MRV of Mitigation Activities – Baseline Report Series

This report is an output of the Technical Subgroup on MRV and Climate Change (SGT-MRV) of the Pacific Alliance (PA).

It is a component of the multi-year work plan defined by the SGT-MRV country focal points to deliver on the Action Plan of the PA formal Working Group on Environment and Green Growth (GTMACV) to achieve the presidential mandate No. 16 of the Cali Declaration of the Pacific Alliance *(June 2017)*.

The MRV of GHG Mitigation Activities allows countries to monitor the progress made on their nationally determined contributions (NDC). This reduces uncertainty, improves transparency, and sparks collaboration and flows of information that significantly reduce the risks of climate and infrastructure finance.

Baseline reports on the MRV of GHG Mitigation Activities in Colombia, Perú, and Chile were prepared by technical experts in each country. The reports contribute to the analysis and strengthening of the Climate MRV priorities in the PA countries.

For more information on any of the individual MRV of GHG Mitigation Activities country reports, please contact the principal investigator or the SGT-MRV coordinator. Past meeting reports are archived here.

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Baseline Analysis for the MRV of Climate Change Mitigation Actions in Colombia

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1. *Introduction and the Context of this Document*

Colombia defines its Monitoring, Reporting and Verification (MRV) System as a tool to contribute to the analysis and report on greenhouse gases (GHG) emissions, to monitor progress in the implementation of the country's mitigation initiatives, and to track climate change finance. In 2014, Colombia initiated a process of conceptualization of its MRV System. This process, led by the Climate Change Office at the Ministry of Environment and Sustainable Development (MADS), formulated the bases and the roadmap for the development and consolidation of a National MRV System. Since then, the country has been strengthening the processes mentioned in the roadmap and executing the actions to gradually address the implementation of the system. This, under the premise of understanding that there are bases and every step is the starting point for the next one.

International cooperation programs have supported some of the specific actions in MRV implementation in Colombia. One recent support program is developing within the framework of the Pacific Alliance (PA) and its Informal Technical Subgroup on MRV and Climate Change (SGT-MRV). As a result of the first meetings of this Subgroup, delegates from the governments of Mexico, Peru, Chile and Colombia established a work plan to strengthen the technical and technological capacities of their MRV systems. The document presented here is one of the initial products of this support, and it aims at generating a baseline analysis for the state of the MRV of climate change mitigation actions in Colombia.

This product synthesizes the current state of the MRV system and raises challenges for the following stages. These reflections, although based on an analysis of the Colombian case, can be lessons learned for other countries of the PA. The inputs to this report include interviews with relevant actors, visits to government agencies and review of a set of official documents, as well as an analysis based on the author’s knowledge and experience.

The structure of this document begins with this introductory section. In Section 2, a timeline presents the tools and guidelines that have been designed and implemented in the country to enable the formalization of the mitigation actions MRV. Section 3 describes the country's progress in terms of public policy and legal instruments, methodological aspects and technology elements to strengthen its MRV system. Section 4 presents the official mitigation strategies lines for the different national economy-wide sectors. Every mitigation strategy is categorized according to a scale (defined for this exercise) indicating their progress in MRV. This section's content gives a dimension on the type of actions to which the country will monitor and report its impact on GHG emission reduction. The document ends with Section 5, which highlights the advances in Colombia's mitigation actions MRV, including good practices potentially useful for the other countries of the PA. The section also outlines some recommendations on the next steps priorities, and their correspondence to country needs and the transparency guidelines of the Paris Agreement Rules Book.

2. *Instruments and Guidelines for the Bases of the Mitigation Actions MRV in Colombia.*

Figure 1 presents a timeline with instruments and guidelines that have enabled the formulation and implementation of the MRV system in Colombia. The current state of the mitigation actions MRV in the country is not fortuitous and responds to a process led by the National Government. Such a process is laying solid foundations promoting to build on what already exists.

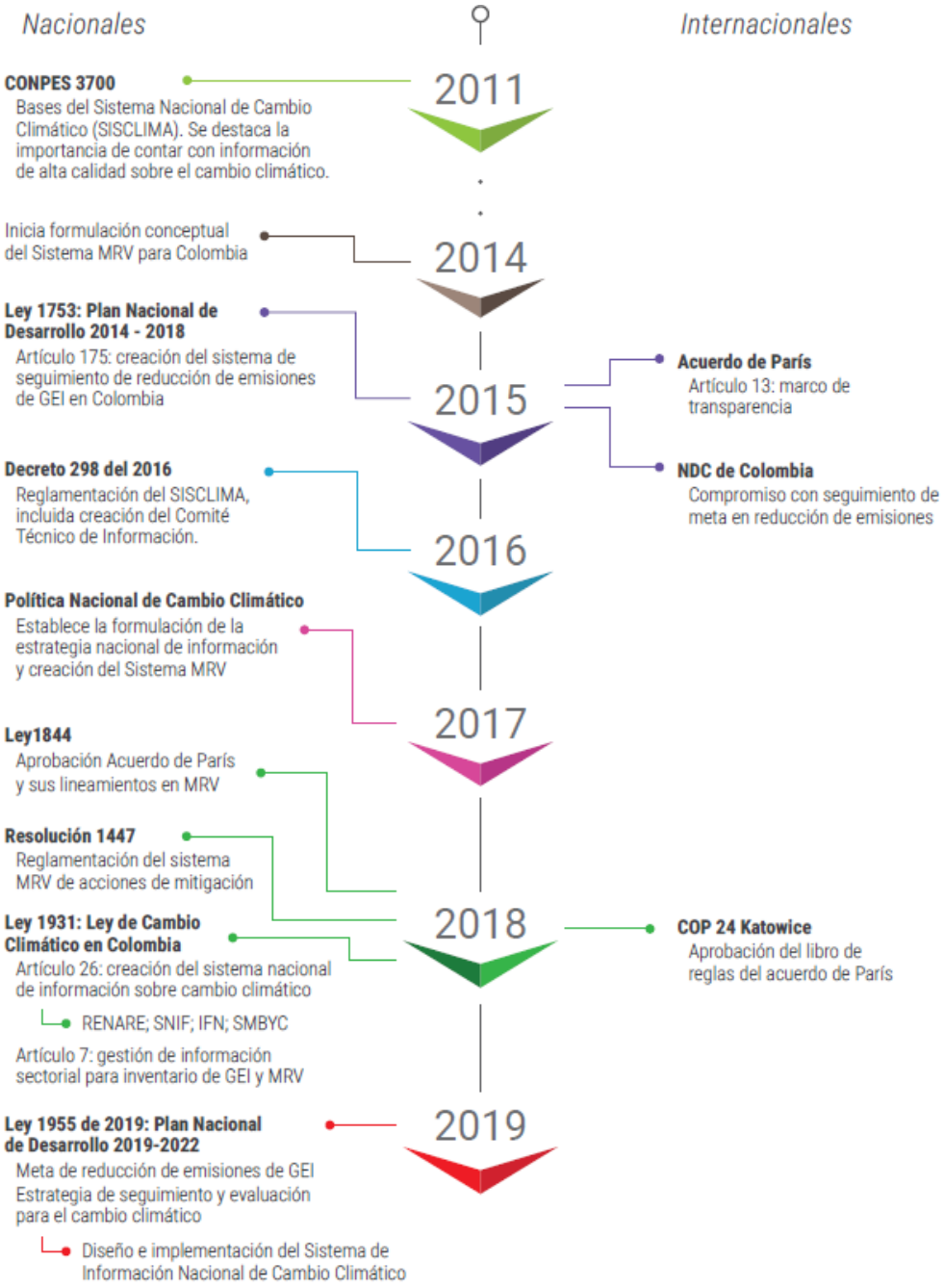


Figure 1: Timeline of instruments and guidelines for mitigation MRV.

Source: own development.

3. Advances in the Mitigation Actions MRV System

The Climate Change Office at MADS, with the support of different National Government entities and international cooperation agencies, led the conceptualization roadmap of the MRV system in Colombia. It is composed of three main scopes: GHG emissions, GHG emissions reductions, and climate finance. Regarding GHG emissions reductions, the implementation process has been aligned with the path defined in the roadmap, it also responds to the Paris Agreement call to follow up on international mitigation commitments in a transparent manner.

This section presents a particular analysis of the current status and progress of the MRV of mitigation actions in Colombia, from three perspectives: i) policy and legal instruments advances; ii) methodological advances; and iii) technological advances.

3.1. Advances in policy and legal instruments

The timeline presented in Section 2 of this document refers to several of the enabling instruments for the mitigation actions MRV in Colombia. Table 1 summarized these milestones, with a brief description of their relevance to the process. These enablers are relevant since they are the result of an interagency work and constitute binding arrangements for the country to have a strong and active MRV over time.

Table 1 Enabling elements for the MRV Mitigation System in Colombia.

Enabling Element	Relevance for the MRV of mitigation actions
National Development Plan (PND)	• PND 2014 - 2018. Article 175 gave the mandate to create the GHG emission reduction monitoring system in Colombia. Subsequently it was regulated through Resolution 1447 of 2018: - Creating the National GHG Emissions Accounting System - Creating the National Emissions Reduction Registry (RENARE) - Establishing the first carbon accounting rules nationwide • PND 2018-2022 includes: - The implementation of the National Climate Change Information System (SNICC) as a strategy for the monitoring the country's GHG reduction target. - The design of the corporate emission reductions and removals accounting component for the MRV of mitigation actions MRV.
Institutional Arrangements	The National Climate Change System (SISCLIMA) is the instance of inter-agency coordination for climate change management in Colombia. SISCLIMA was regulated in 2016 through Decree 298, formalizing its technical committees: • Technical Committee for the Intersectoral Commission of Climate Change: has established the sectoral distribution of Colombia's NDC emissions reduction target and is working on the structuring of the monitoring scheme. • Technical and Scientific Information Committee: preceded by IDEAM, is the instance to strengthen data management processes and GHG accountability methodologies. Activities under this Committee include the

Enabling Element	Relevance for the MRV of mitigation actions
	solution of information gaps to facilitate the harmonization of GHG inventories and mitigation actions MRV.
Public policy	The National Climate Change Policy in Colombia adopted in 2017 includes a strategic line on information Management which established two relevant elements for the mitigation actions of MRV: • The formulation of the National Strategy for Climate Change Information and of the National MRV System: including the GHG emissions reduction scope. • The inclusion of GHG emissions reduction impact monitoring scheme for the sectoral and territorial climate change plans.
Laws	Two recent legislative acts in Colombia are relevant to the MRV of mitigation actions: • Law 1844 of 2017 which approved the Paris Agreement and its transparency guidelines. • Law 1931 of 2018 which established the legal framework for climate change management at territorial and sector level. In particular: - Article 7: guidelines for the management of sectorial activity information for GHG emissions inventories and MRV. - Article 26: creation of the SNICC which in turn contains the RENARE.

Source: own development.

3.2. Methodological Advances

Simultaneously with the policy and legal instruments, Colombia has been strengthening the methodologies for estimating GHG emissions and reductions. The background of the country's international report and review with three national communications and two biennial update reports has promoted the application of transparency guidelines to national methodologies. These guidelines emphasize the principles of transparency, comparability, consistency and avoiding double counting. Principles that the country is applying not only to its national GHG emissions inventory but in general to all national reports resulting from its MRV System.

Conceptually, the Colombian MRV System proposes an approximation for the GHG reduction approach that seeks to guarantee continuous monitoring of progress and impacts generated by the implementation of mitigation actions. Based on this approach, the country has been strengthening the methodologies by promoting sectorial data of better quality, a clearer definition of the determinants of emissions, and a greater frequency in the report.

A better understanding of the calculation methods has made it possible to identify the opportunities for methodological improvements. The recent Report of the National GHG Emissions Inventory, delivered as an annex to Colombia's BUR II, summarizes recommendations to strengthen the MRV of mitigation actions and to favor the potential harmonization with the emissions inventory. Several of these recommendations are oriented towards strategies to improve the detail in emission factors and the disaggregation of activity data in sectors such as energy, waste, transport and agriculture. For instance, in the waste sector, one strategy is to perform specific surveys of regional landfills operators to update their technical and operational data.

The efforts led by the National Government to strengthen methodological approaches have been supported in part with international cooperation programs. One of these transversal supports has been the Information Matters Program[1] focused on the consolidation of the Technical Information Committee of SISCLIMA and the improvement of national capacities to present international reports. Another support was given under the RALI program (Resources to Advance LEDS Implementation)[2]. Through this project, MADS and IDEAM worked together to improve GHG accounting through a proposal for harmonization between the MRV of mitigation actions and the national GHG emissions inventory. This harmonization aims to ensure that the impact of mitigation measures is effectively reflected in the national inventory and therefore in Colombia's international communications.

An initiative that has involved the private sector is the GHG Emissions Mitigation Voluntary Mechanism. This is a program that promotes the development of GHG emissions and carbon footprint inventories at the organizational level, providing a methodological framework to establish accurate and real GHG emissions estimations. This program also includes a corporate reporting platform. Table 2 summarizes the methodological advances that contribute to the mitigation actions MRV in Colombia and describes its relevance to the process.

Table 2: Methodological elements for the mitigation actions MRV in Colombia.

Methodological element	Relevance for the MRV of mitigation actions
National MRV System Conceptualization document **(2014-2017)**	This is the guideline for structuring the MRV System Colombia, it sets the following regarding methodologies: • Data flows for monitoring mitigation actions (data preparation, analysis approaches, reporting and verification). • Accounting rules for monitoring the NDC. • The process of the voluntary corporate GHG emissions reporting program.
Resolution 1447 of 2018: Regimentation of the Mitigation actions MRV	This Resolution specifically mentions the approaches to follow for estimating GHG emissions and reductions, together with some carbon accounting rules. It also states the guidelines for the registration formulation, implementation and conclusion of GHG mitigation projects in Colombia. The Resolution provides guidance for sectoral GHG mitigation and REDD+ projects and programs, on the following: • Methodologies for project formulation • Baseline calculation • Setting emission reduction target • Additionality criteria • Validation, verification and certification criteria • RENARE registration procedure
Methodological Guides	In a process led by the Climate Change Office at MADS, and within the framework of Technical Committee 225 on Tools for Climate Change Management of the Colombian Institute of Technical Standards and

[1]Program operated by GIZ in Colombia.
[2]Program funded by USAID in Colombia.

Methodological element	Relevance for the MRV of mitigation actions
	Certification (ICONTEC), three technical guides were generated for the formulation and assessment of: • Nationally Appropriate Mitigation Actions (NAMAs) (GTC276). • Low Carbon Development Projects (PDBC) (GTC276). • Projects focused on the land use sector, change in land use and forestry (USCUSS). Three technical guides were also generated for the quantification of GHG emissions and removals in the financial (GTC271), steel (GTC272), and pulp and paper (GTC273) sectors, and one more guide for determining the carbon footprint of the product in the biofuels sector (GTC274). These guides are a tool that contributes to the standardization of GHG emissions and reductions estimation methodologies at a both sector and project levels.
Accounting Rules	The Accounting Rules project led by MADS and IDEAM generated the guidelines for the MRV processes to be aligned with the international transparency framework and with the requirements of RENARE. Among these inputs are: • Guidelines for NDC accounting with absolute or relative to a baseline mitigation targets. • Approval of IPCC categories in which the national GHG emissions inventory is calculated, and the portfolio sectors in which the NDC target of GHG emissions reduction is distributed. • Cases of application in mitigation actions for the transport and forestry sectors.
Harmonization between mitigation actions and GHG emissions inventories	MADS and IDEAM have a harmonization analysis in two specific cases: • Nama livestock: recommendations to improve activity data and emissions factors. • Actions in renewable energies: identifying alignment between the top-down inventory and bottom-up approaches of the MRV. Recommendations were generated to reduce uncertainty in the calculations.

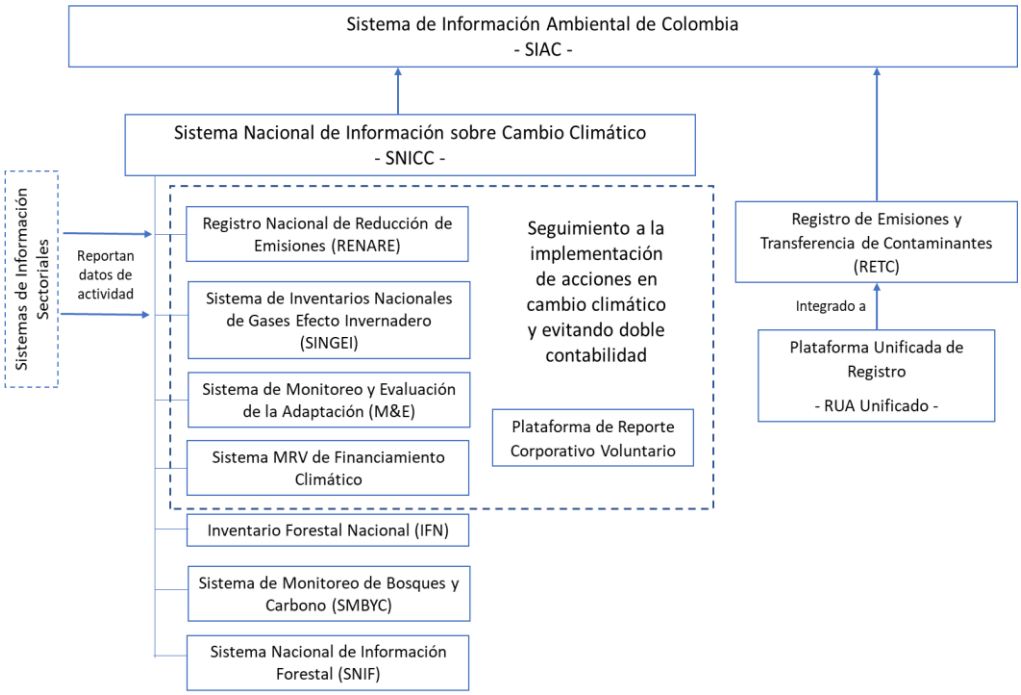
Source: own development.

3.3. Technological and Information Systems Advances

The improvements in the methodological processes for accounting of GHG emissions and reductions in the country have been accompanied by proposals for optimization of official sector information systems. Such improvements are aiming to have better data quality and to facilitate the monitoring of progress. Simultaneously, the Colombian Government has proposed the SNICC as the platform to group the MRV of mitigation actions, the climate finance MRV and the climate adaptation monitoring systems. The sectorial information systems become then the activity data providers for the tools that make up the SNICC.

The way in which the SNICC is conceived is consistent with the Colombian Environmental Information System (SIAC). The latter as an umbrella platform already consolidated (but with potential for improvement) for the management of environmental information in the country. Figure 2 shows a scheme that represents the information systems that are part of the SNICC. Given the relevance of the RENARE platform, as the primary tool for the MRV of mitigation actions, a more detailed description of this registry is presented in Figure 3.

Figure 2: Scheme of relevant information systems in strengthening the mitigation MRV in Colombia.



Source: own development.

Figure 3: Scheme of the National Registry of GHG Emission Reduction in Colombia - RENARE.

Registro Nacional de Reducción de las Emisiones de Gases de Efecto Invernadero (GEI)	
Qué es	Herramienta para capturar y proveer información estandarizada que permita hacer seguimiento periódico de acciones de mitigación y su impacto en reducción de emisiones de GEI. No es una plataforma de verificación, tampoco de transacción.
Utilidad	Registra información que es suministrada para reportes nacionales y para el seguimiento de la NDC. Evita doble contabilidad de reducciones de emisiones de GEI. Posibilita la consulta pública de acciones de mitigación.
Fases del Registro	-Naturaleza de quien registra la actividad -Fuentes de emisión: identificación y caracterización; línea base -Actividad de mitigación: ubicación geográfica, temporalidad, potencial de reducción de emisiones de GEI, meta de reducción, indicadores de cobeneficios. -Financiación: fuentes y costos. -Alineación de la actividad con políticas y estrategias. -Seguimiento: indicadores de emisiones y cobeneficios. Reducciones reducidas, verificadas y canceladas.
Dónde se registra	Ventanilla Integral de Trámites Ambientales en Línea
Quién registra	Persona o entidad titular de la iniciativa

Source: own development from Resolution 1447 of 2018 .

4. *Mitigation Actions MRV Scale: What are we tracking*

Colombia conducted a process of prioritization for its sectoral and territorial mitigation actions. This process began with the first phase of the Colombian Low Carbon Development Strategy (ECDBC) and consisted of formulating different Sectorial Mitigation Plans (PAS). Within the ECDBC, eight PAS were formulated in five strategic sectors (Transport, Mines and Energy, Industry, Agriculture and Housing). Each PAS included a set of actions, programs and policies to reduce GHG emissions. This first result was the basis for the formulation of the country NDC.

Once the 20% GHG emission reduction with respect to the baseline in 2030 target was approved, the Intersectoral Commission on Climate Change (CICC) initiated a process of sectoral redistribution of this commitment. This included the prioritization of 33 strategic lines in the portfolio sectors. Such 33 strategic lines are the guidelines for the definition of specific GHG emission reduction actions at the sectoral, territorial and corporate levels. That is, in accordance with the provisions of the National Climate Change Policy, these lines must be reflected in the Comprehensive Climate Change Management Plans (PIGCC) that formulate and implement the sectors and territories. In terms of MRV, understanding the nature of these sectoral strategy lines is relevant because it guides the approach to monitor their GHG emission reduction impacts.

This section of the document presents these sectoral strategic lines are classed is an ordinal color scale defined for this exercise. This classification reflects the specific advances or developments in terms of MRV for the group of actions that comprise each particular line. With one being the lowest value and four the highest value, the definition of the scale is as follows:

1 - red color: no formal development for monitoring the impact on GHG emissions reduction of the actions that comprise the strategic line.

2 - orange color: approximations and arrangements for monitoring the impact on GHG emissions reduction of the actions that comprise the strategic line, in formulation.

3 - yellow color: approaches to monitor the impact on GHG emissions reduction of actions that include the strategic line, formulated and in the process of being implemented

4 - green color: MRV of the strategic line implemented.

As seen in Table 3 more than 80% of the sectoral strategic lines are still at a basic level of development of its MRV scheme (red and orange colors of light), and none currently has a fully implemented MRV. This is a challenge for Colombia since the advances in legal instruments, methodologies and information systems, must be materialized in the implementation of a mitigation actions MRV that fits the context of each strategic mitigation line. The new climate change management plans (in sectors and territories) are a key instrument to help to strengthen the GHG emissions reduction monitoring schemes of these mitigation strategies. Likewise, they are fundamental in the consolidation of sectoral activity data systems.

Table 3: Color scale of the advances on MRV development for strategic mitigation lines in Colombia.

Sector	Strategic Line	Advancement in MRV	Observations
Mines and Energy	Energy efficiency	2	There is a PIGCC formulated and formalized with an administrative act. Strong sector information systems, it is still required to define and regulate the flow of data for the MRV.
	Electric power generation	2	
	Active demand management	2	
	Fugitive Emissions	2	
Transport	Active mobility and demand management	3	NAMA TAnDem in development and with a proposed MRV proposal. Study with accounting rules, analysis of sectoral information systems and with recommendations for implementation in RENARE.
	Efficient and low carbon transport	2	Actions of the National Electric Mobility Strategy in development and NAMA Move is in the detailed design phase. Load renewal program with impact calculation tools in GHG emission reduction.
	Urban planning around transport	2	NAMA TOD registered and it's in the process of designing the MRV scheme. Sustainable Transportation Program in Intermediate Cities structuring MRV for local urban mobility projects.
	Inter-modality in cargo and passengers through the River Master Plan	1	There is no formal MRV approach.
Agriculture and Rural Development	Commercial forest plantations	2	Strengthening of the information systems of the sector. Methodological guidelines for actions in Resolution 1447 of 2018.
	Establishment of technified cocoa production systems	2	
	Increase in area planted in fruit trees (avocado and mango)	2	
	Use AMTEC technology in rice	1	Advances through the Technology Mass Adoption Program.
Commerce, Industry and Tourism	Energy efficiency	3	NAMA Industry in implementation. Methodology and voluntary corporate reporting platform established; including monitoring indicators and reporting capabilities deployment.
	Logistics and Transportation Operation	1	Efforts and approaches to monitoring and reporting from the private sector. Not formally established.
	IPPU Process Improvement	1	
Housing, City and Territory	Sustainable construction	2	There are guidelines and approaches to the calculation of impact on formalized emission reduction in the energy and water savings guide in buildings, and the climate zoning guide.

Sector	Strategic Line	Advancement in MRV	Observations
	Sustainable Urban and Territorial Development	2	NAMA Habitat designed, unregistered, with MRV proposal and monitoring indicators.
Housing, City and Territory - Water and sanitation	Integral Management of Solid Waste	2	Progress in sectoral information systems. Improved Single System of Public Home Services Information (SUI). Development of protocols for MRV in the water and sanitation sector, within the framework of the NAMA of Solid Waste. Information needs, collection strategies and methodologies have been conceptually defined to estimate the potentials and costs associated with the measures.
	GHG mitigation actions in Wastewater Treatment	2	
	Energy efficiency and unconventional sources of renewable energy in Basic Sanitation	1	First approaches will be generated in the framework of energy efficiency project in aqueducts, in development.
Environment and Sustainable Development	Domestic Refrigeration	3	NAMA of domestic refrigeration in implementation, MRV of the NAMA formulated.
	Promotion of Thermal Districts	1	Initial approach for four Colombian cities.
	Replacing stoves with efficient stoves	1	
	Restoration	2	Methodological guidelines in Resolution 1447 of 2018.
All Sectors	Deforestation reduction	3	Methodological guidelines in Resolution 1447 of 2018. Strengthened sectoral monitoring systems.

Source: own development from CICC, BUR II, PNCC.

5. Final Messages and Recommendations for Next Steps

The conceptualization that Colombia has made of its MRV System is aimed at promoting information management and data coherence, guaranteeing the methodological consistency between GHG emissions and reductions, as well as promoting communication between components. The process that emerged in Colombia has a multitude of achievements; highlighting two elements that are the basis for moving towards the implementation of the MRV System. These are: knowledge and a clear mid-term horizon.

The analysis presented in this document calls the attention on upcoming milestones to continue the consolidation of MRV of mitigation actions in Colombia. Also, two international scenarios are influencing the consolidation process and are demanding alignment: the transparency framework and markets. The next steps in the implementation and consolidation of the MRV of mitigation actions in Colombia are summarized in the following sections.

5.1. About policy and legal instruments

- The regulation of Article 7 of the Climate Change Law through a ministerial decree would enable the official and periodical flow of sectorial activity data to MRV and GHG emissions inventories.

- Achieve the presidential mandate to follow up on the GHG emission reduction goal of the National Development Plan through RENARE.

- Advance in the elements that guarantee the application of the non-causation of the carbon tax (Decree 926 of 2017) for mitigation actions implemented in the national territory.

- Creation of the Emissions Trading System (ETS), which is in the first phase of design.

- Regulate and consolidate the National GHG Emissions Quotas Allocation Program created with Colombia's Climate Change Policy.

- Formalize instruments that guarantee the financial sustainability of the MRV System. Mainly at the sector and territorial levels, it is necessary to quantify the costs of implementing and operating monitoring and reporting schemes, as well as set responsibilities in covering those costs. In this sense, it would be useful to understand the country's history in the Clean Development Mechanism, as well as to take advantage of the experience of similar countries.

- Continue strengthening capacities at the regional level to understand the impacts of mitigation actions on GHG emissions reductions. This is to prioritize climate change mitigation in the local public agenda, as well as to internalize monitoring and reporting practices.

5.2. On methodological aspects

- Implement the improvements identified in the National GHG Emissions Inventory Report including as an Annex to Colombia's BUR II. This strategy will improve the quality of sectoral data while promoting the updating of information systems, the NDC monitoring, and a co-benefits assessment.

- Work on greater disaggregation of national, regional and sectoral emissions inventories to favor its harmonization with the mitigation actions MRV.

- Understand the methodological and data requirements, and calculation approaches to explore pilots of bilateral GHG emissions markets.

- Work in a better understanding of the methodological requirements for the validation, verification and certification of GHG emission reductions.

- Operationally, a challenge will be to promote the continuity of qualified technical personnel and their experience within the government agencies. This is critical to methodological appropriation and consolidation of the MRV of mitigation.

5.3. About technologies and information systems

- Continue the development for new SINGEI phases, giving continuity to projects supported by international cooperation to strengthen AFOLU and Energy sectors modules (RALI and CIBIT second phase project).

- Alignment of MRV with other international reporting processes: SDG, OECD, NDC. Today, Colombia is updating the Pollutant Emissions Transfer Registry (PRTR) platform in order to fulfill reporting commitments to the OECD. The importance of this platform is that it also will report GHG emissions and its registration is mandatory for companies.

- Strengthen RENARE in its start-up and operation.

5.4. Within the framework of the Pacific Alliance

Guide the support within the countries of the Alliance to achieve:

- Creating a network of Latin American corporate GHG emissions reporting programs to enable the improvement of methodologies and available information from regulated actors towards designing economic instruments for climate change management.

- Facilitate bilateral exchanges between the Alliance countries to promote the adoption of good practices and strengthening MRV implementation processes. For instance: a) what can Colombia learn from Chile's experience in implementing and operating the PRTR; b) what are the implications of how Chile and Colombia set the price of the carbon tax.

- Improve the projection systems and other technical components of the NDCs that allow progress towards the improvement of MRV systems as the basis for the progress towards the design of economic instruments that strengthen climate action.

- Facilitate the implementation of climate change actions in cities within the framework of the NDC and contribute to data management efforts at different scales under national guidelines.

- Analysis of the economic impact of the different GHG mitigation initiatives for their development and implementation at the national level within the framework of the NDCs and long-term climate change strategies.

6. *References*

- Official documents: Cited with hyperlinks throughout the text.
- Interviews with government actors and experts. Annex 1 of this document includes a summary of each interview.
- Review and exchange with the Climate Change Office at MADS.