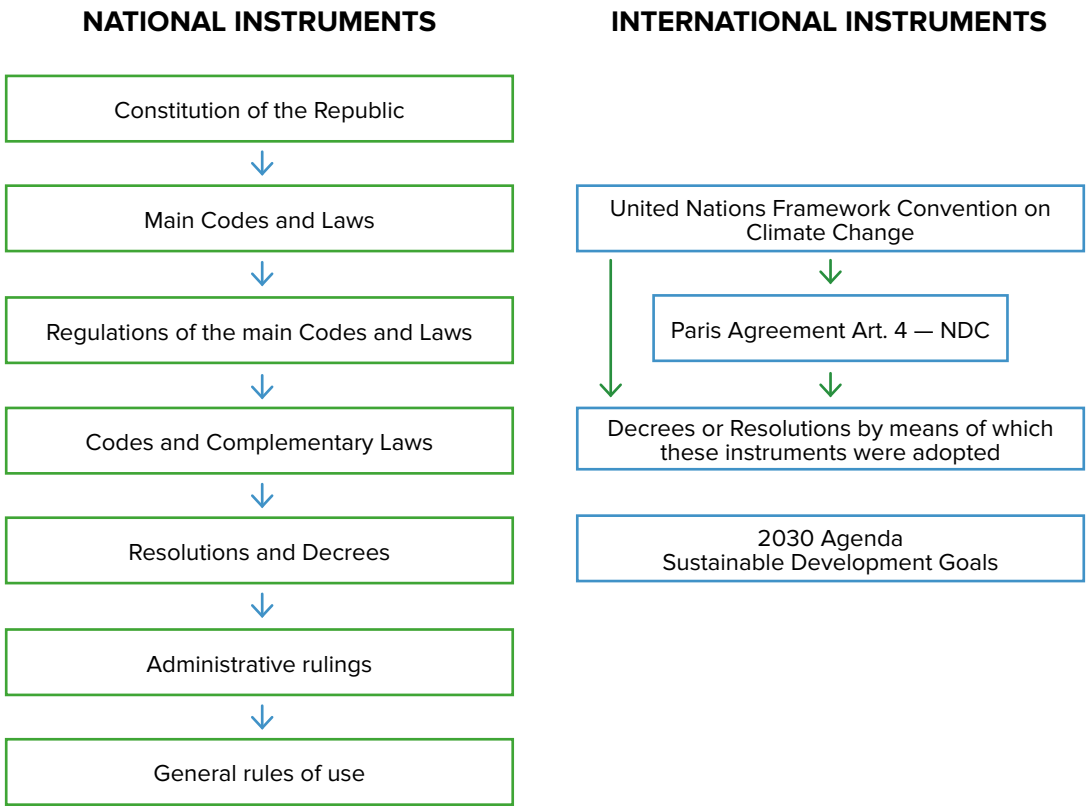

Figure 13. Legal instruments that support the creation and operation of an NVCFP. **Prepared by:** Author.

they should be included as legal endorsement for the program. Lastly, the integration of administrative regulations and general rules of use derived from laws and regulations may also be considered, if appropriate.

Parallel to the aforementioned national legal instruments, there are international legal instruments, which, without being binding, support the issuance of national laws and public policies on certain issues. With regard to climate change, the first is the United Nations Framework Convention on Climate Change and the Paris Agreement, which indicates that national measures for mitigation of and adaptation to climate change shall be expressed through the NDCs (art. 4). In addition, the incorporation of the 2030 Agenda for Sustainable Development adopted by the United Nations is considered relevant. This agenda can address: a) Goal 7, on affordable and clean energy; b) Goal 12, on responsible production and consumption; c) Goal 13, on climate action; d) Goal 15, on life on land, among others. Mention of these instruments may be accompanied by the resolutions or decrees by which the country expressed its adherence and/or ratified their adoption.

Backed by the types of legal instruments described above:

Chile made HuellaChile official through the Framework Law on Climate Change of 2022, whose art. 30 provides for the official creation of the Voluntary Certification System for Greenhouse Gases and Water Use.

Peru did the same using the Regulation of the Framework Law on Climate Change, approved by Supreme Decree of December 31, 2019, whose art. 55 creates the Peru Carbon Footprint as a digital tool for free and voluntary use to promote the measurement of GHG emissions in the private and public sectors. Subsequently, it approved the Guidelines for the Operation of HC-Peru through Ministerial Resolution No. 185-2021-MINAM.

With Executive Decree No. 100 of October 20, 2020, **Panama** created the Reduce Your Footprint National Program for the management and monitoring of social and low-carbon economic development in the country. This program includes Reduce Your Corporate Footprint — Carbon.

Ecuador, through Ministerial Agreement No. MAAE-2021-018 of May 6, 2021, created the Ecuador Zero Carbon Program to promote the implementation of actions that contribute to achieving climate-compatible sustainable development.

Figure 14. Legal framework for the establishment of NVCFPs in Chile, Peru, Panama, and Ecuador. **Prepared by:** Author.

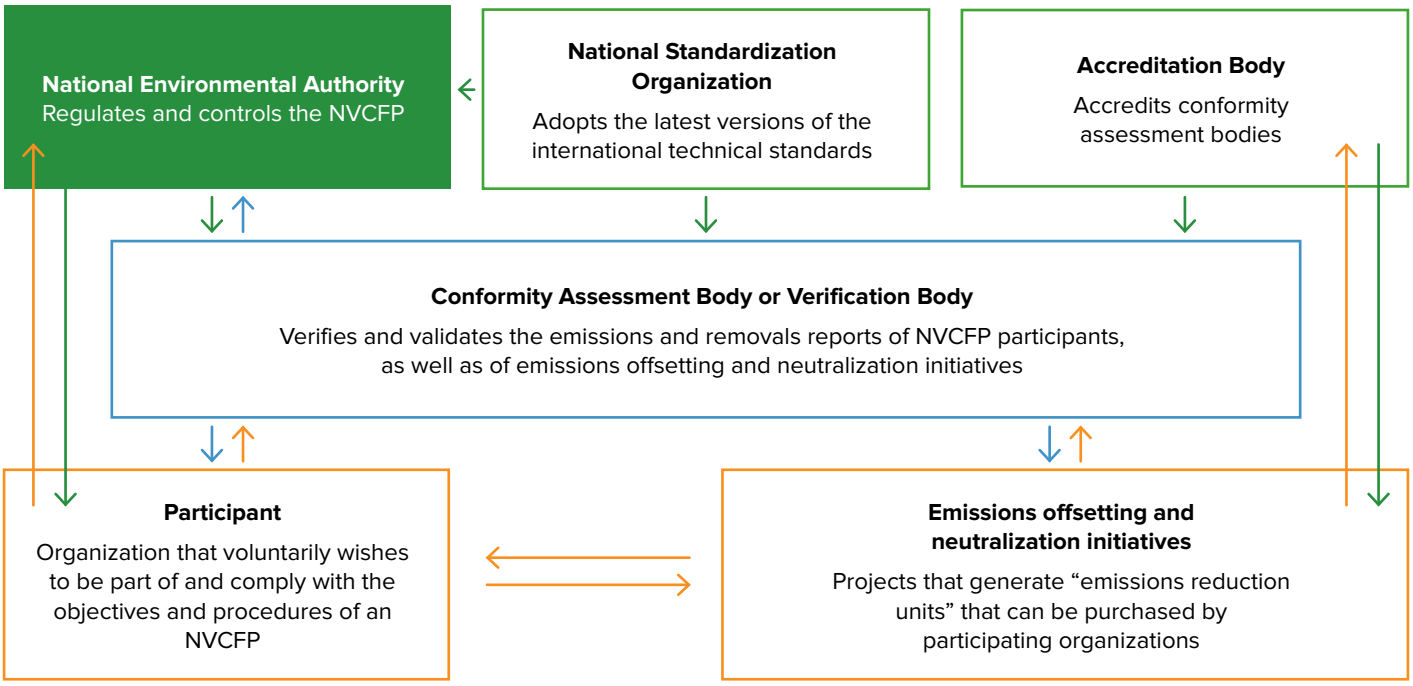

Figure 15. Recommended governance framework for an NVCFP. **Prepared by:** Author.

3.1.1.5. Program governance framework

Once the general objectives, scope, and legal framework of the NVCFP have been established, the public and other institutions that will be involved in its operation can be defined. Figure 15 suggests the agencies that could be involved in the decision-making and operationalization processes of the NVCFP, as well as their information flows. Among these, public entities — such as the specific national environmental authority — will be the competent authorities that design and determine the technical criteria for the initiative's operation and coordinate its implementation.

Table 8 shows the roles of each of these organizations.

Table 8. Roles of the institutions that make up the governance framework of an NVCFP.[82]

Type of institution	Name of institution	Role
National public	National Environmental Authority NEA	Competent entity at the national level to regulate and control the NVCFP, i.e., to administer it. In the NVCFPs sponsored by the UNDP in Latin America, the National Environmental Authority is the Ministry of Environment. However, there is a possibility that the program administrator may be another government agency, such as one dedicated to environmental protection, for example.
	National Standardization Organization NSO	Adopts the latest versions of international technical standards related to the quantification of GHG emissions and removals, and the verification of the respective reports (also called standards or methodologies in Chapter 1).
Public or private, national or international	Accreditation Body AB	Accredits Conformity Assessment Bodies under the ISO 14065 standard, so that they can verify and validate the GHG inventories quantified and reported by program participants, as well as the inventories submitted by emissions offsetting and/or neutralization projects.
Private national or international	Conformity Assessment Body CAB	Also referred to as the "verification body", it is the entity authorized to verify the emissions reports submitted by an NVCFP participant in the context of each of the GHG management levels. The NVCFP manager will define the conditions to be met by the verifiers. Verification processes should be based on the current versions of ISO 14064-1 (organizations) and ISO 14067 (products), or those that replace or complement them.
Society	Participant	Organization (as recommended in the program scope definition, Section 3.1.1.2) that voluntarily wishes to quantify and report its GHG emissions, implement mitigation plans, and participate in offset/neutralization programs for its emissions, under the conditions and using the tools of the NVCFP. To be part of the initiative and access its recognition system and benefits, participants must comply with the requirements and standards established by the NVCFP.
	Emissions offsetting or neutralization initiatives	Projects that generate "emissions reduction units" that can be purchased by organizations wishing to offset and/or neutralize their carbon footprint. One of the recommended aspects for these initiatives is for them to be implemented within the national territory, in order to contribute to the country's NDC goals.

Prepared by: Author.

82 Details of the responsibilities attributed to these agencies can be found in Annex 3.

After the program's start-up and the consolidation of its initial phase of operation, this governance framework could be expanded by considering the inclusion of other government agencies, such as the department in charge of social welfare or the agency responsible for the public procurement system. This inclusion would be based on the possible expansion of the program's benefits (such as those related to a green procurement system) and on addressing actions that are not directly related to GHG management, such as gender equality issues, inclusion of vulnerable populations (such as indigenous peoples), among others. If this happens, the roles and responsibilities of each of these new actors in the governance of the program should be established. This extended framework will not be addressed in this guide, as its formulation would depend on the way the program is developed.

This section has addressed the administrative guidelines that support the existence of the program — objectives and legal framework — and set the guidelines for its subsequent implementation — scope, principles, and governance framework. In relation to these, it has been highlighted that the NVCFP should have as its ultimate goal the neutralization of emissions and that a relevant contribution to the accomplishment of the NCD goals is based on a mass adhesion of companies belonging to the sectors with the highest GHG emissions at the national level. This criterion, together with the advantages of adopting the organizational approach, make it the recommended approach for the implementation of the program. Moreover, in addition to the private sector, it is useful to include public organizations as a way of lending legitimacy to the program.

To complete the design of the program, the following section presents the criteria for defining the technical aspects that will determine its operation. These aspects cover the conditions and procedures that participants must obey to be part of the program, as well as the mechanisms that the program will use to recognize and follow up on the actions of the organizations.

3.1.2. Second Phase: Definition of the program's technical aspects

This phase is focused on the technical parameters under which the NVCFP will operate. It includes the definition of the registration mechanism and management levels (including methodological considerations for the quantification of emissions), the design of the recognition system, the design of the monitoring, reporting, and verification processes, and the linkage of the NVCFP with other national GHG quantification initiatives. To develop this stage, in addition to the guidelines provided in this guide, it is advisable to take as a reference the experiences of other NVCFPs in operation, making sure to adjust the conditions to national circumstances.

3.1.2.1. Definition of the program's registration mechanism

This step involves submitting the organization's information to the NVCFP and its subsequent approval as an NVCFP participant. For this purpose, it is recommended that the NVCFP be managed through a virtual platform, where organizations: a) execute the GHG registration and management process; b) find all available information related to the program; and, c) have access to digital tools for calculating their carbon footprint.[83] Based on the existence of such a platform, in addition to the organization's data, the information requested for registration should contain:

- Business sector to which it belongs and main economic activity
- Description of activities
- Participation in other initiatives similar to the NVCFP
- Type of program to which they belong (corporate, supranational, etc.)

It is recommended that the business sector and main economic activity fields be associated with the International Standard Industrial Classification of all Economic Activities (ISIC) list.[84] To illustrate the registration system of an NVCFP, Figure 16 shows the online form that must be completed to apply for participation in the HC-Peru program.

In addition, it is advisable to request documents proving the legal incorporation of the organization within the national territory. These are summarized in Table 9, depending on the type of organization.

83 The advantages of using virtual platforms will be discussed in Section 3.1.4.

84 ISIC is a classification of activities that covers all economic activities, which traditionally refer to productive activities (goods and services).

Figure 16. Registration application of the Peru Carbon Footprint (HC-Peru) program.[85]

85 Available at: https://huellacarbonoperu.minam.gob.pe/huellaperu/#/solicitudUsuario.

Table 9. Documents required for registration in an NVCFP.

Requirement	Private organizations	Other types of organizations
Copy of the legal document establishing the institution.		YES
Copy of the organization's registration certificate, valid for no more than one year prior to its presentation.	YES	
Notice of operations, indicating the activities carried out by the organization.	YES	
Certificate of no current environmental sanctions or sanctions for environmental crimes.[86]	YES	YES
Authorization for a member of the organization to act as a point person for the provision of information.		YES

Prepared by: Author.

Finally, it is suggested that the organization issue authorizations about the use that the NVCFP will make of its information (including its GHG inventories). In this regard, the organization should state the following:

Table 10. Authorizations regarding the use of information provided to an NVCFP.

Requirement	Private organizations	Other types of organizations
Authorize the use of the data to be reported in the formulation of public policies and research projects related to climate change. This authorization is mandatory and does not involve public disclosure of data.	YES	YES
Choose and authorize the way in which GHG inventory data will be presented to the public: a) Individually. b) On an aggregate basis (as part of an economic sector).	YES	YES

Prepared by: Author.

After sending the registration application — including attached documents — the NVCFP administrator's pronouncement must be awaited. The administrator will review the information received, reserving the right to verify its veracity and to approve/deny the organization's entry. Whether the decision is positive or negative, it is recommended that it be communicated through the virtual platform — including a notification to a contact e-mail address — within a specific time frame (no more than 10 working days, for example). If the answer is negative, the administrator shall indicate the reasons for non-approval.

Having established the registration procedure, the NVCFP should then decide whether it can be done at any time of the year or only within a set window (e.g., from April 22 to June 22 of each year, like the Panama RTH Corporate — Carbon program). In this regard, Table 11 describes the advantages and barriers of having an open call or limiting it to an annual period.

As shown in Table 11, if a time window is established for the registration of organizations in the program, it is suggested that this should be every six months rather than annually, i.e., allowing for registration twice a year (between February and March, and between August and September, for example). In any case, whether or not to set a registration period will depend on the governmental dynamics of each country and the resources available to increase staffing and to update/acquire the appropriate technological equipment to support the virtual platform.

86 The procedure for obtaining this certificate is specific to each country.

Table 11. Advantages and barriers of open registration periods in an NVCFP

Period	Advantages	Barriers	Mitigation actions
Fixed period within a year	The NVCFP personnel only handle registration requests during this period, which may improve the operation of the program. After the registration period is over, personnel can focus on reviewing the requirements implicit in each level of GHG management, which can improve the operation of the program. Maintenance or upgrade of the equipment hosting the platform would not interrupt the registration process.	It could discourage an organization from joining if it had to wait until the following year to register for the program.	Two calls per year (instead of only one).
		This could result in a concentrated flow of requests that could exceed the processing and storage capacity of the equipment supporting the platform. This could result in loss of data.	Design the technical specifications of the technological equipment based on the experiences of other NVCFPs and purchase it.
Permanent	Sustained adherence of the organizations. The flow of requests could increase progressively, allowing for the identification of future technological requirements.	Not having personnel to handle registration requests all year round.	Hire more personnel for the operation of the program.
		Simultaneously, the same personnel should review registration applications and requirements within each level of GHG management.	Hire more personnel for the operation of the program and assign them specific activities.
		Interrupt the registration process to provide maintenance or to update the equipment that hosts the platform.	Communicate equipment maintenance dates well in advance.

Prepared by: Author.

Las Ardillas Lake
UNDP, Chile

3.1.2.2. Definition of GHG management levels

The definition of GHG management levels for the implementation of an NVCFP refers to the definition of the actions that the NVCFP participants must carry out consecutively and submitting their results to third-party verification. Consecutive actions means that once a participant has measured and verified its carbon footprint, and implemented verified measures to reduce it, only then can it agree to offset and neutralize it through the purchase of carbon offsets generated by national projects. This respects the mitigation hierarchy in climate change management.

Following the idea put forward in Chapter 1, Section 1.5.1, the management levels have been classified as primary and secondary. Figure 17 shows an outline of the main management levels suggested for the operation of a NVCFP.

Primary GHG management levels

a. Defining the emissions quantification level

This level includes only the measurement of the carbon footprint through the use of methodologies and tools offered by the program, according to the approach adopted by the program. This criterion is intended to facilitate the calculation of emissions for a company (which could motivate its adhesion).

This first level does not yet require the verification process, which can also be seen as an incentive for companies to participate in the NVCFP. Companies would not invest resources in the process of verifying their GHG inventory, but the program would grant them the respective recognition as participants in this initial level.

It should be noted that although not subject to the verification process, this inventory will be the starting point for the implementation and verification of subsequent management levels (verification, reduction, offsetting, and neutralization), therefore it is recommended that its calculation be as close as possible to the methodological considerations included in the program (this topic will be expanded in Section 3.1.2.3). Given this condition, it is imperative that the calculation methodology manuals be developed with a level of detail that allows the user to report data with qualitative and quantitative uncertainty within acceptable limits.

b. Defining the emissions verification level

This level covers the verification of the GHG inventory calculated and reported in the previous level by a verification body. This verification body should be one of the companies admitted to work within the context

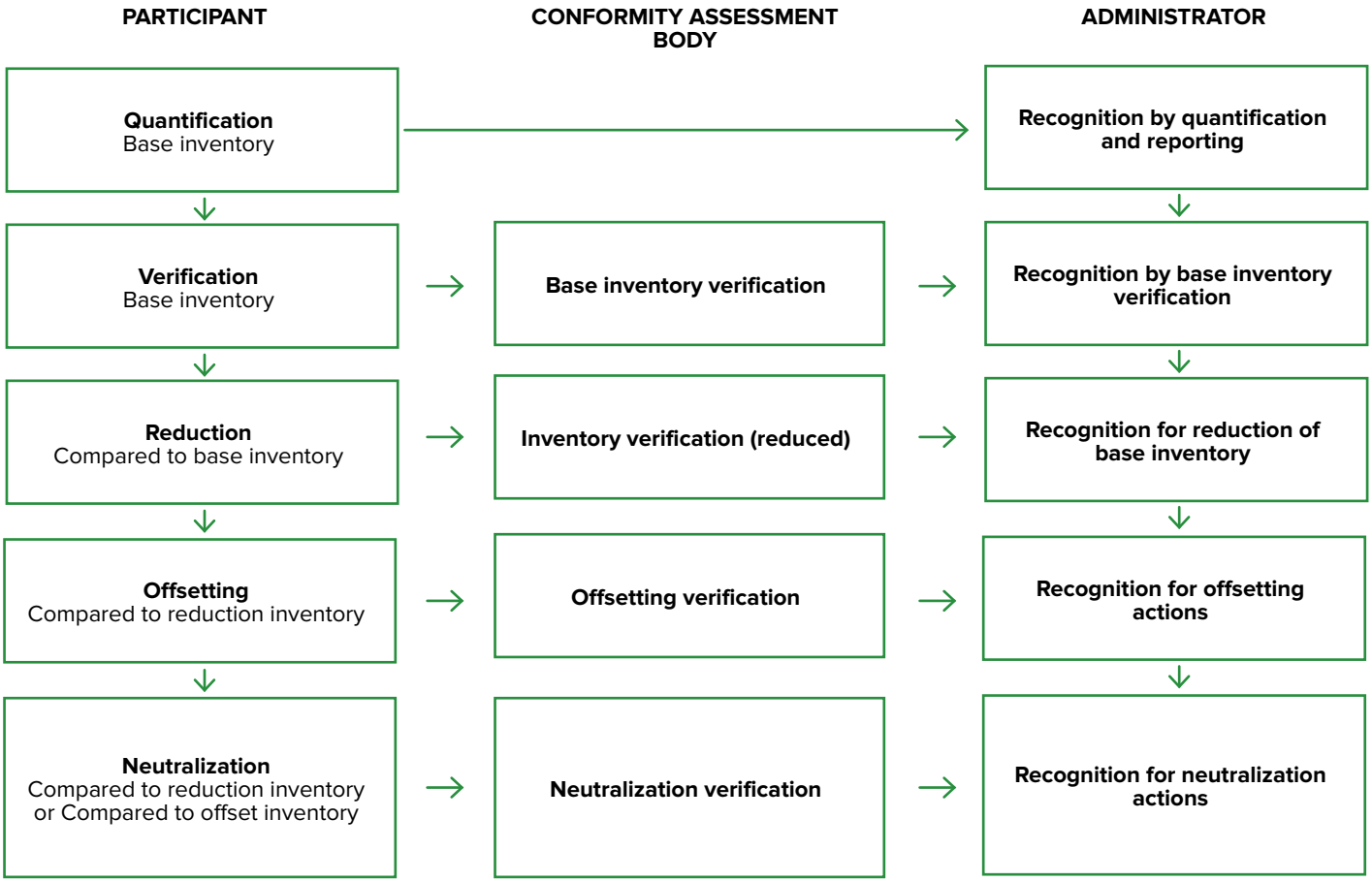

Figure 17. Recommended structure for an NVCFP (main levels). **Prepared by:** Author.

of the NVCFP. The result of the verification process will be the issuance of a verification statement conforming to the requirements of the technical standards adopted by the program.

One of the most important steps in the verification process is the determination of the assurance level under which the verifier will work. The assurance level sets the nature, scope, and detailed schedule for evidence gathering. In this regard, ISO 14064-3 accepts two levels:[87]

- Reasonable level of assurance. The verifier designs sufficient and appropriate evidence-gathering activities to reduce the verification risk to an acceptable level. The evidence-collection plan is redrafted several times until this condition has been reached. The conclusion format is positive, for example, the verifier may indicate that "the GHG statement is accurately expressed".
- Limited level of assurance. The verifier does not design and implement as many evidence-gathering activities, nor does the verifier follow evidence trails with the same depth as at a reasonable assurance level. This increases the verification risk. The conclusion format is negative, for example, the verifier may state that "nothing indicates that the GHG statement is incorrect".

It is recommended that an NVCFP only accept verification statements that have been performed within the reasonable level of assurance. However, there are programs that, during their first years of operation, accept verification statements within the limited level of assurance and then require statements with a reasonable level of assurance (once the program participants have developed certain technical capabilities regarding GHG management). Furthermore, other programs require verification statements within the reasonable level of assurance only from organizations that exceed a certain level of GHG emissions.

In addition, at the verification level, it is recommended that organizations that have voluntarily verified their GHG emissions prior to the use of the NVCFP platform be admitted. This is a strategy to encourage the adherence of large companies that have probably already developed their GHG inventory, and may even have already implemented mitigation actions. To approve this type of adhesion, the organization would only use the program platform to generate the inventory report, i.e., it would not use the inventory quantification tools.

It is also recommended that the verification be carried out by an organization on the NVCFP's list of accepted verifiers.

c. Defining the level of implementation of emissions reduction measures

This level integrates the mitigation actions that a company may take. The measures should be part of a mitigation plan — prepared by the organization — and should be technically and economically feasible. It is important to note that only planned and implemented mitigation actions should be taken into account, and not emissions reductions resulting from changes in the level of production, facility closures, or changes in the estimation methodology.

To access this level of recognition, it is recommended that two options be considered: a) the company reduces emissions at its facilities in absolute or relative terms, or b) the company supports its suppliers so that they also become part of the NVCFP. Support can be expressed, for example, through commitments for increased purchases or purchases at better prices.

d. Defining the levels of GHG emissions offsetting and neutralization

Offsetting refers to the partial compensation for emissions — which the organization has been unable to reduce — through the purchase of offsets, i.e., GHG certificates generated by capture and reduction projects. Neutralization refers to the total coverage of these emissions by the same procedure (use of offsets).

It is recommended that offset/neutralization projects be located in the national territory and be within the sectors addressed by the country's NDC. However, offsetting could also be done through projects outside the NDC or internationally, within the framework of regional climate action partnerships. In any case, capture and reduction projects must first be approved by the NVCFP.

Considering the context of each country, it is suggested that these levels be addressed only after the program participant has implemented reduction measures that are technically and economically feasible. This is because the priority of mitigation should guide carbon footprint management, and a GHG inventory that has been 100 percent neutralized through the acquisition of offsets could be branded as greenwashing. This is not to say that a company must implement all feasible mitigation measures. Thus, after demonstrating evidence of reduction efforts, for example, an organization could be allowed to purchase offsets arising from strategic projects to achieve the NDC goals. This would allow the national mitigation priority to be maintained.

Observing these conditions for emissions offsetting requires the NVCFP to clearly define the guidelines

for this process to be carried out properly. These guidelines, for example, could state that offsetting is only possible once progress has been made in internal GHG reduction actions, at a percentage set by the program. They could even establish that only residual emissions, or a fraction of GHG emissions (10 percent, for example) can be offset.

Based on the characterization of each of the main GHG management levels, it follows that achieving the ultimate goal of an NVCFP (i.e., achieving emissions neutralization) is a long-term effort that will take several years. This requires continuity in the technical support provided to participants and the constant improvement of the relationship with the organizations. Because of these needs, it is recommended that prior to its full start-up, the program should run a pilot phase (with a minimum duration of six months) with several companies wishing to collaborate voluntarily in the exercise. The objective of this phase would be to test the services (technological and consulting) that are intended to be provided in the future, and to identify and correct possible errors that could diminish the quality of the initiative's operation.

Secondary GHG management levels

After the neutralization level, the suggestion is to consider a secondary level linked to the acquisition of verified offsets from projects in sectors included in the country's NDC (such as those related to the agricultural sector, for example).

Other secondary actions indirectly linked to GHG management may be those that also contribute to: a) achieving gender equality; b) increasing the participation of indigenous and rural populations in decision making about their territories; and, c) strengthening technical capacities in indigenous and rural communities.

Although integrating management in these aspects can enhance the program's image, it is considered that their definition should not be part of the initial design, implementation, and operation phase of the program. In this sense, these could be addressed in the scoping phase of the NVCFP, once GHG management with an organizational approach has been consolidated and there is a better understanding of the technical and personnel resources required for the proper operation of the initiative.

3.1.2.3. Methodological considerations for quantification

Methodological considerations for GHG quantification are based on recommendations provided by international standards — GHG Protocol, IPCC 2006 guidelines, ISO 14064-1 Standard — and the development of methodologies with an appropriate level of uncertainty for the NVCFP. The coupling of these various guidelines is possible because the standards mentioned are consistent with each other, allowing for the development of comparable GHG inventories.

For a better illustration and description of these considerations, they have been classified in the aspects contained in Table 12.

87 BSI. 2019. Greenhouse gases - Part 3: Specification with guidance for the verification and validation of greenhouse gas statements (ISO 14064-3:2019).

Table 12. Methodological considerations for GHG quantification.

Aspect	Recommendation	Other options
Scopes	• Mandatory quantification of Scopes 1 and 2. • Optional quantification of Scope 3.	Mandatory Scope 3 quantification, which makes it difficult to calculate emissions and may increase costs (which could discourage participation).
Emission sources	The program defines a list of the sources of the three scopes based on: • National GHG inventories. • GHG Protocol recommendations. • The ISO-14064-1 standard. • The experience of NVCFPs that have already been implemented. This list should be part of the tool designed by the program to calculate the carbon footprint and should be mandatory.	Allowing participants to report emission sources according to their criteria. This hampers the standardization of GHG measurements and the production of useful statistical information.
	Include all emission sources, for mandatory scopes, whose contribution to the GHG inventory is equal to or greater than 5%.	
Calculation methodologies	Adopt existing emission calculation methodologies — depending on the sector of activity — that exhibit an adequate level of uncertainty for the NVCFP. It is suggested to consider the methodologies presented in: • The *2006 IPCC Guidelines for National Greenhouse Gas Inventories*. Composed of five volumes, this publication provides methodologies for the energy; industrial processes and product use; agriculture, forestry, and other land use; and waste sectors. Available at: https://www.ipcc-nggip.iges.or.jp/public/2006gl/index.html. • The calculation tools offered by the GHG Protocol, which include country- and sector-specific tools and cross-sectoral tools. Available at: https://ghgprotocol.org/calculation-tools. • The Climate Registry, which offers simplified and advanced methodologies for different sectors. Available at: https://www.theclimateregistry.org/tools-resources/reporting-protocols/general-reporting-protocol/. For offsetting initiatives, it is suggested to review the methodologies of: • The Verified Carbon Standard Program(VCS, VERRA). Available at: https://verra.org/methodologies/. • The Clean Development Mechanism (CDM). Available at: https://cdm.unfccc.int/methodologies/index.html. • Gold Standard for the Global Goals. Available at: https://www.goldstandard.org/project-developers/standard-documents. • The Climate Action Reserve. Available at: https://www.climateactionreserve.org/how/protocols/. • American Carbon Registry. Available at: https://americancarbonregistry.org/carbon-accounting/standards-methodologies/approved-methodologies.	The program may develop its own calculation methodologies. This is only justifiable if those available internationally do not align, even with deviations, with the nature of the sector in the country. NVCFP participants can develop their own calculation methodologies. This is not recommended since standardization between GHG inventory results would be lost.

Aspect	Recommendation	Other options
Emission factors	• Use national emission factors (recommended) • Use default emission factors (mainly from international databases) that are consistent with the emission factors used in national GHG inventories. Free international databases that can be consulted include: • The Emission Factor Database (EFDB) built by the IPCC. Available at: https://www.ipcc-nggip.iges.or.jp/EFDB/main.php. • The Emissions Factors Toolkit developed by the Department for Environment Food & Rural Affairs (DEFRA) of the United Kingdom. Available at: https://www.gov.uk/government/collections/government-conversion-factors-for-company-reporting. • GHG Protocol emission factors. Available at: https://ghgprotocol.org/calculation-tools. In addition, there are paid databases for specific sectors, such as the one developed by the International Energy Agency (IEA). Access available at: https://www.iea.org/data-and-statistics/data-product/emissions-factors-2021. In order to determine whether these emission factors are consistent, it is necessary to verify that they: • Derive from a recognized origin. • Are scientifically approved and verified for use. • Are appropriate for the sources and sinks included in the NVCFP. • Are the most up-to-date. • Provide information on confidence and uncertainty intervals. Whether national or default (international) factors are used, the list of these factors should be part of the tool that the program designs for the calculation of the carbon footprint and should be mandatory to use.	Allow organizations to employ factors from different origins, including proprietary corporate factors. This could influence the accuracy and uncertainty of the data reported at the sectoral level, and should be accepted only when it can be shown to result in GHG emissions estimates that are equal to or more conservative than those that would result from using the emission factors proposed by the NVCFP.
Uncertainty of activity data	The uncertainty of activity data is reported quantitatively, with the option of also presenting it qualitatively: Quantitative uncertainty Formulas in international standards can be used or, if sufficient information is not available, the values given by the IPCC in its methodology for preparing national GHG inventories. Qualitative uncertainty This data refers to an uncertainty that can be given at three levels: • Limited data. The data come from estimates, generally made by experts. In most cases, the activity data is not easily reproducible. • Acceptable data. The data come from calculations that can be reproduced. They have a minimum confidence interval of 90% and an error of 10%. • Reasonable data. The data are backed by documentary evidence from a third party. These data are usually measured with equipment calibrated according to national standards.	Uncertainty can be reported only qualitatively.

Aspect	Recommendation	Other options
Base year	The organization should establish a base year against which the GHG management it will perform through the NVCFP will be compared. This base year may be: • One year prior to the first inventory reported by the organization. • The year corresponding to the first report the organization generates and verifies as part of the program (recommended).	It is not possible not to identify a base year.

Prepared by: Author[88].

88 Based on information available at: Ministry of Environment. 2021. Panama Reduce Your Corporate Carbon Footprint — Carbon Technical Standard. Ministry of Environment. 2021. Technical Guide — Manual of methodologies for calculating Peru's Carbon Footprint.

All the considerations set out in Table 12, together with the criteria for defining the scope of the NVCFP (Section 3.1.1.2), should be taken into account during the implementation of the GHG quantification tools.

3.1.2.4. Definition and design of the monitoring and reporting process

In the context of an NVCFP, monitoring comprises the set of actions carried out by the participating organization to measure its GHG emissions. The aim is to obtain sufficient data to calculate the inventory and report it, in line with the parameters required by the program's calculation methodology.

Reporting, on the other hand, refers to the actions implemented by program participants in order to access the recognition and benefits offered by the program. The reporting principles are similar to the operating principles of the NVCFP and should be consistent with international standards adopted for the quantification of GHG emissions and removals. These principles include transparency, accuracy, completeness, comparability, consistency, avoidance of double counting, and relevance.

It is recommended that the GHG report be prepared on the virtual platform that the NVCFP will implement for its operation. In this way, data such as sources and emission factors can be selected from a standard list for all organizations. It should be clarified that the report is not the same as the GHG inventory. The inventory contains all the calculations necessary to determine the amount of emissions from the sources and scopes considered, while the report integrates only a summary of the inventory results.

In order to obtain any of the recognition awards contemplated in an NVCFP, the participant must submit the following documents:

- The GHG emissions report generated on the program's platform.
- The GHG emissions inventory calculated through the tools provided by the program.
- The verification statement issued by a program-approved Verification Body (from verification level onwards).
- The sworn statement in which the person in charge of the organization certifies that the information provided is true and reproducible.
- Other documents that may be required by the program, such as certification that the organization has no current environmental sanctions or sanctions for environmental crimes.

As for the registration process, the program can decide whether the information reported by an organization is received permanently throughout the year, or whether it establishes periods within the year for this process. In either case, the benefits, barriers, and mitigation actions would be the same as those outlined in Table 11.

3.1.2.5. Definition and design of the verification process

The carbon footprint verification process is focused on reviewing the quality and accuracy of the measurement, as well as compliance with the principles governing inventory reporting. As indicated at the verification level, this process should be carried out by a verification body based on the criteria established in the NVCFP. In this regard, it is recommended that the NVCFP communicates through its virtual platform which verification companies are authorized/recognized to operate in the context of the program.

For this purpose, in the event that verifiers are required to be accredited entities under ISO 14065, any verifier wishing to be admitted must comply with the following requirements:

- Be accredited for ISO 14065 for ISO 14064-1.
- Be accredited for the sector of activity of the company being verified.
- Perform verification processes under a reasonable level of assurance. The following are not acceptable: limited level, agreed upon procedures, pre-assurance or internal verification.
- Be familiar with the contents of the program's operational guidelines. The NVCFP, as part of its dissemination strategy, should ensure that the verifier sector participates in workshops, webinars, and other similar events.

However, as regards carbon neutrality, there are entities that do not have accreditation and certify this process based on the PAS2060 standard.

Verification applies to the verification management level and to the reduction, offsetting, and neutralization levels, in such a way as to ensure compliance with the commitments undertaken by the organization as part of the NVCFP. In this regard, it should be clarified that it is not the reduction or offsetting actions themselves that are verified, but the GHG report resulting from the execution of such actions.

For the purposes of this verification, the organization shall provide the verifying body with the means to evidence the existence of the data used to calculate the GHG inventory. The result of this process is the issuance of a verification statement, which, with a reasonable level of assurance, confirms that the information provided by the organization has an adequate level of integrity and is free from material discrepancies. As mentioned in the previous section, this statement is part of the set of documents submitted to the program for validation and subsequent award of the respective recognition. In this regard, the

NVCFP administrator will formally communicate the outcome of the review of the documentation received within a specified time frame, e.g., 30 working days. This communication will be sent via the program's virtual platform, including a notification to a contact e-mail address for the organization. If the participant complies with the requirements, the pronouncement shall be favorable and the recognition will be granted according to the system designed by the program for this purpose. If the documentation is not validated, the participant will receive a report with the pertinent observations, allowing the organization to correct them and re-send the documents for validation.

3.1.2.6. Definition and design of the recognition system

When an organization has met the requirements of a certain GHG management level, within any of the approaches covered by the program, it can apply for the award of the respective recognition. It is recommended that this recognition system be made up of three elements: a) the design of graphic elements — seals and diplomas; b) the inclusion of the name of the organization that received recognition in a list that the program administrator can publish on its website and social media pages or as part of a periodic institutional magazine or report; and, c) periodic (annual, for example) award ceremonies.

a) Design of graphic elements: seals and diplomas

Graphic elements include seals and diplomas that: a) are voluntary to use — according to the program conditions; b) are intended to clearly reflect data related to GHG management; and, c) should be designed following the same visual guidelines. It is recommended that the files of these elements be sent through the digital platform for the NVCFP operation, as part of the communication that the organization will receive regarding its application to one of the management levels, provided that this is positive.

The purpose of the seals is to let the general public know that the NVCFP participant has implemented actions to manage its carbon footprint. In the case of the organizational approach, the seals can be used in advertising and promotional material, stationery, institutional websites and social networks, and organizational documents. In the case of the product approach, seals may be present on wrappers or other packaging materials. It is recommended that these seals contain at least the following information: a) GHG management level; b) institution administering the program; c) name of the NVCFP; d) program logo; and, e) year for which the recognition applies (essential data). This is illustrated in Figure 18, using the seal of the Panama RTH Corporate — Carbon program.

89 https://rth.miambiente.gob.pa/reconocimientos-2/.

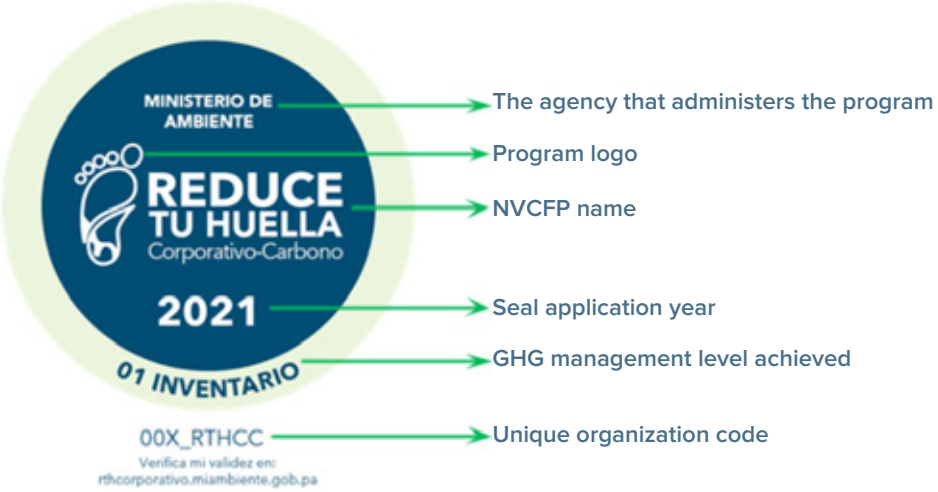

Figure 18. Panama RTH Corporate — Carbon program seal[89].

Diplomas are elements that are recommended to accompany the seals. These can be used by organizations that wish to bid in national and international green procurement systems, as they are an official certificate of the actions undertaken in relation to GHG management (which are integrated into environmental management in general). In addition to the data contained in the seals, the diploma explicitly certifies: a) that the calculation tools provided by the program have been used; and, b) the focus of the certification (organization, territory, product). This certificate shall be signed by the authority responsible for the program. As an example, Figure 19 shows the diploma issued by the HC-Peru program.

This diploma features stars, which are a visual element that identifies the level of management achieved. Each star corresponds to a management level. More yellow stars mean more action on GHG emissions. The inclusion of this element on seals and diplomas is optional.

The design of graphic elements includes the preparation of a user manual, indicating conditions such as permitted dimensions, permitted colors, permitted uses, among others. Both tasks can be accomplished in two ways: a) by hiring a consultant; and, b) by employing the personnel of the communications department of the agency administering the program. In the first case, the limiting factor is the source of finance. In the second case, the barrier is the availability of sufficient technical personnel. To choose between these two options, the extent to which the program is being supported by the national government and by international cooperation should be evaluated.

b) Dissemination through digital media or other types of media

Dissemination through digital media or other types of media involves developing/updating and presenting a list of organizations that have achieved one of the GHG management levels. It is recommended that this list include the following information:

- Name of organization
- Economic sector
- Level of GHG management achieved
- Year of recognition

Following the authorizations provided by the organization during registration, it may also include:

- Report with the results of the carbon footprint quantification
- Verification certificate (from verification level onwards)
- Certificate of acquisition of emissions reduction units (if applicable)

Among the digital means of dissemination, the main one is the digital platform operating the program, on which the list can be updated on a monthly basis. Additionally, if the government agency administering the program prepares monthly reports on its activities or annual accountability reports, the list could be part of these documents.

Figure 19. Diploma of recognition of the HuellaChile program.[90]

c) Recognition award ceremonies

Held on an annual basis, recognition ceremonies are public events — organized by the program administrator virtually or in person — in which an NVCFP participant is officially recognized for its actions to manage its GHG emissions.

It should be noted that, despite meeting the requirements, the NVCFP may reserve the right to grant recognition awards should the following apply:

- The organization has yet to comply with any sanction and/or coercive fine for non-compliance with an environmental obligation.
- When the organization has yet to comply with any sanction and/or corrective measure regarding the use of forest resources, wildlife and environmental services from the forest.
- When the organization has a first-instance judgment for committing an environmental crime.

The decision to include these criteria should be based on an analysis of national circumstances. This means weighing up the extent to which imposing them may discourage participation in the NVCFP, and the extent to which an NVCFP is linked to compliance with environmental regulations beyond GHG management.

90 Ministry of Environment. 2021. Guide for the operation of the Peru Carbon Footprint tool.

País Circular, Chile

For the past 10 years, the Chilean government has been celebrating organizations that are committed to a low-carbon development model through the HuellaChile program. 904 seals of recognition have been awarded to organizations that contribute to a renewed, climate-aligned business vision, leading to benefits for the efficiency, reputation, and sustainability of their operations.

Box 6. Recognizing climate action by organizations in Chile.

3.1.2.7. Linking NVCFPs to national GHG inventories and MRV platforms for monitoring NDCs

The linkage of NVCFPs to national GHG inventories is through the enhancement that NVCFPs can provide to the level of detail of national GHG inventories. Because national inventories are built under a sectoral approach (top-down), information at the organizational level (bottom-up) that an NVCFP can provide allows governments to prioritize climate-action measures targeted at certain types of businesses that are representative within the national inventory.

In turn, the link between NVCFPs and MRV platforms for NDC monitoring is established through the connection that can be made between the latter's platforms for recording reduction measures and the former's GHG management platforms. In this sense, when an NVCFP participant has implemented GHG reduction measures and wishes to report them in order to access the respective recognition, one of the conditions of the program may be that these measures are reported on the platforms for recording reduction measures. For this purpose, the technical criteria of both platforms must be consistent with each other, and the reduction measures must be in the sectors covered by the NDC.

Up to this point, the administrative and technical parameters that support the creation of the program and allow its implementation have been defined. These criteria should be part of two essential documents for the operation of the program: the operating regulations and the methodological guide. The operating regulations indicate the program's operating conditions.[91] The methodological guide essentially contains a justified explanation of the program scope and elaborates on the methodological considerations mentioned in this section. Both guidelines must be made official — through the corresponding legal instruments —, indicating their mandatory compliance within the context of the NVCFP.

Having completed the design of the carbon footprint program, the next phase is program dissemination. The purpose of this phase is to awaken interest and consolidate the way for organizations to join the initiative.

3.1.3. Third Phase: Program dissemination at the local and national levels

The communication strategy should be aligned with the goals and principles that regulate the NVCFP's operation. Thus, in the first instance, dissemination could be focused on encouraging the adherence of organizations with the highest emissions or those belonging to the production sectors that contribute most to the national GHG inventory. In a second stage, the strategy could gain momentum in other sectors of the national economy.

It is recommended that this phase include the following activities:

a) Preparing publicity material explaining mainly the program objectives, the benefits and recognition it grants, and how it works. In this regard, it is essential that the potential benefits of the program have been identified according to the circumstances of each country.

b) Conducting virtual and in-person workshops aimed at:

- Representatives of the largest organizations within the sectors with the highest GHG emissions in the country.
- Trade union representatives of the organizations belonging to the sectors with the highest GHG emissions at the national level.
- Government agencies, other than the program's administering agency, that may also be NVCFP participants.

c) Carrying out awareness campaigns, such as the one conducted by HC-Peru, which created a likable character to call on Peruvian society to join in motivating organizations to manage their carbon footprint.[92] On this basis, the campaign "Nono, the Carbon Footprint Bear" was developed, which sought to increase the number of public and private organizations registered in the Peru Carbon Footprint platform.

Nono appeals to the Peruvian population to share his message. In its two awareness campaigns, the results exceeded expectations: Nono's message reached 6.9 million people, more than a hundred

press releases were published, and the number of organizations enrolled in the program grew by 57.4 percent. At the same time, carbon footprint reporting through the platform increased by 54 percent. Nono even starred in a video produced by one of the HC-Peru participants, DP World, in which the company's employees are encouraged to adopt eco-efficient measures and make their commitment to GHG emissions management known to the external public.[93] In 2022, Gonzo — a sloth bear who is also Nono's cousin — joined this campaign.

The timing of awareness-raising campaigns should be in line with the campaign goals. For example, a campaign to build interest in joining an NVCFP could be executed from the design stage of the initiative, while a campaign such as Nono's might be appropriate when the NVCFP is already in operation and showing certain results.

d) Designing and building an informative website displaying information on the program and where leaflets and brochures can be downloaded. This should also include contact information where users can request further information about the program. It is recommended that this page be the initial component of the virtual platform that will be implemented to operate the NVCFP.

e) Creating and managing social media accounts. The preparation/organization of the above activities may be contracted as a consulting service or delegated to the communication department personnel of the NVCFP's administering agency. In any case, as mentioned above, the barriers come from finance and/or availability of personnel to execute these tasks and keep them running optimally over time.

91 A tentative structure of the contents of the operating regulations is presented in Annex 4.

92 Ministry of Environment. 2021. "Nono", the Peruvian carbon footprint bear.

93 Video available at https://drive.google.com/file/d/1Q7kaWDrTKnTY0_no6Bj7hdJtclkS4i4h/view.

94 UNDP. 2022. Nono and Gonzo, Peru's Carbon Footprint mascots, champion climate action for organizations.


UNDP, Ecuador

3.1.4. Fourth Phase: Design and implementation of the GHG registration and management system

This phase comprises the design and implementation of the tools that will function as an interface between participating organizations and the NVCFP administrator. These tools should enable two main tasks to be carried out: a) registration in the program; and, b) execution of the GHG management process, in accordance with the approaches and levels adopted by the program. Three types of systems have been identified for this phase:

a) Complete virtual platform. Internet-based software containing all the tools for participation registration and for GHG emissions quantification and inventory reporting.

b) Hybrid virtual platform. Internet-based software including the tools for participation registration and GHG inventory reporting, while the emissions quantification tool is implemented in spreadsheets and statements are drawn up in text files.

c) Management carried out without the use of virtual platforms.

Table 13 shows the advantages, barriers, and mitigation actions identified for each of these systems. In the case of the virtual platform (complete or hybrid), it is important to emphasize that the information technology (ICT) department of the agency administering the NVCFP must be involved from the beginning of the design stage. This is because this department may have specific requirements for digital products or technological standards, so its not being involved could cause later inconveniences in the implementation of the virtual platform.

Likewise, once implemented, it is advisable to set a pilot period for the virtual platform (at least six months) so that participating organizations, carbon footprint measurement consultants, and verification companies can identify and report possible flaws or omissions in the designed system.

In addition, it is recommended that all calculation and reporting tools developed for any of the three types of proposed systems (including programming codes, where applicable) be verified by an accredited verification body. This will not only ensure the quality of the quantification tools, but will also facilitate the subsequent verification process of the carbon footprints of the NVCFP participating organizations (which could reduce the costs of this activity).

Table 13. Advantages and barriers of the different GHG registration and management systems.

Type of system	Advantages	Barriers	Mitigation actions
Complete virtual platform	Information related to the program (objectives, scope, goals, etc.) can be presented virtually, making it more accessible to the general public, thus facilitating the dissemination of the initiative. The program's operating guidelines (and other relevant documents) may be available for the general public to download and read. The registration and application time for the different levels of GHG management is reduced. The likelihood that data provided for an organization's registration being false is reduced, as this platform can be connected to government-run corporate databases. GHG inventory information reported by participants can be analyzed more efficiently, facilitating the preparation and presentation of sectoral or individual statistics (depending on what has been authorized by the organizations). The documentation submitted by participants is stored on the platform's servers, reducing the risk of loss. The GHG inventory report can be generated automatically, i.e., without an operator entering data for the report.	Specialized technical personnel within the agency managing the NVCFP, or contracting consulting services, is required to design and build the virtual platform. The budget for this may be higher than the resources available to the program.	The NVCFP has financial support from international cooperation to finance the construction of the virtual platform. The NVCFP is a priority within the government agency administering it, which is why there are mechanisms in place to expand its budget for certain key activities. The NVCFP is associated with other climate action initiatives (that do not depend on public resources) that could finance part of its implementation.
		The programming code to quantify the carbon footprint should be implemented as part of the platform. This would require: • A high level of programming. • Having specialized personnel in GHG inventories to support the team of programmers. • A high processing capacity of the servers (computer equipment) hosting the platform.	Having an experienced and multidisciplinary team in charge of designing and implementing the platform. This raises the costs associated with these two tasks. Having the appropriate technological equipment for the operations to be carried out on the platform. If the program does not have this equipment, it should acquire it prior to the implementation of the platform.
		From its inception, the NVCFP virtual platform will be embedded or connected to a larger virtual platform that may belong to the government agency administering the program. This requires compatibility between the programming languages of both platforms, as well as in the formats for data organization, which could result in technical and time constraints. In addition, there may be administrative requirements that should be solved by the NVCFP.	The virtual NVCFP platform will use the same programming language (or a similar one) as the virtual platform that will contain it or to which it will be connected at start-up. The personnel in charge of implementing the NVCFP platform know, understand, and include — in its design — the technical requirements of the virtual platform that will contain it. Prior to the design and construction of the virtual platform, all the administrative documentation that makes the connection with the larger virtual platform viable has been submitted.

Type of system	Advantages	Barriers	Mitigation actions
		The process of verifying organizations' GHG inventories would be made more difficult, since the entire calculation process would be automated in the platform's programming code.	Accept verification procedures based on a virtual tool whose programming code has been previously verified by an accredited body. At the end of the calculation process, the platform could generate the necessary spreadsheets for the verifier to perform the verification process.
		A loss of information may occur on the platform if the technological equipment is not sufficient to cover the requirements of the flow of information received (storage capacity, for example).	Forecast the flow of requests and information to be received by the platform. This forecast could be based on similar NVCFPs operating in the region. Taking into account this forecast, design the technical specifications of the equipment that will host the platform. If the program administrator does not have equipment that meets these requirements, it should be acquired prior to the implementation of the platform.
		The technological equipment provided by the program administrator to host the platform may not be adequate.	The program administrator acquires the appropriate equipment for the operation of the platform.
		The hardware and the virtual platform require periodic maintenance, involving a cost for the program.	The administrator includes in its budget the contracting of maintenance services for the equipment and the digital platform. The agency administering the program delegates the maintenance of the equipment and the digital platform to the ICT department personnel (or other appropriate).
		If the platform's storage system fails, program and participant information could be permanently lost.	The information storage system has a secondary backup.
		The platform's IT security could be hacked.	The platform has security measures to prevent being hacked.

Type of system	Advantages	Barriers	Mitigation actions
Hybrid virtual platform	With the exception of the automatic generation of the GHG inventory report, the hybrid virtual platform has the same advantages as the complete virtual platform. In addition: • There are less technical requirements for the equipment that will host the platform, making it easier for the program administrator to already have them or acquire them (at a lower cost). • The personnel of the agency administering the program could support the team building the platform, so as to not have a multidisciplinary team (which reduces costs).	The hybrid virtual platform has the same barriers as the complete virtual platform, with the exception of the barriers related to: a) the implementation of quantification tools directly on the platform and b) the verification processes of the inventories prepared by organizations. This cuts costs in the design and implementation of the platform, since the human and technical equipment required to implement the system would be less expensive.	As they are the same barriers, the mitigation actions for these are the same as those presented for the complete virtual platform.
Management carried out without the use of virtual platforms	No specialized technical staff is required to design and build the virtual platform (complete or hybrid). There is no need to design technical specifications and acquire additional technological equipment to that already available to the program administrator. There are no costs associated with the maintenance or updating of the technological equipment required in the previous options.	The registration process would take more time and would have to be done in person. This means mobilizing the organizations' personnel to the locality where the NVCFP has its offices.	The program has sufficient personnel to handle registration requests within the established deadlines. The NVCFP has regional offices for its operation.
		The application process for access to NVCFP recognition awards would take more time and would have to be done in person. This means mobilizing the organizations' personnel to the locality where the NVCFP has its offices.	The program is sufficiently staffed to handle requests for access to recognition within the established deadlines. The NVCFP has regional offices for its operation.
		Guides on program operation and technical considerations for carbon footprint calculation would not be available online.	The information is available on the institutional website of the program administrator.
		There is no virtual platform to disseminate and promote the program.	The NVCFP creates its own website for dissemination purposes only. The NVCFP includes its content on the institutional website of its administrator.
		The analysis time of the information reported in the GHG inventories would increase, and the statistical results could not be updated instantaneously as in a virtual platform. In addition, the process of creating and updating a database would be made more difficult.	The NVCFP issues biannual reports on sectoral statistics, which are available on the administrator's institutional website. There is sufficient personnel to periodically update the program's database.

Type of system	Advantages	Barriers	Mitigation actions
		Documentation provided by organizations may be lost if there are no appropriate procedures and facilities to store it.	The program administrator has a procedure and appropriate facilities for storing incoming documents.

Prepared by: Author.

From the information shown in Table 13, it can be concluded that the most feasible option — in economic terms — is to implement a registration and management system that does not use a virtual platform. However, looking at the advantages offered by online software, this type of resource is recommended. In this regard, to reduce design and implementation costs, the hybrid alternative could be chosen, that is, one that combines the virtual platform with other digital tools (such as the use of spreadsheets). In particular, preparing spreadsheets for drawing up GHG inventories is one option that would reduce complexity in the development of the virtual platform.

For the construction of the platform and its support instruments, all the criteria established in this guide should be taken into account, especially those related to the definition of the program scope and the methodological considerations for the calculation. In addition, it is important to mention that this process should include training officials who will operate the platform and the preparation of user manuals for program participants, which may be developed in written and/or audiovisual format. For example, the HC-Peru Program has video tutorials — available on social networks such as **YouTube** — explaining the operation of its virtual platform.[95]

In terms of content, it is recommended that the hybrid virtual platform include the sections described in Table 14.

The implementation of the GHG registration and management system can be done through a consultancy or by delegating it to the personnel of the information technology department (or other appropriate department) of the NVCFP's administering agency. In either case, it is necessary to have the permanent support of the technical personnel operating the initiative and to consider that this development is a long-term effort. For these alternatives, moreover, the barriers to their execution arise from the sources of finance (if hiring a consultancy and delegating personnel) and the qualitative and quantitative availability of personnel (if delegating). This is because government agencies generally do not have sufficient budget and personnel for the tasks they must perform.

In addition to human talent, the successful implementation of the virtual platform will also depend on identifying the technological resources required to support, at least, the conditions of the initial scope of the NVCFP. This involves determining the technical specifications — especially the speed and processing and storage capacity — of the servers that will host the platform, in view of the flow of information to be handled during the first three years of the program's operation (at least). To outline these characteristics, we suggest looking at the experiences of the HuellaChile and HC-Peru programs, in operation for nine and three years, respectively. After setting these requirements, it is vital to verify compliance on the equipment to be provided by the program administrator, or to ensure that the appropriate equipment will be available prior to testing and implementing the platform.

It is worth mentioning that parallel to the implementation of the platform selected by the NVCFP, there are three alternatives:

a) The program can acquire commercial proprietary software. The main advantage of commercial software is that the tool is ready to use, and since it is specialized, its acquisition can include installation on the institution's computer equipment and training for the personnel who will oversee its operation. As disadvantages, commercial software is generally closed source — that is, its programming lines cannot be modified — and requires keys depending on the number of users.[96] As a consequence, if any changes were required, it would be necessary to hire the company that designed or distributes the program to make them. Likewise, platform maintenance would have to be contracted to the company that distributes or develops it.

b) The NVCFP could be based on free software, which could be modified to create a virtual platform with modules suited to its needs. Carrying out this work, however, would require personnel (programmers, in particular), which brings us back to the limitations of the public sector in terms of economic and personnel resources to perform these tasks.

c) The program could join regional cooperative schemes under which countries that already have virtual platforms could share parts of their code with countries that are in the process of implementing their voluntary carbon footprint measurement initiatives. These schemes would require the establishment of specific framework agreements between national governments, legal instruments that could pave the way for a future integration of NVCFPs at the regional level in Latin America.

To conclude this section, it has been indicated that through the four recommended implementation

95 As an example of the technical specifications for the construction of a hybrid platform, attached is the link to the terms of reference used by the HuellaChile program for the contracting of the consulting service for "Designing and implementing a monitoring, reporting, and verification system for the HuellaChile program (HuellaChile MRV)." (Annex 6, pp. 53–67).

96 Keys are digital or physical devices that give users access to a program, with different levels of access.

Table 14. Sections of the hybrid virtual operating platform of an NVCFP.

Platform sections	Objective	Access level
PROGRAM PRESENTATION. Includes: • Scope. • Objectives. • Goals set and goals achieved to date. • Benefits for participants. • Governance framework. • GHG management levels considered. • Recognition system. • Linkage with other public programs for climate change management (GHG inventories, for example) and environmental management (water footprint measurement programs, for example). • Linkage with similar initiatives at the international level. • Sponsors: public entities and/or multilateral organizations. • Frequently asked questions.	To inform potential program participants and the general public about the objectives and other elements that make up the NVCFP's operation.	Public
LIBRARY. Includes: 1. General information for downloading: • Guides on program operation. • Manuals on the use of digital tools. • Methodological guidelines on GHG quantification. • Text formats of the statements to be filled out by program participants. • Technical standards/rules adopted. • Legal documents of incorporation of the program. 2. Entities that support GHG management. • List of the verifiers admitted by the program. • List of projects generating offsets for offsetting and neutralization levels. 3. Multimedia • Videos of training sessions held. • Videos of workshops held. • Videos of award ceremonies held. • Virtual training modules.	To enable program participants, and the interested public in general, to become familiar with the operation of the platform and the tools it provides for carbon footprint management.	Public
RESULTS. Includes: • List of companies registered in the program, classified by sector. • List of companies that have received recognition under the program for their GHG management (indicating the level of management completed and including the files of their emissions reports, verification statements, and offset acquisition certificates). • Sectoral GHG emissions statistics. • Sectoral GHG reduction statistics. • GHG emissions and reductions by organization (applies only to authorizing companies). • List and description of reduction actions implemented by sector.	To publicize nationally the results obtained by the program during the time of its operation.	Public
PRESS. Includes: • News about the program. • Activities developed by the program.	To publicize nationally past, present, and future actions related to the program.	Public
GHG REGISTRATION AND MANAGEMENT. Includes: • Registration of participants. • GHG measurement level. • GHG verification level. • GHG reduction level. • GHG offsetting level. • GHG neutralization level. • Access to help desk inquiries. • Access to the acquisition of GHG reduction units. Each level of management must have the option to download: • Templates for inventory calculation.	Enable interested organizations to join the program and manage their carbon footprint through the tools and procedures provided by the program.	Restricted to program participants

Prepared by: Author.

phases — and their components — an attempt is made to configure an NVCFP with a clear scope, that reduces the risk of double counting, and that provides a relevant contribution to the goals of the NDCs.

In this sense, the agency administering the initiative must design strategies that result in a mass adhesion of organizations belonging to the sectors with the highest emissions at the national level. Otherwise, the NVCFP will probably not achieve its objectives, making it difficult for it to broaden its scope to other approaches (territorial and product). Then, by not yielding the expected results — including a low number of participants —, other organizations still outside the system could lose interest in joining, since they would not have experiences to guide their way in managing their carbon footprint. This, in turn, would result in lower acceptance of the program, which could also jeopardize the long-term financing of the initiative.

It is precisely these NVCFP-associated costs and its sustainability over time that are the subject of the following section. Mention is made of the costs incurred by the program administrator and those corresponding to the private sector (for the organizational approach). In addition, a section is included where some possible fee structures for program maintenance are presented.

3.2. NVCFP-associated costs and sustainability

The design, implementation, and operation of an NVCFP requires a budget that should be composed of: a) the costs of the personnel that will be involved in all phases of the program, from its design to its operation; b) the costs of the equipment that will support the program's virtual operating platform (acquisition, updating, renovation, and maintenance); and c) the costs of consultancies to develop specific program features. In addition, as part of the operation, the costs generated for the organizations participating in the initiative (mainly the private sector) must be known, since this will be one of the determining factors for their adhesion.

Knowing the costs of the NVCFP makes it possible to outline possible fee structures to sustain it over time. These structures should maintain a balance between the size of the fee and the benefits generated by the program.

3.2.1. Costs associated with the design, implementation, and operation of NVCFPs

The costs associated with the design, implementation, and operation of the NVCFP will be borne directly and fully by the government agency preparing and administering it. Therefore, this entity must allocate part of its annual budget and personnel to cover the tasks related to the program, including training and monitoring participating organizations.

This involves two barriers. First, given that, in most cases, state budgets in Latin America are small, the NVCFPs in the region have been developed thanks to donations managed through multilateral entities such as the UNDP. This entails the risk of keeping the program at the project level, preventing it being integrated as an activity of the state agency administering it (and therefore its inclusion in the agency's budget). Secondly, the technical teams working in the institutions have a limited response capacity, either because of the small number of people that make them up or because of the specialized knowledge required to handle the carbon footprint. In this last aspect, the learning curve from the quantification level to the neutralization level is a long one. In addition, the process could run parallel to the execution of other institutional activities that may need to be covered by the same staff members. An increase in personnel would be a solution to this second barrier, but this would require an increase in the budget for salaries, which brings us back to the issue of limited state financial resources.[97] This problem could even become a bottleneck if a successful NVCFP results

in multiple organizations joining in a short period of time and the number of requests grows beyond staff capacity.

To address public budget barriers, the NVCFP can seek financial support from national programs aimed at conserving and restoring carbon sinks (such as the REDD+ program) and, as mentioned above, from international cooperation funds channeled through international entities such as the United Nations agencies. To access this funding, the NVCFP must be aligned with the objectives of the programs and funds, and ideally have as one of its purposes to contribute to NDC goals. Doing so will make it possible to mobilize resources associated with achieving Paris Agreement targets.

Table 15 summarizes the costs to be borne by the administrator.

On the other hand, the private sector also assumes costs while participating in the program. These are associated with the processes of quantification, designing reduction measures, and offsetting and neutralizing its carbon footprint.

In particular, one of the costs that could be particularly challenging for NVCFP participants is that associated with the verification process. For example, in the context of HC-Peru, the minimum cost of verification for a small organization is approximately $1,000 and up to $12,000 for a large company. Likewise, costs related to the design and implementation of GHG reduction plans can be high, as they imply making substantial changes in the ways in which resources are used (energy efficiency, for example) and in the characteristics of the products and services that are generated (use of inputs with a low carbon footprint, for example).

This means that only companies with sufficient economic capacity (large companies and multinationals) can join an NVCFP, while SMEs are excluded from these initiatives. As a result, there could be a perception of low effectiveness of climate management through these programs.[99]

Table 16 summarizes the types of expenses to be borne by NVCFP participants.

It is important for organizations to view these costs as an investment, since participating in an NVCFP will allow it to improve different aspects of its processes, as described in Section 2.2 of the second chapter of this guide. These aspects include improving competitiveness and opportunities relating to access to international markets, whose environmental requirements are likely to be more stringent than those of the domestic market. To illustrate this scenario, the following is the case of Black & Decker, which, by participating in the Carbon Disclosure Project (CDP), has made its environmental sustainability strategy one of the most ambitious in its sector.

Program participant
• Collection of the necessary data to prepare GHG inventories, according to the parameters established by the program. • Implementation of GHG reduction measures. For example: ◆ Design and implementation of energy-efficiency plans. ◆ Design and implementation of waste and residue management plans. ◆ Support to suppliers for their incorporation into the NVCFP. ◆ Vehicle energy efficiency and switches in fuels used. ◆ Purchase of carbon credits — emissions reduction units if opting for the offsetting or neutralization of emissions. • Verification services provided by the conformity assessment bodies. • Use of the seals in advertising material and documentation of the organization.

Table 16. Costs to be borne by the NVCFP participant.
Prepared by: Author.

97 Information based on questionnaires completed by managers and technical staff of the HuellaChile (Chile), HC-Peru (Peru), RTH Corporate — Carbon (Panama), and PECC (Ecuador) programs.

99 Information based on questionnaires completed by managers and technical staff of the HuellaChile (Chile), HC-Peru (Peru), RTH Corporate — Carbon (Panama), and PECC (Ecuador) programs.

Table 15. Costs to be borne by the NVCFP administrator.[98]

Phase	Costs for the program administrator	
	Resources that can be covered by the administrator's personnel, facilities, and IT equipment	**Consultancies and acquisitions**
Phase of definition of administrative aspects. Includes: • Objectives • Scope • Principles • Legal framework • Governance framework	Salaries of personnel in charge of defining administrative parameters. In the absence of technical expertise, training of personnel who will define the administrative parameters, or hiring of personnel with the technical capabilities required for this purpose. **Resources:** 1–2 part-time staff members for 6 months.	Consultancy, in the absence of personnel or technical expertise to define the administrative parameters. **Resources:** 1 specialist for three months, between $7,000 and $10,000.
Phase of definition of technical aspects. Includes: • Registration mechanism • GHG management levels • Methodological considerations • Monitoring and reporting system • Verification system • Recognition system	Salaries of personnel in charge of defining and designing technical parameters. In the absence of technical expertise, training of personnel to define and design the technical parameters, or hiring of personnel with the required technical capabilities. **Resources:** 2–3 part-time staff members for 9 months.	Consultancies, in the absence of personnel or technical expertise to define and design the technical parameters. For example: • Consultancy for designing the seals and diplomas that are part of the recognition awards, including preparing their user manual. **Resources**: Between $15,000 and $20,000, consultancy of 3 to 4 months duration.
Program dissemination phase	Salaries of the personnel in charge of the dissemination strategy: • Strategy design. • Preparation of program publicity material. • Awareness-raising campaigns. • Workshop organization and logistics. • Workshop moderation.	Consultancy, in the absence of personnel or technical expertise to design a dissemination strategy that includes: • Strategy design. • Preparation of program publicity material. • Awareness-raising campaigns.

98 USD resources and values are referential based on UNDP-backed experiences in Latin America.

Phase	Costs for the program administrator	
	Resources that can be covered by the administrator's personnel, facilities, and IT equipment	Consultancies and acquisitions
	Resources: 2–3 part-time staff, for one year or depending on how long it is desired to maintain the outreach strategy and/or awareness-raising campaigns. Facilities to carry out outreach workshops with the sectors prioritized by the program and social actors in general. **Resources:** if possible, the facilities of the agency administering the program or other public sector institutions can be used. Printing of the program's publicity material. **Resources:** if available and possible, the in-house printing office of the agency administering the program may be used. Creation of a website for the program, for information purposes only (this is not yet the program's virtual operating platform, but may be part of it). **Resources:** 1–2 staff members from the ICT department of the agency administering the program, on a part-time basis for six (6) months. Salary of the person acting as community manager of the program's social networks. **Resources:** 1 part-time staff member, permanent from the creation of the program's social networks.	**Resources:** $40,000 to $50,000, 3- to 4-month consultancy. Contracting of printing services for the program's advertising material. **Resources:** the cost will depend on the type and quantity of material to be reproduced. Contracting of a community manager (professional responsible for building and managing the online community — managing the NVCFP's identity and image) if one is not available within the staff of the agency administering the program. **Resources:** 1 part-time community manager, hired from the creation of the program's social networks. Between $150 and $300 per month.

Phase	Costs for the program administrator	
	Resources that can be covered by the administrator's personnel, facilities, and IT equipment	Consultancies and acquisitions
Design and implementation of the GHG registration and management platform (assuming a hybrid virtual platform, as specified in Section 3.1.4).	Salaries of personnel in charge of designing and implementing the program's virtual GHG registration and management platform. Including training for officials who will operate the platform and the development of user manuals for program participants. **Resources:** team of at least 5 professionals (one project leader, one software designer, two programmers, one user experience manager) on a part-time basis for 15–18 months. Salaries of personnel in charge of designing and preparing spreadsheets for quantifying GHG emissions. **Resources:** 1–2 part-time staff members for six (6) months. If necessary, salaries of the personnel in charge of the administrative process that will enable the nesting or connection of the NVCFP virtual platform in/with a larger virtual platform (which could belong to the program's administering agency). **Resources:** 1 full-time staff member for one month. Technological equipment necessary to host the program's virtual operating platform. **Resources:** if possible and provided they have the appropriate technical specifications, servers and other computer equipment available to the agency administering the program may be used.	Consultancy, in the absence of personnel or technical expertise to design and implement the program's virtual GHG registration and management platform. **Resources:** $70,000 to $300,000 depending on the scope of the platform. This consultancy would include the design and construction of the platform (from 9 to 12 months, depending on the scope of the platform), plus the piloting stage to identify and correct possible shortcomings and/or omissions in the software design (minimum 6 months). The basic consulting team would consist of: a project leader, a software designer, two programmers, and a user experience manager. Acquisition of computer equipment (essentially servers) to host the program's virtual operating platform if the program administrator does not have such equipment. **Resources:** the cost will depend on the technical specifications required for this equipment.
Program operation	Salaries of personnel in charge of: • Operating the program: reviewing/validating registration application requirements and the requirements to achieve a GHG management level. • Providing training (virtual or in-person) on the program and its calculation tools. • Attending the help desk that resolves issues related to accessing the virtual platform and preparing inventories. **Resources:** 2–3 staff members, part-time or full-time depending on the flow of applications received by the program.	Contracting of external services for maintenance of the technological equipment and the virtual platform if there is not enough personnel for this purpose. **Resources:** $5,000 to $10,000, annual contracting of two preventive maintenance services and four visits for corrective maintenance.

Phase	Costs for the program administrator	
	Resources that can be covered by the administrator's personnel, facilities, and IT equipment	Consultancies and acquisitions
	Salaries of personnel in charge of operating and maintaining the technological equipment and the virtual platform. **Resources:** 1–2 part-time staff members. Periodic improvement of the technological equipment that hosts the program's virtual operating platform, due to the flow of registration requests received. **Resources:** as part of the annual expenditure planning, the improvement of the technological equipment that hosts the platform can be included, based on an analysis of the flow of requests received and expected for the platform. Organization and execution of periodic award ceremonies. **Resources:** 1–2 part-time staff members, every year.	

Prepared by: Author.

Black & Decker is one of the world's most recognized manufacturers of industrial tools and safety solutions. Headquartered in Connecticut, the company has participated in the CDP for nearly a decade, since 2013.

Initially, the company took a short-term approach to sustainability planning, focusing on achieving annual reductions in its carbon footprint, waste generation, and water consumption. Subsequently, the CDP tools helped Black & Decker to set long-term strategic objectives. The climate change and water security questions posed by the CDP were forward-looking and clearly based on critical feedback from analysts, investors, and other stakeholders, providing the company with a strategic perspective on sustainability.

This long-term approach allowed the company to include the objective of reducing its Scope 1 and 2 GHG emissions by 100 percent in its latest Corporate Social Responsibility strategy, verifying its actions in the Science Based Targets initiative. To this end, it will invest in carbon capture technology to eliminate more CO2 than it emits and in measures to reduce emissions in its supply chain by 35 percent by 2030. In addition, it is working to map its water risks and set targets related to water security in all its operations.

Black & Decker recognizes that pursuing these goals is not easy. However, the company points out that to survive in the present, it is not enough for businesses to perform financially, they should also align with the needs of its employees and customers in an impactful way. By joining the CDP, Black & Decker is responding to its customers, who are becoming more and more concerned about addressing environmental impacts in their own supply chains. Customers drive sustainability and these efforts reach companies in their role as suppliers. Thus, Black & Decker has at least ten direct customers who use the CDP to ask specific questions about the emissions generated during the production of their products, the associated risks and opportunities, and the next steps to be taken to improve processes.

Box 7. Black & Decker and its path to environmental sustainability.[100]

3.2.2. Sustainability of NVCFPs and possible fee structures

In this guide, sustainability refers to the financial resources available to the program administrator to keep the program running for the time necessary to achieve the set goals. For this purpose, as described in the previous section (and during the program implementation phases), public resources are limited in most cases. Then, international cooperation is an alternative that has an ideal duration for the initial phases (the first four to five years, as a conservative estimate), after which the costs will have to be irremediably assumed by the state, once the added value of the program has been proven. Given this scenario, Table 17 describes some possible fee structures, whose joint implementation — assuming a mass adhesion of organizations to the program — could be sufficient to ensure its operation over time.[101] This section has analyzed the most common costs associated with setting up a carbon footprint

100 CDP. 2022. *Stanley Black & Decker: Defining ambition*.

101 As of the date of this publication, Latin America still has programs based on international cooperation, so this section contains proposals and alternatives for future sustainability.

Table 17. Possible fee structures for sustaining an NVCFP.

Strategy	Advantages	Barriers	Mitigation actions
Charge a fee to organizations wishing to register in the program. Charge a fee when organizations apply for recognition within GHG management levels.	Continuous and sustained inflow of financial resources for the program.	May discourage organizations, especially SMEs, from participating in the program.	The benefits offered by the program compensate for the fee for participating and applying for recognition. Implementing mitigation measures reduces the organization's operating costs.
		The legal framework of the program does not allow it to set a fee for the participation and management of the organizations.	Modify the legal framework that supports the creation and grants functions to the program.
The verification agencies, when invoicing for the verification processes performed, add to the value of their services an additional amount that is paid in full to the program.	The participant does not perceive that its integration in the program represents an additional cost.	There is no legal framework that allows verifiers to make the additional charge.	Create legal standards allowing verifiers to make an additional charge for their services, which will be transferred in full to the program.
		There is no legal framework to allow monetary transfers from the verifiers to the program.	Create legal standards that allow monetary transfers from the verifiers to the program.
Annual charge to the verification bodies for being part of the list of those admitted to the program.	The participant does not perceive that its integration in the program represents an additional cost.	May discourage the accreditation of companies as verification bodies within the NVCFP.	Show that the annual fee is offset by the charge for the verification services they will provide.
		The legal framework of the program does not allow it to set a fee for admitting verifiers.	Modify the legal framework that supports the creation and grants functions to the program.
		Verifiers could pass this fee on to their clients, which would increase the cost of the verification service for program participants.	The NVCFP administrator sets the value of verification services in its context and/or at the national level.

Strategy	Advantages	Barriers	Mitigation actions
The price of each reduction unit (carbon credits) includes a tax to be paid to the program.	The participant does not perceive that its integration in the program represents an additional cost.	The legal framework of the program does not allow an additional tax to be added to the price of reduction units.	Modify the legal framework that supports the creation and grants functions to the program.
		There is no legal framework to allow monetary transfers from offsetting projects to the program.	Create legal standards that allow monetary transfers from offsetting projects to the program.
Adherence of the NVCFP to the national environmental management fund.	The program would receive funds from different sources: environmental taxes, fines for environmental crimes, international donations for environmental protection, among others.	There is no national environmental management fund in the country.	Create and implement a national environmental management fund. This can be complicated even when there are decrees providing for their creation.

Prepared by: Author.

management program, from design to operation. In this regard, the costs of the design, dissemination, and implementation phases should be borne entirely by the initiative's administrator (government agency), which should identify the possible sources of finance it can resort to in order to keep the proposal on track (public budget or international cooperation, in particular). Subsequently, during the operation, both the administrating agency and the NVCFP participants must bear costs associated with the different responsibilities acquired. In the case of participants, it is vital that they see these costs as an investment; otherwise, knowledge of these fees could be a disincentive for adhering to the program.

Likewise, when the program is already in operation and providing certain results, the administrator must find sources for its financial sustainability over time. These sources may include fees to participants, verifiers, and offsetting projects for being part of the program. This is in addition to a fee that would be managed through a verification process, and the inclusion of the program to access resources from a national environmental management fund. These options would not be efficient individually, and the ideal case would be to structure a joint fee system that ensures the flow of resources for the proper and continuous operation of the NVCFP.


UNDP, Panama

Chapter 4

Special Considerations and Best Practices based on Experiences in the Region

APEOSAE, Ecuador

Carbon footprint management involves certain elements that have been considered relevant enough to address more extensively in a separate chapter of this guide. These elements address:

a) Simplifying methodologies for measuring GHG emissions.

b) Reducing the risk of greenwashing.

c) Considerations associated with the circular economy and product life cycle.

d) Renewable energies and Renewable Energy Certificates (RECs).

e) Alternative schemes to carbon markets to make offsetting/neutralization viable.

Each of these issues takes up a section in this chapter, providing a general picture of these issues or compiling the observations and recommendations that have been made in the previous three chapters.

It should be noted that none of the UNDP-backed NVCFPs in Latin America have made full progress on these elements. However, their progress in this regard is valuable as it allows for the improvement of ongoing programs and can be taken as a reference for developing new initiatives. For this reason, they have been considered as final reflections still under construction.

4.1. Simplified methodology for GHG accounting

How can we ensure accuracy and international recognition while reducing the operational costs of broadening participation approaches?

As indicated in Section 1.2 of the first chapter of this guide, it is advisable that NVCFPs adopt recognized international standards for GHG inventory calculation — such as the GHG Protocol and ISO standards —, avoiding producing National Technical Standards that are essentially a replica of these standards. These standards, along with other guidelines provided by organizations such as the IPCC, provide a series of criteria that allow for the construction of simplified calculation methodologies for the different sectors.

These simplified methodologies can then help reduce operating costs for organizations and NVCFPs, while maintaining accuracy in calculations (and with it, international recognition). This is relevant because, as described in Chapter 3, Section 3.2, as the number of participants in the program grows, the associated costs for the initiative administrator will also grow.

Suggestions for simplification have been compiled in Table 18.

In addition to the criteria presented in Table 18, it is essential that the program provide a single digital platform for emissions quantification, as this allows standardized results to be obtained across organizations. This platform should be user-friendly and sufficiently documented — in terms of its operation and functioning — in order to facilitate its use. In addition, it is important that it is linked to a national database or that it has its own database containing activity data and standard emission factors that companies can use if they do not have their own measurements for these parameters. As mentioned in the third chapter (Table 12), activity data and emission factors can be taken from calculations made by international scientific organizations (such as the IPCC), making sure that these values are compatible with the parameters used by the country to calculate the national GHG inventory. Notwithstanding this option, the program should encourage each organization to calculate its carbon footprint based on its own activity data measurements, which should be subject to verification processes. The statements resulting from the verifications are the documents that will attest to the veracity and reliability of these measurements.

Table 18. Suggestions for a simplified methodology for calculating GHG inventories.

Subject	Recommendation
Method for estimating GHG emissions from a source	Although there are more complex modeling methods or equipment that can directly measure the amount of GHG emissions from a given source, the simplest and most widely accepted methodological approach is the following formula: *Emissions = Activity data * Emission factor*
Activity data	Take the data directly measured or related to the identified source. If direct measurement is not available, use estimates calculated using the organization's own data. If this is not possible either, resort to expert judgment and national databases — in the first instance — and to international databases in the second instance.
Emission factors	Follow the recommendation given in Table 12.
Scopes or categories	Mandatory measurement and reporting of Scope 1 and 2 sources. Optional measurement and reporting of Scope 3 sources. If the decision is made to integrate this approach, it is useful to address one or two major GHG-generating activities. To determine which sources are relevant within Scope 3, the program can assess whether: • They represent (or are estimated to represent) a high percentage of emissions with respect to those of Scopes 1 and 2. • They are considered critical sources by key stakeholders for the organization (customers, investors, among others). • They offer potential emissions reductions that can be implemented by the company.
Organizational boundaries	Follow the recommendation given in Chapter 3, Section 3.1.1.2, *Organizational boundaries.*
Determination of base year	Follow the recommendation given in Table 12.
Determine the significance threshold for recalculation.	Companies may undergo changes (mergers, acquisitions, incorporating new production processes) that could significantly alter the emissions reported for the base year (which is the baseline inventory for subsequent GHG management). If this is the case, following the California Climate Action Registry, the NVCFP can set a significance threshold of 10%. This threshold marks the percentage by which the inventory must change before the recalculation of base year emissions can be accepted. It should be noted that base year emissions are not adjusted if the company has acquired new operations or facilities that did not exist in the base year.
Calculation methodologies	Adopt sectoral or cross-sectoral calculation methodologies that are already approved and accepted at the international level, following the suggestion given in Table 12.
Accounting and reporting principles	Applying these principles is aimed at ensuring the development of GHG inventories that fairly and reliably reflect an organization's emissions. These principles include relevance, completeness, consistency, transparency, and accuracy. A description of each of these characteristics can be found in Annex 2.

Prepared by: Author.[102]

4.2. Reducing the risk of greenwashing

How can the public and private sectors be assured that the risk of greenwashing has been addressed?

In the first chapter of this guide, greenwashing was defined as the dissemination of false or incomplete information by an organization to present an environmentally responsible public image.[103] In this vein, NVCFPs can become an attractive mechanism for companies wishing to greenwash their environmental image without necessarily introducing changes in their management processes. For this reason, the program must avoid GHG management within its context being used to disguise or cover up actions that negatively impact the environment and/or do not really combat the problem of climate change. In this regard, in addition to the mandatory verification of inventories reported at each management level, the program should take into account three areas of potential risk: 1) risk of greenwashing in the communication of GHG emissions management; 2) exclusively using reduction units (offsets or carbon credits) for offsetting and neutralization without reviewing the GHG reduction potential of their processes; and, 3) companies with questionable environmental practices participating in the program.

Greenwashing in the communication of GHG management actions

According to the *Good Practice Guide for the Communication and Dissemination of Seals of Recognition — HuellaChile Program: guidelines to avoid greenwashing in the communication of GHG emissions management at the level of organizations and events*, there are 10 signs to identify organizations that could be engaging in misleading communication practices in order to improve their image in the eyes of potential investors and customers.[104] Table 19 highlights five of these signs.

102 Criteria extracted from: IPCC. 2006. 2006 IPCC Guidelines for National Greenhouse Gas Inventories. World Resources Institute and World Business Council for Sustainable Development. 2004. A corporate accounting and reporting standard — GHG Protocol.

103 Furlow, Nancy. 2010. Greenwashing in the New Millennium. Journal of Applied Business and Economics.

104 HuellaChile Program. 2021. *Good Practice Guide for the Communication and Dissemination of Seals of Recognition — HuellaChile Program: guidelines to avoid greenwashing in the communication of GHG emissions management at the level of organizations and events.*

Table 19. Signs of greenwashing in organizational communication.

Sign	Example
Unclear language	Participation in an NVCFP can be used by an organization to convey messages alluding to green or environmentally friendly performance when it has not yet implemented actions to reduce or offset GHG emissions.
Green product vs. dirty company	A company that certifies one of its products at any of the management levels of an NVCFP could use this recognition to cover up its "dirty" production (in environmental terms) of other goods.
Suggestive images	If the guidelines for the use of the seals granted by an NVCFP are not clearly specified and their application controlled, an organization could use them outside the focus (product or organization, for example) and validity period for which they were issued.
Jargon	The technical vocabulary used in the documents associated with carbon footprint measurement (and in the reports required by an NVCFP) could be used by an organization to publicize its GHG management to society at large. This could lead to confusion and misunderstandings among a non-technical audience that could create a false image of a company's work in relation to the fight against climate change.
Blatant lie	An organization could take advantage of its participation in an NVCFP, and the management it carries out in this context, to disseminate false information. For example, in its annual corporate responsibility reports, a company could present higher-than-actual GHG reduction figures, which would not be challenged as the company participates in an NVCFP.

Prepared by: Author based on information available in the *Good Practice Guide for the Communication and Dissemination of Seals of Recognition — HuellaChile Program.*

To prevent these situations or try to reduce their occurrence, it is essential that NVCFPs develop guides and manuals with real cases of greenwashing practices. Likewise, and depending on available resources, the programs could design and implement random actions to monitor the use of seals of recognition.

Using reduction units (offsets) for offsetting and neutralization

As explained in the third chapter (Section 3.1.2.2, Paragraph d), emissions offsetting and neutralization should be allowed only once a company has demonstrated GHG reduction efforts at its sources. Reduction efforts are justified through the implementation of internal mitigation measures (which could correspond to a percentage of all reduction actions that are economically and technically feasible for a company). Only after this would it be possible to acquire offsets from key projects for NDC compliance and preferably from domestic carbon markets (if any). The intent of this sequence (reduction → offsetting) is to maintain the priority of mitigation in carbon footprint management and to prevent organizations from neutralizing 100 percent of their base or initial inventory through the purchase of offsets, which could be seen as a greenwashing practice aimed at making the volume of GHG emissions generated by a company invisible.

However, NVCFPs face the difficulty of identifying the technical and economic limits affecting the mitigation actions that a participant can undertake. To understand these limits, the program could rely on the criteria developed by international carbon footprint management initiatives, such as the Science Based Targets initiative (SBTi) introduced in the first chapter of the guide (Section 1.8). Using SBTi criteria, organizations could develop and deliver a roadmap of mitigation actions. If sufficiently staffed in terms of numbers and technical expertise, the NVCFP could even develop guidelines or offer advice to companies that do not have the means to draw up such a roadmap or to design an emissions reduction plan. This would be an incentive and would free up economic resources that would make it easier for companies to implement such a plan.

Companies with questionable environmental practices participating in the program

As regards harmful environmental practices that are not directly related to GHG management — such as discharging polluting substances into rivers, emitting polluting particulate matter into the atmosphere, among others —, the NVCFP can be linked to the environmental quality management system of its country. The objective of this linking is that one of the requirements within all levels of GHG management is a valid environmental permit authorizing the operation of the organization (e.g., environmental registration or license).

In this regard, the three cases detailed in Table 20 could be presented:

Table 20. Scenarios related to the environmental operating permit.

Situation	Action → Result/Decision
The company has a valid environmental permit.	**Action**: The company submits its valid environmental permit to the NVCFP as part of the requirements to complete a GHG management level. The program verifies the validity of this permit. **Result**: The environmental permit does not represent an obstacle for the company to obtain recognition.
The company is in the process of issuing/updating its environmental permit.	The NVCFP must decide on the awarding of the recognition, for which it could assess the company's past performance (in relation to environmental quality conditions). Two scenarios arise: **Scenario 1**: The company has not committed serious violations in the past. **Result:** The company could obtain its recognition with the condition that, for example, this caveat can be applied only once (i.e., it will not be granted the following recognition awards if it does not submit a valid environmental permit). **Scenario 2**: The company has committed serious violations in the past, which jeopardize the issuance/updating of its environmental permit. **Result**: The company would not be able to access its recognition as long as it does not have a valid permit.
The request to issue/update the environmental permit has been denied, and the company has appealed this decision. Denial of the environmental permit is an unlikely response. This process usually involves several stages of correction of observations aimed at ensuring that a company always obtains its operating permit.	**Action**: Should this scenario occur, the NVCFP would not be able to award any recognition to the company. **Result**: It is not possible to grant the recognition, nor is it possible for the company to join the program (if the denial of the environmental permit occurs during the registration stage of the organization).

Prepared by: Author.

In this way, the environmental permit would limit the giving of recognition awards to companies that have failed to comply with environmental quality assessment parameters in their operations. The purpose of this is to prevent companies from improving their image as a result of the GHG management they are carrying out, when at the same time it could have caused or be causing other types of environmental impacts.

A similar approach to that described for environmental quality parameters could be applied to environmental violations and crimes, such as those related to biodiversity (such as trafficking in native flora and fauna) and forest resources (such as logging in protected areas). To verify whether an organization has been involved in any of these situations, the NVCFP may request participants to submit a certificate (issued by the competent authority) stating the company's history of such practices. If the company has committed environmental violations or offenses, this certificate may also contain the resolutions taken in this regard. The scenarios described in Table 21 elaborate on these issues.

By knowing and assessing the occurrence of environmental violations and offenses — and actions to remedy them —, the program could also limit the giving of recognition awards to companies that could use them to wash their image and minimize the effects of their bad actions on other environmental issues (i.e., greenwashing).

Considering the situations described above — environmental quality and environmental crimes — within the NVCFP management system, and establishing a clear and appropriate verification procedure for them — disclosed from the start of the program — can reduce the risk of greenwashing. However, it is essential to consider that excessive bureaucracy may discourage organizations from participating, so the program must find the right balance for each country's context. To mitigate this risk, institutional arrangements could be made to grant the NVCFP access to databases containing information on environmental permits, sanctions, violations, or offenses and their resolutions. In this way, the verification processes would be carried out automatically, always with the consent of the participant.

Finally, it should be noted that NVCFPs operate within national geographic boundaries, so actions of the company's subsidiaries in foreign territories could not be addressed within their verification procedures.

Table 21. Scenarios for committing an environmental violation or crime.

Situation	Action ➔ Result/Decision
The company has never committed an environmental violation or crime (according to those typified by each country).	**Action**: The company submits its history of environmental violations and offenses to the NVCFP as part of the requirements for completing a GHG management level. The program verifies the validity of this document. **Result**: A history of environmental violations or offenses does not represent an obstacle for the company to obtain recognition.
The company has received a sentence for committing an environmental violation or crime (according to those typified by each country). This sentence contains a set of actions that the company must implement in order to compensate the negative impacts of its practices to a certain extent.	The NVCFP must decide on the awarding of the recognition, for which it could assess the actions that have been taken to address the effects of the environmental violation or offense. Three scenarios arise: **Scenario 1:** The company is implementing the actions arising from its sentence. **Result:** *Option 1*. The NVCFP requests the company to provide evidence of the implementation of a certain percentage of the actions set forth in its sentence (50%, for example). This evidence should be analyzed by the program's technicians (or request judgment from other specialized personnel who are also part of the government). If after the analysis it is concluded that the company has implemented its actions appropriately, recognition could be granted with the condition that this caveat can be applied only once in the context of the program. In other words, in order to obtain the following recognition awards, the company must have complied with its sentence in accordance with the competent authority. *Option 2*. The NVCFP waits until the company has executed all the actions laid down by its sentence, in accordance with the competent authority, before awarding a recognition. This option would involve assessing the time it would take the company to comply with the totality of the actions, since there is the possibility that this time may exceed the period of validity of a recognition. If this is the case, obtaining recognition could become meaningless, so it would be advisable to choose option 1. **Scenario 2**: The company has fully implemented the actions arising from its sentence, and the competent authority may issue a certificate to that effect. **Result**: The company could obtain its recognition under the condition that committing a new environmental violation or offense could prevent it from obtaining the following recognition from the NVCFP. **Scenario 3**: The company has not fully implemented the actions arising from its sentence, and has entered into litigation with the competent authority in this regard. **Result:** The company could not obtain its recognition until it has a favorable compliance report issued by the competent authority.
The company is in litigation with the competent authority for committing an environmental violation or crime (according to those typified by each country).	**Action:** The NVCFP should not award any recognition to the company. Even if it were to win the litigation, the conditions under which this was possible should be analyzed prior to a possible awarding of recognition of the program. **Result:** The awarding of the recognition is uncertain.

Prepared by: Author.

4.3. Circular economy, product life cycle, and Sustainable Development Goals (SDGs)

How can an NVCFP generate benefits beyond climate change mitigation, considering efforts regarding resilience and sustainability at the national level including SDG targets?

The circular economy, contrary to the linear economic model of produce-use-dispose, is a paradigm that promotes a cyclical flow for the extraction, transformation, distribution, use, and recovery of materials and energy from products and services available on the market. This cyclical flow is intended to generate economic and environmental benefits that contribute to achieving global sustainable development. To this end, the circular economy promotes the use of the 3 Rs principle — reduce, reuse, recycle — in the life cycle, as shown in Figure 22, so that products are reintroduced into the production system as biological and technical resources.[105] According to this principle, the circular economy promotes:

a) reducing the use of natural resources and inputs in the production processes.

b) increasing the shared use of energy and renewable and recyclable resources.

c) reducing material and waste losses.

d) extending the useful life of products.[107]

To meet all these objectives, the circular economy relies heavily on the product life cycle approach. Mainly adopted in developed countries, the life cycle approach allows organizations to study the environmental, social, and economic impacts caused by the different processes involved during the life of a product.[108] These processes begin with the extraction of raw materials and the generation of energy needed to produce a good or service, progress through the processes of manufacturing, distribution, and use of the products, and end with their recycling, reuse, or disposal (or post-consumer stage).[109]

By understanding the impacts generated at each of these different stages, organizations are able to produce goods and provide services that are more sustainable in environmental, social, and economic terms.[110] Likewise, knowing and understanding the qualitative and quantitative characteristics of these impacts enables governments, society, and individuals to make informed decisions on consumption and production patterns, implement public policies, and design management systems.[111]

The above clearly shows that there is a great opportunity for the tools, resources, and platforms of an NVCFP to contribute to identifying and implementing measures that are consistent with the principles of the circular economy and the objectives of the life cycle approach. For example, an NVCFP that addresses the product approach contributes to the management of environmental, social, and economic risks linked to the generation of GHGs from production and consumption processes. Publicizing opportunities for mitigating GHG emissions by reducing the consumption of certain raw materials, substituting polluting technology, or

105 Prieto-Sandoval, Vanessa, Carmen Jaca, and Marta Ormazabal. 2017. Circular economy: relationship with the evolution of the concept of sustainability and strategies for its implementation.

106 Ellen MacArthur Foundation. 2013. *The circular model: an overview.*

107 Cerdá, Emilio and Aygun Khalilova. 2017. *Circular Economy.*

108 Schein, Leila. 2013. Simplified life cycle analysis, carbon footprint, for annual blueberry production on case study.

109 It is also possible to address the life cycle without considering the use and post-consumption phases. However, in relation to the circular economy, all the aforementioned stages of this cycle are relevant.

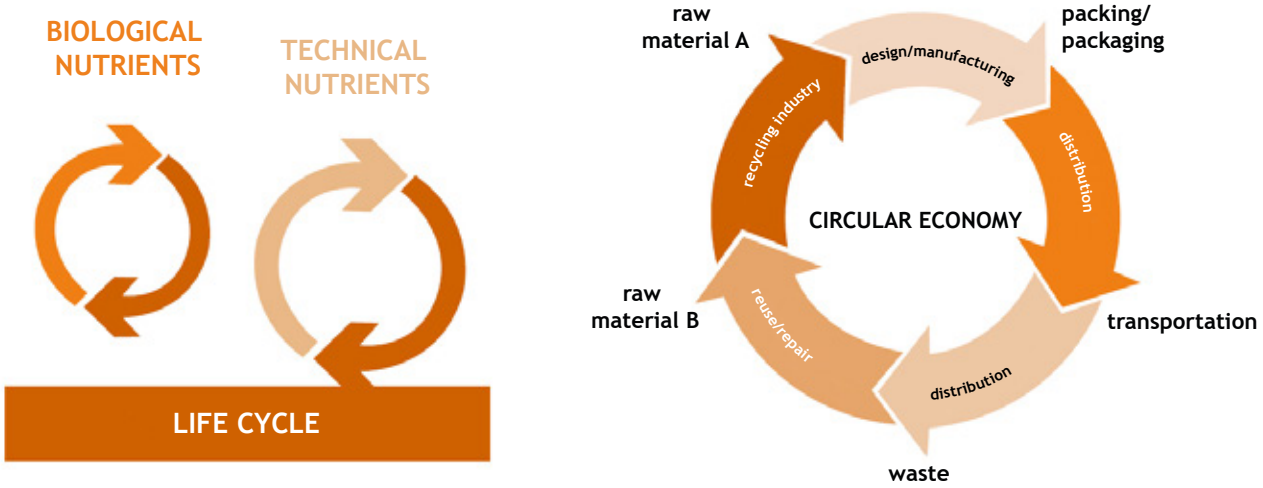

Figure 20. Diagrams of the circular economy model.[106]

using energy more efficiently, generates an important opportunity in the field of circular economy. Likewise, in relation to the organizational approach, encouraging Scope 3 sources (be they voluntary or mandatory in the context of an NVCFP) to include emissions associated with the consumption of water/paper/other materials, as well as emissions from solid waste generation, also represents an effort related to the principles of the circular economy.

Even when describing the regional platforms in the reference countries of this guide, the opportunity to manage (measure-report) aspects related to the water footprint is evident. This indicator, together with the reporting of energy consumption, waste, among others, raises an interesting connection aimed at scaling up an NVCFP towards a holistic approach that allows for progress in the circular economy agenda.

In addition to the above, in terms of reporting, NVCFPs, depending on their level of acceptance by the private sector, can have a significant impact on the environmental, social, and economic performance of a product's life cycle, which could provide an important window for the development of this other agenda.

Given this context, it is relevant to explicitly analyze the links between a carbon footprint program and the SDG targets designed by the United Nations. As explained in Table 22, these links go beyond climate action (Goal 13) and directly impact other issues, such as access to clean energy (Goal 7), conserving life below water (Goal 14), and sustainable forest management (Goal 15).

110 Schein, Leila. 2013. Simplified life cycle analysis, carbon footprint, for annual blueberry production on case study.
111 UNEP. 2004. Why adopt a life cycle approach?
112 United Nations. n.d. Sustainable development goals and targets.

Table 22. Linkages between an NVCFP and the SDGs (other than climate action).

SDGs	NVCFP
Goal 7. Ensure access to affordable, reliable, sustainable, and modern energy	Related to targets: 7.2 "Increase substantially the share of renewable energy in the global energy mix", through the use of Renewable Energy Certificates (RECs) for offsetting and neutralizing emissions. 7.3 "Double the global rate of improvement in energy efficiency", through mitigation measures implemented in this sector.
Goal 9. Build resilient infrastructure, promote sustainable industrialization, and foster innovation	Related to target: 9.4 "Upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes," through GHG reduction measures focused on the adoption of eco-efficient technology.
Goal 11. Make cities more inclusive, safe, resilient, and sustainable	Related to targets: 11.2 "Provide access to safe, affordable, accessible, and sustainable transport systems for all", through GHG reduction measures affecting the transport sector (such as transitioning to electric vehicles in public transport systems, using bicycles, or clean multimodal transport, among others). 11.6 "Reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management" through waste management measures that reduce GHG emissions while avoiding the release of other pollutants into the air. 11.b: "Substantially increase the number of cities and human settlements adopting and implementing integrated policies and plans towards inclusion, resource efficiency, mitigation and adaptation to climate change, and resilience to disasters", through any mitigation measures and offsetting actions that NVCFP participants implement. In particular, this goal has a stronger connection with NVCFPs focused on the territorial approach.

SDGs	NVCFP
Goal 12. Ensure sustainable consumption and production patterns	Related to targets: 12.2 “Achieve the sustainable management and efficient use of natural resources”. 12.5 “Substantially reduce waste generation through prevention, reduction, recycling, and reuse”. Through the implementation of mitigation measures that include reducing the use of natural resources (especially non-renewable resources), reducing the generation of waste and residues, recycling, and other similar activities. Related to target: 12.6 “Encourage companies, especially large and transnational companies, to adopt sustainable practices” by motivating mass participation of businesses (particularly those that generate the most GHGs) in a country’s climate action.
Goal 14. Conserve and sustainably use the oceans, seas, and marine resources	Related to target: 14.1 “Prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities”, especially by achieving the participation of companies whose activities involve discharging waste into river systems that flow into the oceans or directly into the oceans.
Goal 15. Sustainably manage forests, combat desertification, halt and reverse land degradation, and halt biodiversity loss	Related to targets: 15.1 “Ensure the conservation, restoration, and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains, and drylands”. 15.2 “Promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests, and substantially increase afforestation and reforestation globally.” 15.4 “Ensure the conservation of mountain ecosystems”. 15.b: “Mobilize significant resources from all sources and at all levels to finance sustainable forest management, and provide adequate incentives to developing countries to advance such management, including for conservation and reforestation”. Through the promotion of offsetting/neutralization projects focused on the conservation and restoration of forests and non-forest ecosystems (such as páramos). This is one of the most interesting alternatives since it combines: a) generating revenue; b) increasing the resilience/ preservation of watersheds through payments for environmental services; and, c) generating emissions reduction certificates that could be used in neutralization processes.

Prepared by: Author based on information provided by the UNITED NATIONS on the SDGs.[112]

Table 22 shows that beyond contributing to climate change mitigation, a consolidated carbon footprint program can grant special recognition for actions that, together with GHG management, contribute to accomplishing SDGs other than those related to climate action. In this sense, in addition to those presented in Table 22, an NVCFP could even be linked to SDG 5, which addresses gender equality, SDG 6, which seeks to ensure the availability of clean water and sanitation for all, and SDG 10, which addresses the reduction of inequalities, through the creation of complementary initiatives that specifically address these issues or synergies with other government programs.

However, it is pertinent to mention that the possibility and effectiveness of the links between an NVCFP and the SDGs will depend on each national context, since the level of impact of the former will depend on the level of adhesion they generate (especially in the private sector) and the configuration of their GHG management system and other associated actions.

113 Universidad Católica de la Santísima Concepción and Universidad Católica del Maule. 2021. *Bases for the design of a recognition system to improve water availability, access, conservation, and sanitation in Chile*. Final report.

Ensuring the availability, sustainable management, and sanitation of water for all humanity by 2030 is one of the challenges set by the UN through the SDGs. Low availability or limited access to water significantly reduces quality of life for people and their economy, negatively impacts the environment, and undermines the conditions for appropriate economic development. In view of this scenario, there is a need to design and implement measures to mitigate and/or adapt to the impacts that climate change has had and will have on the quality and quantity of this resource.

To take steps in this direction, HuellaChile has set a goal of creating a recognition system for initiatives that contribute to fulfilling commitments linked to water resource management (included in the Chilean NDC) and SDG 6, by increasing the resilience of watersheds/territories to tackle the challenges of climate change. Called the Resilient Watershed Seal — Water Projects, in the design stage of this recognition (2021), three types of measures were identified that partially or fully comply with SDG 6: i) access to safe drinking water and rural sanitation, ii) protection and/or restoration of water-related ecosystems, and iii) increasing water availability.

The specific purpose of the proposed system is to recognize voluntary projects that have been executed and/or financed (partially or totally) by companies and/or private organizations that work towards improving the resilience of watersheds/territories to climate change, taking into consideration the medium/long-term commitment of the sponsoring organizations to the community or ecosystem. In addition, the seal is intended to lend transparency and visibility to concrete actions carried out by sponsoring organizations in their environment as part of a national territorial plan.

There are three levels of recognition:

- **Level 1.** Projects with a short-term business model (less than two years).
- **Level 2.** Projects with a medium-term business model (between two and five years).
- **Level 3.** Projects with a long-term business model (between five and 10 years).

The commitment increases with time, therefore, the project action plan must be consistent with the time period of the seal for which it is applying, and must ensure that the benefits obtained will be maintained during the commitment period. In addition, projects must demonstrate additionality, i.e., that their development is not associated with any regulatory commitment (environmental or sectoral).

In this way, HuellaChile has begun to expand its scope, complementing the support to carbon footprint management with the management of aspects related to the water footprint.

Box 8. HuellaChile and the Resilient Watershed Seal recognition system.[113]

4.4. Renewable energies and Renewable Energy Certificates (RECs)

How can an NVCFP address potential double counting for the use of renewable energies being adopted in the country as part of NDC/LTS implementation strategies?

In carbon footprint management, renewable energies can be approached in three ways:

- The first is when a company decides to use, for example, solar panels or build a small hydroelectric system (among other options) to support part of its energy consumption.
- The second occurs when an organization purchases energy generated from renewable sources from a third party. The connection between the generating plant and the company's facilities is direct, thus guaranteeing that the energy is used only by the organization that acquired it.
- The third option involves using Renewable Energy Certificates (RECs), taking into account the legal framework in each country.

Since the first two options are quite clear and easy to check, this section will aim to explain the use of the so-called Renewable Energy Certificates. These certificates confirm that one MW/hour of electricity has been generated at a power plant and supplied to the shared electricity grid using renewable energy sources. Considering this, UNDP-backed NVCFPs in Latin America have considered the possibility of using RECs to reduce Scope 2 emissions — emissions from electricity purchased for the organization to use.

In this sense, while RECs can be used to comply with certain electricity sector regulations at the national level, a good portion of these could enter the energy markets with the purpose that their acquisition would encourage greater investment in renewable energies, which in turn would result in a reduction of GHG emissions (which in turn would contribute to the country's NDC compliance).

In this regard, it is worth noting that a significant group of countries in Latin America (Bolivia, Chile, Colombia, Costa Rica, Ecuador, Guatemala, Honduras, Mexico, Nicaragua, and Peru) have stated that they will include quantitative targets related to renewable energies in their updated NDC, regardless of the actions already included in their base NDC.[114] In countries such as these, REC transactions at the national level could raise the level of ambition of the NDC, for example, by making the use of these certificates conditional on meeting the NDC target.

To address the issue of accounting for and reporting emissions when RECs have been acquired, the World Resource Institute has developed an amendment to the GHG Protocol guidance for Scope 2 emissions.[115] Traditionally, calculating an organization's emissions from its grid electricity consumption involves multiplying the grid emission factor (which is the weighted average GHG emissions per MWh) by the company's energy consumption. However, according to the amendment, there is the possibility of using the emission factor based on the RECs purchased, whose value would be zero when coming from renewable energy sources.

If this option is used, and in order to ensure transparency in the information reported to the NVCFP, it is recommended that the participants of the initiative report both estimates of their carbon footprint, i.e., a first quantification of emissions considering the emission factor of the grid and a second one considering the emission factor of the RECs. Then, to move towards offsetting through offsets, it is recommended — for environmental integrity reasons — that NVCFPs take as a reference the GHG inventory whose Scope 2 emissions were calculated in the traditional way. This is to avoid any risk of underestimating the carbon footprint.

Likewise, in order to lend reliability to RECs, the GHG Protocol recommends that renewable energy certificates be issued from a national registration and tracking platform, through which each REC is assigned a unique tracking number. In this way, the tracking system ensures that no other entity issues a REC for the same MW/hour. Renewable energy plants and companies wishing to acquire RECs participate in this platform, and must create accounts in order to trade the certificates. When an REC purchase and sale transaction is effected, the certificate would be transferred between accounts, i.e., this document would reside in only one account at a time so as to avoid double counting.

Then, the buyer of the REC — if it decides to use it to reduce its emissions in the context of an NVCFP — would be responsible for retiring it from the market, through a declaration/update in the registration system stating so. Only RECs whose document indicates that they can no longer be traded would be accepted by carbon footprint programs.

It is recommended that governments follow GHG Protocol guidelines if they decide to accept RECs as an instrument for reducing a company's emissions.

114 UNFCCC. 2020. Survey on NDCs Latin America 2020.

115 World Resources Institute and World Business Council for Sustainable Development. 2015. GHG Protocol Scope 2 Guidance. An amendment to the GHG Protocol Corporate Standard.

4.5. Alternative schemes to carbon markets to make offsetting viable

How can an NVCFP create synergies with the current development of national and regional carbon markets related to REDD+, including financing of nature-based solutions (NBS), results-based payments, and other stimulus packages?

As mentioned in the third chapter of this guide (Section 3.1.2.2), partial or total offsetting of GHG emissions that an organization cannot reduce — either for technical and/or economic reasons — is one of the widely accepted paths in NVCFP management schemes. Through this mechanism, a company can offset its emissions by financing the carbon dioxide equivalent saved elsewhere in the country or on the planet, including emissions avoided by conserving and restoring GHG sinks such as forest ecosystems. It is recommended that this financing be provided in the context of national carbon markets, which can serve as instruments to promote the development of projects or programs that contribute to achieving the country's NDC goals.

Complementary to national carbon markets, NVCFPs can manage other offset schemes that encourage the financing of strategic actions, such as those included in the NDC roadmap. These associated schemes could pursue direct financing of mitigation actions through Nature-Based Solutions (NBS) and/or results-based payment[116]. This is the case of the Ecuador Zero Carbon Program (PECC) which, with backing from the UNDP, has decided to design and implement a unique offsetting mechanism that has a high potential for replicability at the regional and global levels.

According to the draft document *Guidelines and Technical Criteria for Offsetting Ecuador Zero Carbon Program*, the proposal consists of making it feasible for organizations participating in the PECC to offset their emissions through an economic retribution to initiatives that have been deemed appropriate by the national environmental authority. Among the first offsetting projects are those associated with the conservation of páramos and other ecosystems that are outside the native forest strata included in the REDD+ approach and the active or passive restoration of non-forested areas within Ecuadorian territory, and which are carried out by public, private, community, or mixed actors, or the Popular and Solidarity Economy, among others that the National Environmental Authority defines[117,118]. This scope encompasses the actions being managed by the existing Socio Bosque Program (PSB), which provides economic incentives to indigenous and rural communities that voluntarily conserve and protect native forests or other ecosystems that are not part of the REDD+ Action Plan in Ecuador[119].

To be accepted as part of the PECC, these projects must quantify their GHG inventory according to the provisions and guidelines of the national Offset Technical Standard, and this inventory must be verified by a verification body that is accredited and recognized by the program[120]. These types of requirements require strengthening the technical capacities of the Ecuadorian Accreditation Service (SAE) and ensuring proper coordination with verification bodies.

Having met the requirements of the PECC, including those set forth in the Offset Technical Standard, offset initiatives become part of the program's National Offset Portfolio. Then, if an organization decides to offset its emissions through this scheme, it must select one of the initiatives in the portfolio and contact its administrator to agree on the terms of the offsetting. Once the terms are agreed upon, both parties sign an agreement enabling financial resources to be transferred from the PECC participant to the offset project.

Likewise, as this is an important emerging source of finance for the NDC and LTS agendas, it is important to consider the linkages that may exist with the monitoring of financial flows and green taxonomy.

The successful implementation of the PECC offsetting scheme will require the effective involvement of local governments, non-governmental organizations, and Ecuador's indigenous communities. To this end, in the case of indigenous peoples and local communities, they will be encouraged to participate through the REDD+ Working Group in Ecuador, which aims to gather input from the perspective of indigenous peoples. Similarly, at the national level,

116 One example of results-based payment is the Equator Prize. Since 2002, the initiative has rewarded 255 community projects in 82 countries that help protect the environment and address climate change while promoting their own sustainable development priorities. Information available at: https://www.undp.org/press-releases/2020-equator-prize-winners-show-nature-based-solutions-ahead-un-biodiversity-summit.

117 Ministry of Environment, Water, and Ecological Transition. n.d. Draft: Guidelines and Technical Criteria for Offsetting Ecuador Zero Carbon Program. First Version.

118 Popular and Solidarity Economy is a form of economic organization based on relations of solidarity, cooperation, and reciprocity, geared towards good living, in harmony with nature, and which prioritizes human beings as the subject and purpose of its activity over appropriation, profit, and capital accumulation.

119 UNDP. 2018. Environmental and social assessment of Ecuador's Socio Bosque Programme.

120 Ministry of Environment, Water, and Ecological Transition. n.d. Draft: Guidelines and Technical Criteria for Offsetting Ecuador Zero Carbon Program. First Version.

the Ministry of Environment, Water, and Ecological Transition (MAATE) has created a space to encourage civil society involvement.

Regardless of the financing mechanism that an NVCFP uses to make the offsetting/neutralization of its participants' emissions feasible — carbon market or retributive approach — it is essential to build a national portfolio of offsetting measures prior to the program's entry into operation. The aim of this is to prevent organizations seeking to partially or completely offset their carbon footprint from using international offsets that do not contribute to national climate action goals or that come from low-credibility programs. In this regard, it should be the responsibility of the program's administering agency to identify which offsets can be used for offsetting. Ideally, eligible offset projects should contribute to the fulfillment of the NDCs, Long-Term Strategies (LTS), National Adaptation Plans (NAPs), or support the country's sustainable development in general.

4.6. Case study: Observation of the considerations, practices, and possible future actions of UNDP-backed NVCFPs in Latin America

In this chapter, we have addressed the relationship of NVCFPs to some issues that could broaden their objectives and scale their implementation in order to set, with greater certainty, the path of private sector participation in NDCs.

In this regard, five of the fundamental elements that have the potential to accelerate, simplify, and massify the adhesion of companies (large, medium, and small) are:

- Simplifying calculation methodologies for more expeditious verifications (including the costs related to these processes).
- Actions to reduce the risk of greenwashing.
- Other complementary issues, such as linkages with the circular economy and the SDGs; using Renewable Energy Certificates or RECs to reduce emissions; and creating alternative offsetting mechanisms to carbon markets.

In each of the previous sections, these issues have been explained in general terms, offering examples and general actions in this regard. This last section then aims to present how these issues are being practically addressed/adopted by the UNDP-backed NVCFPs in Latin America. For ease of understanding, this analysis is summarized in Table 23.

Torres del Paine National Park
UNDP, Chile

Table 23. Considerations, practices, and possible actions of UNDP-backed NVCFPs in Latin America.

Aspect	National Carbon Footprint Programs			
	HuellaChile (Chile)	Peru Carbon Footprint (Peru)	Ecuador Zero Carbon Program (Ecuador)	RTH Corporate — Carbon (Panama)
Simplification of calculation methodologies	• Uses internationally standardized methodologies. • Offers easy-to-use calculation tools and reporting platforms. • Offers workshops, guides, and manuals for capacity building.	• Has a unique calculator to quantify the GHG inventory, which is designed based on standard methodologies. • HC-Peru is currently working on the publication of GHG emission factors and other parameters so that they can be used and replicated by other actors.	• Uses internationally standardized methodologies. For organizational scope: • NTE INEN-ISO 14064-1 • NTE INEN-ISO 14064-3 For product category: • NTE INEN-ISO 14067 • GHG Protocol • Offers an application, monitoring, reporting, and verification platform for applicant organizations.	• Development of a calculation tool containing the emission factors given by the 2006 IPCC Guidelines and their 2019 Refinement. • Development of a technical standard with methodological guidelines for measurement and reporting processes.
Perception of the risk of greenwashing and actions to reduce or avoid it	Considering that greenwashing directly affects the trustworthiness and credibility of an NVCFP, HuellaChile now has an anti-greenwashing guide in the communication of GHG emissions management. Specifically, this guide deals with quality assurance and robustness of information, and also provides guidelines for the appropriate communication and dissemination of achievements.	HC-Peru, considering its Operational Guidelines approved by Ministerial Resolution No. 185-2021-MINAM, states: • Require reporting of GHG mitigation actions by organizations. • Neutralization is achieved at the last level of GHG management. • Consider verification organizations recognized by the national accreditation body or by one recognized by the International Accreditation Forum. • Consider a recognition use manual. • Include a note on the recognition diploma indicating that this document does not replace the organization's compliance with its environmental obligations. • Consider not awarding recognition to companies that have committed environmental crimes at the judicial level or have pending environmental sanctions at the administrative level.	For the PECC, the risk of greenwashing is mainly due to non-compliance with the mitigation hierarchy in GHG management. To avoid this risk, the PECC considers: • Reducing emissions before offsetting them. • Establishing robust accounting mechanisms. • Having Conformity Assessment Bodies recognized by the competent national authorities. • Having a publicly accessible registration system. • Having a Badge Use Manual. • Having an established period of validity for each level of GHG emissions management.	To reduce the risk of greenwashing, RTH Corporate — Carbon: • Requests a certificate of good standing from the Ministry of Environment from any organization wishing to be part of the program. • Develops a Seal Use Manual for the proper use of seals of recognition. • Requires third-party verification to award a seal of recognition, with the exception of the seal for achieving the first level of management (inventory). • The seals are valid for one year and cannot be used after their expiration date. • Maintains a close relationship with program participants in its first stage of operation. • Has a Board of Directors that validates that the organization meets the requirements for membership and subsequent awarding of recognition.

Aspect	National Carbon Footprint Programs			
	HuellaChile (Chile)	Peru Carbon Footprint (Peru)	Ecuador Zero Carbon Program (Ecuador)	RTH Corporate — Carbon (Panama)
Circular economy and SDGs	In Chile, the Water Footprint (quantified under the ISO 14046 standard) is addressed by the Sustainability and Climate Change Agency (ASCC), through the Blue Certificate. The rapprochement between HuellaChile and the Climate Change Adaptation Unit of the Ministry of Environment is linked to projects with water benefits. More information is available at: https://www.certificadoazul.cl.	HC-Peru is weighing up the possibility of incorporating MINAM's Clean Production Agreements into the levels of recognition. Likewise, in 2022, GHG sources linked to the circular economy will be integrated into HC-Peru in order to facilitate the reporting of GHG management actions implemented by organizations.	Ministerial Agreements No. MAATE-2021-046 and MAATE-2021-047, which issue the Technical Norms of the product scope and organizational scope of the PECC, provide for the connection of carbon footprint management with the *Inclusive Circular Economy Organic Law* (2021) and the *White Paper on Circular Economy* (2021), as well as with the *Integrated Management Procedure for Sustainable Consumption and Production at the National Level* (2014). In addition, the PECC encourages its participants to implement actions related to the circular economy in their GHG emissions reduction plans. This program is also compatible with sustainable production and consumption processes, through the adoption of the product approach. Finally, the program is strengthened by the members of the SDG 13 "Climate Action" roundtable, promoted by Global Compact — Ecuador Network.	The data and statistics obtained under the program can help identify the processes that generate the most GHGs. This identification can be useful for implementing circular economy actions by pointing out which processes can be replaced by sustainable options.
Renewable energies and RECs	At the GHG inventory reporting level, HuellaChile recognizes the use of Non-Conventional Renewable Energy (NCRE) generated by third parties, as long as its traceability from origin and its exclusive use by the program participant is supported (through the presentation of certificates with a unique identifier, which are available in a public registry, for example Green-e, I-REC, among others).	HC-Peru is evaluating the legal feasibility of using Renewable Energy Certificates (RECs), since there is no national legislation in this regard.	It does not yet consider the acceptance of Renewable Energy Certificates (RECs) as an offsetting instrument. However, the direct substitution of fossil fuels for renewable energy sources is contemplated as a possible offsetting initiative that could be included in the PECC's Offset Technical Standard.	It does not consider the acceptance of Renewable Energy Certificates (RECs) as an offsetting instrument. It currently accepts carbon credits from Verra, Gold Standard, and the Clean Development Mechanism.

Aspect	National Carbon Footprint Programs			
	HuellaChile (Chile)	Peru Carbon Footprint (Peru)	Ecuador Zero Carbon Program (Ecuador)	RTH Corporate — Carbon (Panama)
Non-market oriented offsetting schemes (based on nature-based solutions (NBS) and results-based payments)	HuellaChile does not have parallel schemes to the national carbon market to address the offsetting (partial and/or total) of emissions through nature-based solutions.	HC-Peru does not have parallel schemes to the national carbon market to address the offsetting (partial and/or total) of emissions through nature-based solutions.	The PECC has created an offsetting scheme to finance offsetting initiatives focused on preserving and restoring ecosystems that are not covered under the REDD+ approach.	Panama has created the National Registry of Mitigation Actions, which will include non-tradable mitigation actions, tradable mitigation actions, and actions to reduce emissions from deforestation and forest degradation in the country. For tradable mitigation measures, Panama is building a national carbon market. No information is available on how non-tradable mitigation actions will be addressed.

Prepared by: Author[121].

121 Information based on questionnaires completed by the managers and technical staff of the HuellaChile (Chile), HC-Peru (Peru), RTH Corporate — Carbon (Panama), and PECC (Ecuador) programs.

From the information presented in Table 23, it can be concluded that most programs use digital tools as a measure to simplify the quantification of GHG inventories. As regards the risk of greenwashing, this issue is being fully addressed by the HuellaChile program, which has already drafted an anti-greenwashing guide with the financial support of the UNDP. The actions proposed in this guide are mainly focused on third-party verification processes. In addition, there is the concept of greenwashing as something that could be added to greenwashing in the context of an NVCFP.

None of the NVCFPs explicitly include the circular economy as part of their management approaches. However, this issue is linked through the mention of certain laws and strategies in the decrees creating the programs and officializing their standards, the adoption of the product approach, and the inclusion of certain criteria in the recognition systems.

Accepting Renewable Energy Certificates (RECs) as offsetting instruments, on the other hand, presents non-homogeneous issues ranging from non-definition to legal feasibility analysis. Finally, domestic carbon markets are the most widely used mechanisms for managing carbon offsets; however, Ecuador has designed an offsetting scheme that can be taken as an example of a non-market offset mechanism.

Conclusions

Atillo Lagoon, Sangay National Park
Ministry of Environment, Water, and Ecological Transition, Ecuador

This guide has explored the theoretical and practical aspects that are fundamental to the design and implementation of a National Voluntary Carbon Footprint Program (NVCFP). For this purpose, the experiences of four pioneering countries in Latin America — Chile, Peru, Panama, and Ecuador —, whose efforts have been technically and financially backed by the United Nations Development Programme (UNDP), have been compiled. The initiatives in these countries exhibit common characteristics, such as the adoption of international standards for the quantification and reporting of GHG emissions, as well as particularities that help to enrich the catalog of tools of these programs, such as linking carbon footprint management with water footprint management.

The first chapter addressed, among other topics, the objectives, quantification standards, approaches, and GHG emissions management structure of an NVCFP. With regard to these, the fact that the main objective of a program is the contribution it can make to meeting national GHG reduction commitments (which may be established in the NDCs and/or the LTS), was highlighted. This is done through a mass involvement of the organizations established in the boundaries of each country, especially organizations in the production sectors with the highest GHG emissions.

The second chapter described the benefits of NVCFPs for governments (as actors responsible for promoting climate action within a nation) and the private sector (as actors seeking to achieve economic and environmental sustainability in their processes). For the former, a carbon footprint management initiative is a tool that has the potential to contribute significantly to the achievement of current and future mitigation targets, which are established in the framework of international agreements such as the Paris Agreement. For the latter, participating in a GHG emissions management program represents an opportunity to increase their competitiveness and enter other markets (national and international) by optimizing their processes and improving their corporate image (both internally and externally).

In the third chapter, a roadmap was drawn up to guide governments on the path to the design and implementation of an NVCFP. Within the design phase, it is important to define the program scope, which must take into account the resources, expectations, and dynamics of GHG emissions in each country. Within the implementation phase, the virtual platform that will make it possible to manage the actions of program participants is relevant. It is crucial here to consider its scope, since this will determine the technical characteristics and technological resources that will support its construction and operation. Transversal to these phases is the dissemination strategy, which should include elements appropriate to each stage of the NVCFP's development. To complement the technical information provided for each of these phases, the guide offers an approximate perspective of the human, technological, and economic resources needed to start up the initiative. The successful implementation of an NVCFP will, in large, depend on the availability of various sources of finance.

The fourth chapter, in addition to providing a summary of methodological considerations for simplifying GHG emissions accounting, describes the linkages between NVCFPs and other existing elements within the climate action landscape. In this regard, guidelines are provided to reduce the risk of greenwashing, which can arise at different stages of the program's operation. Likewise, the relationship between the actions developed to manage the carbon footprint and several of the targets of the Sustainable Development Goals is established, which affirms the potential of NVCFPs to be instruments that support the environmental and social components of sustainability. On the other hand, it addresses the issue of Renewable Energy Certificates (RECs) as a means to report GHG reductions in the inventory of an organization and, finally, it explains the operation of an alternative offsetting mechanism to carbon markets (national and international), as in the case of the offsetting system designed by the Ecuador Zero Carbon Program (PECC).

It is hoped that the recommendations and suggestions outlined in this guide can be used by governments in Latin America (and other geographic regions in the future) that are already in the initial stages of implementing carbon footprint management programs, and at the same time serve as a motivation for governments that have not yet considered addressing initiatives of this nature. It is also worth mentioning that this guide can also be shared with private sector actors so that they can improve their understanding of carbon footprint management and be encouraged to develop actions in this regard. In the future, all these efforts will contribute to improving our planet's climate situation, which is one of the intrinsic challenges in the development of all nations.

Annex 1. Comparative table with the main elements of the NVCFPs in Chile, Peru, and Panama.

Aspect	Chile	Panama	Peru
Program Name	**HuellaChile — Carbon Management Program**	**Reduce Your Corporate Footprint — Carbon Program**	**Peru Carbon Footprint (HCP)**
Objectives	**Objective:** Promote the quantification, reporting, and management of GHG emissions at the level of public and private organizations in Chile. **Specific objectives:** • Facilitate the quantification of GHG emissions through a free online calculation tool. • Standardize the quantification and reporting of GHG emissions. • Recognize the efforts and commitment of organizations by awarding seals of recognition. • Promote and train organizations in GHG emissions management and the program tools. • Encourage demand for carbon credits to meet carbon neutrality commitments. • Ensure transparency in the communication of progress and management of GHG emissions.	**Objective:** Establish a standardized process for identifying, calculating, reporting, and verifying GHG-related information within the boundaries of public, private, and civil society organizations. **Specific objectives:** • Promote a culture of GHG emissions quantification and management and promote climate action at the organizational level. • Develop a recognition system for good practices in carbon footprint management for organizations in the Republic of Panama.	**Objective:** Encourage the participation of private and public organizations in efforts to implement the NDCs. **Specific objectives:** • Officially recognize and quantify the degree of ambition of private organizations as regards GHG emissions management. • Standardize organizations' emissions estimates and reporting according to national regulations. • Strengthen information for the preparation of National Greenhouse Gas Inventories. • Transfer financing from the private sector to initiatives that contribute to NDC compliance by promoting a voluntary domestic carbon market for the neutralization of emissions. • Establish synergies with other public and/or private initiatives that strengthen the integrated management of climate change at the organizational level. • Provide information to the public on reported GHG emissions by economic activity.

Aspect	Chile	Panama	Peru
Calculation tool and standard used for MRV	Platform for quantifying and reporting GHG emissions and removals inserted in the Single Window System of the Pollutant Release and Transfer Register of the Ministry of Environment. It is composed of: 1. The official platform: • Organizational level calculator. • Event level calculator. • Application system for seals of recognition. • Available at: https://vu.mma.gob.cl/. 2. Mirror version of the official system for training: • System and calculators in trial version for practical workshops. • Available at: https://herramientahuellachile.mma.gob.cl/login. Standards used: • NCh-ISO 14064-1 (2019). Quantification and reporting of GHG emissions and removals. • NCh-ISO 14064-2 (2019). Quantification, monitoring, and reporting of emissions reductions or increases in GHG removals. • NCh-ISO 14064-3 (2019). Validation and verification of GHG statements. • NCh-ISO14067 (2019). Quantification and reporting of GHG emissions of a good or service. • NCh-ISO 14065 (2014). Requirements for GHG validation and verification bodies. • NCh-ISO 14066 (2012). Competency requirements for GHG validation and verification teams. • ISO/WD 14068 (2021). Carbon neutrality. • NCh 3300 (2014). Guidance for GHG emissions neutrality.	• Calculation tool in Excel format for emissions estimation. Has an emission, reduction, and results tab. • Standardized reporting format for GHG inventory reductions and offsets. • RTH Corporate — Carbon Technical Standard based on the GHG Protocol Corporate Accounting and Reporting Standard. • Guidelines for recording, calculation, reporting, verification,and recognition system. • Available at: https://rth.miambiente.gob.pa/.	• Excel calculator. • The virtual platform automatically calculates the carbon footprint and issues digital reports. • The standard is ISO 14064-1 and the tool is verified. • Available at: https://huellacarbonoperu.minam.gob.pe/huellaperu/#/inicio.

Aspect	Chile	Panama	Peru
Recognition system	Has four levels of recognition:  1. **Quantification**: Quantify, report, and verify GHG emissions using the tool.  2. **Reduction**: Quantify, verify, and reduce or increase removals. These reductions or increases must be verified by an independent body.  3. **Neutralization:** Quantify, verify, reduce, or increase removals, and acquire carbon credits (offsets) from national projects to neutralize remaining GHG emissions.  4. **Excellence** in GHG management: This is the level associated with excellence in GHG management at the organizational level. It is obtained by having participated in HuellaChile for more than two years, having reduced emissions, and meeting at least four of the following attributes: commitment, cooperation, proactivity, awareness, co-benefits, neutralization, continuous improvement.	Has five levels of recognition:  1. Carbon Footprint Inventory (**Inventory**), achieved when the organization complies with the GHG emissions inventory quantification and reporting requirements.  2. Carbon Footprint Inventory Plus (**Inventory+**), achieved when the organization has quantified, reported, and third-party verified its GHG emissions inventory. For this recognition, the third-party verification statement must be attached.  3. Carbon Footprint Reduction (**Reduction**), achieved when the organization has quantified, verified, and demonstrated the implementation of mitigation actions that reduce the reported GHG emissions.  4. Carbon Footprint Offsetting (**Offsetting**), achieved when the organization quantifies, reports, third-party verifies, reduces, and additionally offsets a portion of its carbon footprint. In this case, the organization must attach proof of purchase of emissions reduction certificates as evidence of offsetting.  5. Carbon Footprint Neutrality (**Neutrality**), achieved when the organization quantifies, reports, third-party verifies, reduces, and, additionally, offsets the total carbon footprint that could not be reduced. In this case, the organization must attach proof of purchase of emissions reduction certificates as evidence of offsetting.	Has four levels of recognition:  1. **Measurement**: To obtain the first star, the organization must calculate its carbon footprint using this tool.  2. **Verification**: If in addition to calculating the carbon footprint with this tool, the organization verifies its footprint with an NTP ISO 14065 accredited entity, it will obtain the second star.  3. **Reduction**: If the organization has calculated and verified for two consecutive years its carbon footprint and the difference between the two shows emissions reductions in absolute and/or relative terms, it will obtain the third star. It should be noted that the tool automatically awards this star when checking the reduction of emissions in the system.  4. **Reduction+:** If the organization reports at least one of the following actions: Sustained reduction over time: consists of reaching the third level of GHG management (Reduction) consecutively, through the Peru Carbon Footprint digital platform. Strengthening GHG management in the supply chain: consists of supporting one or more of its suppliers to report and verify their GHG emissions in the HC-Peru program. Neutralization: consists of acquiring carbon credits, from a project authorized by the state, equivalent to the GHG emissions that could not be reduced.

Aspect	Chile	Panama	Peru
Procedure	1. Register organization. 2. Access the calculator. 3. Quantify the carbon footprint. 4. Report carbon footprint. 5. Verify carbon footprint. 6. Apply for recognition.	1. Register organization. 2. Organization registration approval. 3. Identification of emission sources. 4. Collection of activity data for identified emission sources. 5. Carbon footprint calculation. 6. Presentation of the GHG statement. 7. Approval of the statement and other requirements corresponding to the management level. 8. Issuance of recognition.	1. Registration of the organization. 2. Registration verification. 3. Identification of activities that generate GHG emissions. 4. Calculation of emissions and awarding of the first star. 5. Verification of emissions and awarding of the second star. 6. Reduction of emissions and awarding of the third star. 7. Reporting of one of the three actions corresponding to the Reduction+ level and awarding of the fourth star.

Neutralization scheme	• Have the Quantification and Reduction seals for the year of application.
	• Neutralize, as a minimum, the net GHG emissions of the organizational inventory, according to the guidelines of NCh 3300. Net should be understood as the total direct and indirect GHG emissions caused by imported energy (Scopes 1 + 2); it is recommended to include Scope 3.
	• Withdraw or de-register from public Registry Platforms carbon credits from CHILEAN PROJECTS accredited by internationally recognized GHG Certification Schemes (CDM, VCS, GS, JCM, others).
	• Submit statement + Neutralization report + carbon credit retirement certificates through the Program's web platform, embedded in vuRETC.
		• CDM, VCS, and Gold Standard are accepted.
		• The units accepted are CERs, VERs, and VCUs, and the purchasing platforms are Carbon Neutral Now, Verra Registry, and Gold Standard Market Place.
		• Additionally, RTH Corporate — Carbon will only recognize those offset units that meet the following requirements:
		  • They are generated by CO2 and CH4 projects, located in Latin America and the Caribbean.
		  • They are generated by activities that have occurred on or after January 1, 2016 and up to five years prior to the year reported.
		  • They are generated by activities outside the organization's operational boundaries and indirectly through the acquisition of emissions reduction units certified by a third party.
		  • For hydroelectric projects of more than 20 MW of installed capacity, they must demonstrate compliance with the criteria of the World Commission on Dams.
		  • Offsets must be validated by a third-party verifier, accredited in accordance with the chosen offsetting scheme.
			• After having reduced emissions, an organization may neutralize the remaining emissions by acquiring emissions reductions from voluntary VCS, Gold Standard, and CDM projects listed on the HC-Peru website. This list will change according to regulatory developments arising from the country's alignment with and implementation of the Paris Agreement.
			• In particular, forestry projects will be able to sell carbon credits produced up to 2020, using the methodologies currently registered with the VCS. Emissions reductions from 2021 onwards shall consider the nesting methodology corresponding to the REDD+ reference level in Peru.
			• To acquire these carbon credits, the project developer must be contacted and a carbon credit purchase certificate addressed to the acquiring organization must be obtained from the developer, clearly defining the standard, quantity, and date of issuance of the carbon credits. In order to recognize neutralization, this certificate must be uploaded to the Peru Carbon Footprint platform.

Aspect	Chile	Panama	Peru
Results as of October 2021	• 1,441 registered organizations. • 758 seals of recognition. • 13 seals of excellence awarded, 4 for neutralization, 46 for reduction, and 695 for quantification.	• 72 registered organizations. • 56 reporting organizations. • 25 organizations that have committed to achieving carbon neutrality by 2050.	• 567 registered organizations. • 267 seals of recognition. • 8 neutralization seals awarded, 16 reduction seals, 43 verification seals, and 200 measurement seals.
Instrument of creation and sustainability	• Framework Law on Climate Change (Bulletin No. 13.191-12), Article 29 — Voluntary Certification System for Greenhouse Gases and Water Use. To be formalized by regulation. • Document available at: https://leycambioclimatico.cl/wp-content/uploads/2021/09/Textocomparado-Ley-CC.pdf.	• Executive Decree No. 100 of October 20, 2020, regulating the actions towards a low-carbon economic and social development in the Republic of Panama. This legal instrument creates the Reduce Your Footprint National Program for the management and monitoring of Panama's social and low-carbon economic development. This program includes Reduce Your Corporate Footprint — Carbon. • Ministerial Resolutions within the framework of the program: • Ministerial Resolution DM-0358-2020 of November 17, 2020: establishes the "50 First Carbon-Neutral Organizations" Declaration and its registration process. • Ministerial Resolution DM-0382-2021 of July 19, 2021: modifies Ministerial Resolution DM-0358-2020 establishing the "50 First Carbon-Neutral Organizations" Declaration and its registration process. • Ministerial Resolution DM-0224-2021 of May 5, 2021: regulates the tools provided by RTH Corporate — Carbon. • Ministerial Resolution DM-0030-2022 of January 25, 2022: adopts the Procedures Manual to opt for the seal of recognition of the "50 First Carbon-Neutral Organizations" Declaration.	• Created in the regulations of the Framework Law on Climate Change (Supreme Decree No. 013-2019-MINAM). • Regulation of Organization and Functions of the Ministry of Environment (Supreme Decree No. 022-2021-MINAM and Ministerial Resolution No. 153-2021-MINAM. • Guide for the operation of the Peru Carbon Footprint tool (Second Version — Ministerial Resolution No. 185-2021-MINAM). • Hosted on MINAM servers.

Aspect	Chile	Panama	Peru
Lessons learned:	• The work starts with the DESIRE of the organizations. • Capacity building must be an ongoing process. • Linkage with similar initiatives encourages the participation of organizations. • There should be simple and transparent rules and procedures (MRV). • Quality assurance should be made more flexible for more vulnerable organizations. • Computer systems should facilitate the consultation and application processes for seals. • It is necessary to maintain and strengthen the program's relationship with its verification organizations.	• It is very important to exchange experiences with counterpart programs in other countries to save resources and avoid double efforts. • The country's business associations should be approached to disseminate the program, as well as the national media. • Verify the calculation tool if one is provided. This helps give users more confidence.	• It is necessary to work hand in hand with stakeholders: companies, consulting firms, verifiers, national standardization institution. A committee has been created for the continuous improvement of the program. • Internalization and integration of GHG emissions management in: 1) public entities (e.g. public procurement, eco-efficiency initiative) and, 2) companies (e.g. environmental management system). • The programming of the tool must be coordinated from the beginning with the website graphic designers and with the IT office where the tool will be hosted (commonly in the ministry of environment), as incompatibilities can delay the tool's implementation and significantly increase the budget. • Strengthen the domestic carbon market for neutralization and other instruments such as RECs, public procurement, and tax incentives. • Review proposed solutions from other countries. • Have an administrator, permanent counselor/trainer, and communications support.

Aspect	Chile	Panama	Peru
Future modifications or improvements	• Implementation of the digital platform of the GHG management recognition system for local governments (Municipalities). • Publication of e-learning training courses (GHG quantification, GHG management, carbon neutrality, and using the digital platform). • Publication of a best practices guide to prevent greenwashing . • Drafting and publication of six accounting rules for GHG mitigation projects (waste and forestry). • Implementation of levels of recognition for projects with water resource benefits (SDG 6 — Adaptation). • Regional linkage (LAC) with GHG management programs. • Development of support files for applying for seals. • Disclosure and publication of GHG inventories and declarations.	• 2022 — 50 organizations committed to a carbon-neutral policy by 2050. • 2024 — Standardize ISO 14064 and ISO 14046 to Panamanian standards and adopt them in RTH Corporate. • 2025 — Reduce Your Corporate Footprint, developed and operational, with at least 100 registered organizations reporting carbon or water footprint. • The program is designed to be mandatory over time. This time frame will be defined with the Executive Decree on the national carbon market and will most likely become mandatory for some sectors.	• Emissions reduction reporting has been improved, requesting the communication of the GHG mitigation actions implemented. • The fourth neutralization star has been changed to Reduction+, which includes three options: a) continuous reduction; b) support to suppliers for their participation in HC-Peru; and, c) neutralization. • Three assessment criteria have been incorporated for not awarding recognition within the framework of the country's environmental and forestry audits. Improvements to be made in the short and medium term include the following: • Publishing a national methodology for calculating the electricity consumption emission factor. • Technological migration of HC-Peru. • Including GHG emissions sources linked to circular economy. • Developing a guide to manage emissions based on user best practices.

Source: UNDP. 2021. *Systematization workshop of experiences and lessons learned from national carbon footprint programs Chile-Peru and Panama.*

Annex 2. NVCFP operating principles[123]

1. Relevance: ensure that the GHG inventory reported by an NVCFP participant adequately reflects emission sources, sinks, and reservoirs, in order to objectively meet the decision-making needs of internal and external users.
2. Integrity: quantify and report all significant emission and removal sources within the applied approach, and all activities within the established organizational boundaries. Likewise, report and justify any exclusion.
3. Coherence or Consistency: use recognized and consistent standards/methodologies that allow for meaningful comparisons of GHG emissions and removals over time; and transparently document any changes in data, inventory boundaries, calculation methods, or other relevant aspects.
4. Transparency: report all relevant aspects and ensure that these are traceable, including any assumptions and information that allow results to be replicated. Clearly identify, report, and justify all omissions; and ensure accountability to allow access to information.
5. Accuracy or Precision: quantify GHG emissions and removals without exaggerating or minimizing the actual amount of emissions or removals, and minimize uncertainties in the quantification process. In this way, users can make decisions with reasonable confidence.

123 World Resources Institute and World Business Council for Sustainable Development. 2004. A corporate accounting and reporting standard — GHG Protocol.

Annex 3. Responsibilities of the members of the NVCFP governance framework[124]

National Environmental Authority
a) Promote the NVCFP.
b) Coordinate with the other entities that are part of the NVCFP governance framework for the implementation of the initiative.
c) Verify that applicants meet the program's eligibility criteria. Including, if established by the NVCFP, that they comply with the environmental regulations in force in the country.
d) Provide the technical and legal inputs required by other public agencies that are part of the governance framework, to develop their functions in the context of the program.
e) Issue and regulate the requirements, technical criteria, and procedures to grant the recognition corresponding to each of the GHG management levels included in the program. Among others, it must define the criteria for:

I. **Acceptable methodologies for inventory calculation.**
II. **Requirements of the verification entities.**
III. **Recognizing GHG emissions offsetting schemes.**
IV. **Allowable use of carbon credits (type, origin, amount) as a means of offsetting and reaching the level of neutrality.**

f) Ensure compliance with the procedures established to grant recognition for GHG management carried out, as appropriate.
g) Provide the facilities and computer equipment that will host the program's virtual operating platform.
h) Have the highest authority or his/her delegate publicly award the seals and diplomas considered in the recognition system, accompanied by their respective manual for use of the badge.
i) Enable NVCFP participants to access incentives, in coordination with other public agencies and other relevant private sector actors, if applicable.
j) Maintain, update, and manage the program's operating platform, which contains: a) information on participants; b) quantification of GHG emissions and removals; c) mitigation actions implemented; and d) the portfolio of projects eligible for offsetting and neutralization actions.
k) Standardize the GHG quantification certifications by a verification entity authorized by the program, for all program management levels.
l) Others identified as necessary in accordance with the NVCFP.

National Standardization Organization

a) Inform the National Environmental Authority on the updating of national and international standards within the bounds of GHG management.

b) Provide technical services in the areas of its competence within the framework of the NVCFP.

c) Others identified as necessary in accordance with the NVCFP.

Accreditation Body

a) Establish the corresponding mechanism so that the Conformity Assessment Bodies can be accredited to be competent for the NVCFP.

b) Others identified as necessary in accordance with the NVCFP.

Conformity Assessment Body or Verification Body

a) Verify GHG inventory reports.

b) Issue verification reports on GHG inventory reports.

c) Comply with the authorization process to participate in the program as a verification entity. Depending on the program conditions, the corresponding accreditation could be before the competent national authority.

d) Others identified as necessary in accordance with the NVCFP.

Program participant

a) Comply with the program's operating principles (Section 1.1.3).

b) Comply with the verification processes required by the program.

c) Comply with the verification processes according to the standards adopted by the program (GHG Protocol, ISO 14064-1, etc.).

d) Report and communicate its carbon footprint and its implemented GHG emissions reduction and offset actions according to the guidelines and principles in the program's operational guidelines.

e) Use the elements of the program's recognition system (Section 1.2.6) according to the guidelines of the recognition use manual. Any use outside of these guidelines will be the responsibility of the participant, and may be subject to legal action.

f) Others identified as necessary in accordance with the NVCFP.

124 Based on: Ministry of Environment and Water. 2021. Ministerial Agreement No. MAAE-2021-018.

Annex 4

Structure of the NVCFP operational guidelines

A. Program presentation

1) Cover page indicating — at a minimum — the name and version of the document, the institution/department that prepared it, and the month and year of issue.

2) Document credits.

3) Table of contents.

4) Acronyms used.

5) Definitions.

6) Introduction. In this section, mention may be made of the legal framework that supports the creation of the initiative.

7) Program objectives and target audience.

8) Program operating principles.

9) Actors involved in the operation of the NVCFP, i.e., the governance framework.

10) Benefits of participating in the program.

B. Operation of the virtual platform and calculation tools

1) Explanation of the characteristics of the measurement approach being addressed by the guide.

2) Methodologies applied in the calculation tool.

3) Presentation of the virtual platform for GHG registration and management:

3.1. Definition of the platform and its component elements.

3.2. Platform objectives.

4) Explanation of the registration procedure in the NVCFP, through the virtual platform:

4.1. Requirements, information to be submitted, and documentation to be attached. If applicable, sworn statement forms may be included as attachments.

4.2. Procedure for modifying information provided by the organization.

4.3. Reasons for canceling access to the program platform.

5) Explanation of the conditions and procedure in the GHG management levels, via the virtual platform:

5.1. Emissions quantification level (base inventory).

5.2. Emissions verification level (base inventory).

5.3. Emissions reduction level (in reference to base inventory).

5.4. Emissions offsetting and neutralization levels (partial or total offsetting of residual emissions).

5.4.1. Requirements for the acquisition of emissions reduction units.

5.4.2. Accepted schemes for partial and total offsetting.

5.4.3. Reporting and information requirements on acquired reduction units.

6) Explanation of conditions and actions at secondary GHG management levels.

7) Explanation of the recognition system: issuance of diplomas and seals. The manual for the use of seals and diplomas can be included as an appendix.

C. Annexes

United Nations Development Programme
304 East 45th Street, 9th Floor
New York, NY 10017
www.undp.org

IN CONTRIBUTION TO THE NDC PARTNERSHIP

Supported by:
Federal Ministry for the Environment, Nature Conservation and Nuclear Safety
based on a decision of the German Bundestag

Federal Ministry for Economic Cooperation and Development

aecid Spanish Agency for International Development Cooperation