



The Scope of the National Climate MRV System Senegal

March 2020

BASELINE MRV SCOPING STUDIES: TERMS OF REFERENCES

To support country climate MRV capacity development priorities in West Africa, Environment and Climate Change Canada (ECCC) organized a High-Level [Regional Technical Consultation](#) on “Relevance, Effectiveness and Alignment” in March 2020 in Abidjan, Côte d'Ivoire. In order to inform the discussions, domestic technical expert consultants in each country prepared comprehensive scoping studies on the status of their respective national climate MRV systems.

Each country's report identifies and compiles:

- The needs and ambitions of the Country Climate MRV Team;
- A list of the relevant key actors and institutions involved with climate MRV—including GHG emission inventories, GHG mitigation actions, climate finance, climate impacts and short-lived climate pollutants (SLCPs);
- The various MRV capacity building initiatives in the country;
- The results from the novel survey of key actors and institutions on needs and challenges related to climate MRV;
- A knowledge base consisting of published reports and other information resources related to the country's climate MRV system;
- Specific recommendations for capacity building priorities to make national climate MRV systems more relevant and effective.

For more information on this MRV Scoping Study, please contact the Domestic Technical Expert – [Mr. Ousmane FALL SARR](#), or for more information on any of the [other Country MRV Scoping Reports](#), please contact the West Africa MRV Regional Coordinator, [Ms. Rachel Boti-Douayoua](#).

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ACRONYMS AND ABBREVIATIONS

NDA	National Designated Authority
ANSD	National Agency of Statistics and Demography of Senegal
ASER	Senegalese Rural Electrification Agency
BOAD	West African Development Bank
BUR	Biennial Update Report
CBIT	Capacity-building Initiative for Transparency
CDM	Clean Development Mechanism
NDC	Nationally Determined Contribution
NC	National Communication
COMNACC	National Committee on Climate Change
COP	Conference of the Parties
DEEC	Directorate of the Environment and Establishments
TNA	Technology Needs Assessment
GCF	Green Climate Fund
GHG	Greenhouse Gas
ICAT	Initiative for Climate Action Transparency
MRV/MNV	Measurement, Reporting and Verification/Mesure, Notification et Vérification
NAMA	Appropriate National Mitigation Measures
LIC	Low-Income Countries
QA/QC	Quality Assurance/Quality Control
REDD+	Reducing emissions from deforestation and forest degradation
UNFCCC	United Nations Framework Convention on Climate Change

1. BACKGROUND AND RATIONALE

Global warming is a fact of life, as evidenced by observations of rising global land and sea temperatures, widespread melting of snow and ice, and the rising global average sea level. This is mainly due to the increase in atmospheric concentrations of greenhouse gases caused by human activity. Increases in carbon dioxide (CO₂)

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stem mainly from the use of fossil fuel and change in land use, while increases in methane and nitrous oxide stem mainly from agriculture.

As part of efforts to combat climate change, in December 2015, 193 parties, civil society, private sector, government, etc., met in Paris, at COP21 to negotiate and reach an agreement known as the Paris Agreement, the objective of which is to limit global temperature to 1.5° C to 2° C. The specific feature of this Agreement is the commitment of each State party to make efforts to reduce its greenhouse gas (GHG) emissions in the form of "Nationally determined contributions (NDCs) during a given period of time.

While the NDCs represent commitment by countries to contribute to achieving the objective of this agreement, the MRV system provides the management framework for planning, monitoring and evaluation of the entire NDC implementation system. Indeed, in order to ensure transparency, consistency and uniformity of information in the different systems, a measurement, reporting and verification (MRV) tool will be rolled out. However, putting it into operation would call for building the capacities of local stakeholders.

To this end, the Government of Canada has committed to supporting West African countries in honouring their NDCs. The Government of Canada commissioned NovaSphere, a Canadian non-profit organization, to conduct a series of activities that will strengthen MRV systems for climate finance, mitigation, greenhouse gas emission inventories and short-lived climate pollutants. Funding throughout the program will be driven by national and regional priorities and will provide coordination and technical assistance to generate opportunities to enhance the efficiency of national MRV systems and strengthen climate governance. Sixteen West African countries are targeted by this program: Benin, Burkina Faso, Cabo Verde, Côte d'Ivoire, The Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Mauritania, Niger, Nigeria, Senegal, Sierra-Leone and Togo.

2. A GEOGRAPHICAL OVERVIEW OF SENEGAL

A Sahelian country, located at the western tip of the African continent, Senegal covers an area of 196,722 km² and shares its borders, to the north with Mauritania, to the east with Mali and to the south with Guinea and Guinea-Bissau. Senegal is a flat country, rising no higher than 130 metres, except in the south-eastern region, which has a slightly uneven relief, at an altitude of about 581 metres at the highest point of the Fouta-Djalou foothills, which constitutes a virtual water tower for the entire subregion, feeding the Senegal, Gambia and Casamance rivers.

The presence of a 700-plus-kilometre seafront and the situation in the Western tip of the African continent have created climate differences between the coastal zone and the inland regions. Likewise, the atmospheric circulation, facilitated by an unhindered relief, puts the territory under the influence of the maritime trade winds coming from the west, the harmattan from the north and the monsoon from the south.

These air masses determine a two-season Sudano-Sahelian climate:

- A rainy season (from June to October), during which the monsoon blows, a hot and humid wind from the St. Helena High;
- A dry season (from November to May) with a predominance of the Northern trade winds (maritime trade winds from the Azores High and harmattan from the Libyan High).

Rainfall is highly variable in time and space. There is also a great hydro-climatic disparity between the humid south (with an annual rainfall of more than 1 000 mm) and the dry north (with less than 500 mm of rain per year). (Source: Senegal's Low carbon strategy development framework.)

In 2016, the country's population was estimated at 14,799,859 (ANSD 2016 report).

3. BACKGROUND ON SENEGAL'S CLIMATE POLICY

3.1 Climate change in Senegal

There is a consensus on the trends in the climate indicators that structure Senegal's ecosystems: the changes observed in temperatures, rainfall and sea surface characteristics are likely to continue.

- **Temperatures:** In general, there is a high rise in minimum temperatures, while maximum temperatures have increased only slightly. The forecasts indicate an average variation of +1.1 to 1.8° C by 2035.
- **Rainfall:** Analysis of the average trend shows a decrease in rainfall from 1951 to 2000 across the regions under study. In the future, this trend is expected to continue into 2035 with extreme episodes ranging from -30% to +30%.
- **Sea surface:** An increase in water temperature of about 0.04° C to 0.05° C per year from 1980 to 2009 and a gradual increase in the salinity of the seawater along the Senegalese coast has been observed. From 1943 to 1965, data from the Dakar tide gauge showed an average sea level rise of 1.4 mm per year. According to the latest assessments, the current level is expected to continue rising.

(Source: INDC Senegal 2015.)

Table 1: Average change in projected rainfall and temperature by zone and scenario. The rainfall is expressed in mm, while the temperature is expressed in degrees Celsius.

	Scenarios	Nord	South east	South west	Centre-west
Rain	RCP4.5	-16	-89	-89	-89
	RCP8.5	-8	-61	-61	-61
Temperature	RCP4.5	+1.18	+1.17	+1.17	+1.17
	RCP8.5	+1.41	+1.37	+1.37	+1.37

3.2 Global climate system

Climate change and its adverse effects impose an additional burden on all countries, particularly developing countries, least developed countries (LDCs), Small Island Developing States (SIDS) and countries at risk of drought, desertification and flooding. Senegal is not spared from climate change. Indeed,

it is quite vulnerable to it, given its large coastal areas, with the rise in sea level, and its rain-fed farmlands.

With this situation, several types of actions are being taken to mitigate the effects of climate change and reduce greenhouse gas emissions.

The international community has adopted two major agreements: The United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol.

The UNFCCC was adopted in 1992 in Rio and ratified in 1994 in Senegal.

Its objective is to "stabilize", in accordance with the relevant provisions of the Convention, "greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system".

The Kyoto Protocol sets out quantified commitments to limit or reduce anthropogenic emissions (GHG). Under the protocol, 39 industrialized countries were legally bound to limit and reduce their GHG emissions by 5.2% from 2008 to 2012 compared to the 1990 level (18% for 2013-2020, the second commitment period).

In 2015, a historic, universal and binding agreement was adopted in Paris, to enter into force from 2020, with the aim of reducing the temperature increase from 2° C to 1.5° C. The achievement of the Paris Agreement will be based on the implementation of nationally determined contributions.

3.3 National climate context

At the national level, the Convention was ratified in May 1994 and the Protocol in 2001.

Upon the adoption of the climate convention, our country set up an institutional organization comprising:

- The Directorate of the environment and classified establishments (DEEC), as the climate focal point;
- The National committee on climate change (COMNACC), set up in 1994, and then by ministerial order in 2003, and by presidential decree in 2011. This Committee is a training, awareness-raising, consultation, management

and monitoring body for the various activities planned under the climate convention;

- ANACIM, as the focal point of the Intergovernmental Panel on Climate Change (IPCC);
- CERER, as a technology transfer focal point;
- A designated national authority (DNA) for the Clean Development Mechanism (CDM) responsible for the regulatory aspects of the CDM.

As part of its commitments under the Convention, Senegal has developed the following strategies/policies in the various climate change-related areas

- The Convention's implementation strategy in 1999;
- Three national communications (1997, 2010 and 2015);
- The national adaptation program of action (NAPA) in 2006;
- The national adaptation plan (ongoing);
- The technology needs assessment (TNA) study in 2012 on adaptation and mitigation;
- The intended nationally determined contribution (INDC) submitted in 2015 and the nationally determined contribution in the policy validation process;
- The Green Climate Fund country program;
- The opportunity study on carbon pricing instruments.

3.4 Progress made by Senegal in the implementation of its climate policy

3.4.1 Establishment of the nationally determined contribution

The adoption of the Paris Agreement has been a success in raising the awareness of States and stakeholders to align themselves with an approach to keep global warming below 2° C. This has led to the drafting of NDCs, which are being developed as part of a low-carbon economy and also, of a climate change resilience approach in the countries of the South, while benefiting from the economies of the North.

For its part, in 2015, Senegal submitted, its INDC as part of an inclusive process, in line with the emerging Senegal plan (PES) and to validate the specific commitments to reducing GHG emissions by 2030, in the energy, transport, industry, agriculture, waste and forestry sectors.

Following ratification of the Paris Agreement in 2016, the Ministry of Environment, through the Directorate of environment and classified establishments (DEEC), launched the process of revising its INDC into an NDC. The transition from INDC to NDC is primarily driven by the need to update the data (sectoral, macroeconomic, demographic, etc.) used in developing the NDC, the need to address key components such as MRV, capacity-building and technology transfer needs, as well as the modalities for taking into account essential oil and gas exploitation data.

In preparing this document, Senegal set a target of reducing its GHG emissions by 32% by 2030. The overall cost amounts to US\$13 billion.

3.4.2 Carbon market situation in Senegal

UNFCCC is not the only instrument introduced to combat global warming. Indeed, the Kyoto Protocol, following its two commitment periods under the UNFCCC, requires Annex 1 Parties to reduce their emissions by an average of 5% (2008-2012) and 18% (2013-2020) respectively.

Non-Annex 1 Parties, which are developing countries, do not have any form of commitment to reduce their GHG emissions under this Protocol.

With the help of developed countries, they may benefit from projects initiated under the Clean Development Mechanism (CDM), one of the three flexibility mechanisms of the Kyoto Protocol.

Despite the considerable constraints noted in the proper functioning of the CDM under the Kyoto Protocol, in developing countries, our country has a fairly large project portfolio registered at the international level. These projects are mainly in the area of renewable energy and energy efficiency. They include:

- Solar projects fed into the power grid;
- The activity programs of the Senegalese rural electrification agency (ASER) on rural electrification with a focus on solar energy and low-energy lamps;
- The energy efficiency project with the partial substitution of coal by jatropha in cement production.

Other less restrictive tools can be used to contribute to the sustainable development of the country with powerful transformational aspects, in addition to reducing its emissions. These include nationally appropriate mitigation measures

(NAMAs) and the mechanism for Reducing emissions from deforestation and forest degradation (REDD+), and conservation and enhancement of carbon stocks.

Regarding NAMAs, it is important to note that Senegal has developed three NAMAs strategies on domestic biodigesters, off-grid remote sensing and energy saving lamps.

Also, under Article 6 of the Paris Agreement, dedicated to market mechanisms, Senegal has embarked upon a program to prepare for better access to carbon markets for the purposes of the NDC. The program activities are:

- Implementation of a pilot program on "standardized framework for the attribution of carbon credits" with the World Bank, with the aim of strengthening the governance framework of carbon finance at the national level and serving as a springboard for the establishment of an NDC MRV system in Senegal;
- Bilateral collaboration with the Government of Switzerland, through the Klik Foundation, on internationally transferred emission reductions (Article 6.2) in the area of domestic biogas and solid waste management.

The modalities for setting up a carbon pricing tool in Senegal are underway, with the support of BOAD.

4. DIAGNOSIS OF SENEGAL'S CURRENT MRV SYSTEM

4.1 Institutional framework for MRV at the national level

Ministries	Technical units
Ministry for energy	<ul style="list-style-type: none"> • Monitoring and evaluation unit (energy information system) • Power directorate • Renewable energy development department • Strategy and regulation department • Hydrocarbons department • PETROSEN • Société Africaine de Raffinage (SAR) • COS Petrogaz • National Biogas Program • Société Nationale d'Électricité au Sénégal (SENELEC) • Senegalese Rural Electrification Agency (ASER) • National agency for renewable energies (ANER) • Agency for the economy and energy management (AEME) • Energy sector regulatory commission (CRSE)
Ministry of Energy	<ul style="list-style-type: none"> • Planning and monitoring and evaluation unit • Department of Agriculture • Directorate of agricultural analysis, forecasting and statistics (DAPSA) • Directorate of financing and partnership with organizations • Regional directorates of rural development (DRDR) • Department of horticulture (DHort)
Ministry in charge of Land Transport	<ul style="list-style-type: none"> • Planning and monitoring and evaluation unit • Road directorate • Ministry for land transport • Railway directorate • Dakar urban transport executive council • Dakar Dem Dikk (DDD) • Association for the financing of urban transport professionals (AFTU) • Road works and management agency (AGERROUTE) • Agence Nationale des Nouveaux Chemins de Fer (ANCF) • Bureau of technical control supervision

Ministries	Technical units
Ministry of Water and Sanitation	<ul style="list-style-type: none"> • Planning and monitoring and evaluation unit • Sanitation Department • National Sanitation Office of Senegal (ONAS)
Ministry in charge of the living environment	<ul style="list-style-type: none"> • Planning and monitoring and evaluation unit • Solid waste coordination and management unit
Ministry of Animal Husbandry	<ul style="list-style-type: none"> • Planning and monitoring and evaluation unit • Livestock Department
Ministry of Industry	<ul style="list-style-type: none"> • Planning and monitoring and evaluation unit • Industrial development strategies department • Industrial redeployment department • Directorate of Small and Medium Industries (DPMI) • Agency for the Development and Promotion of Industrial Sites (APROSI) • Bureau de Mise à Niveau • Senegalese Association for Standardization (ASN)
Senegalese Standards Association (ASN)	<ul style="list-style-type: none"> • Planning and environmental watch directorate • Directorate of water, forests, hunting and soil conservation
Non-energy data provider	<ul style="list-style-type: none"> • National statistics and demography agency (ANSD)
Economics data provider	<ul style="list-style-type: none"> • Ministry of Finance (DPEE; others)
Green Climate Fund (GCF) accredited agencies	<ul style="list-style-type: none"> • Ecological monitoring centre (CSE) • African Development Bank (AfDB) • West African Development Bank (BOAD)
Electricity and renewable energy	<ul style="list-style-type: none"> • Energizing Development (Endev PED/GIZ)

4.2 Typology of MRV in Senegal

Senegal has no formal MRV system. However, standard planning procedures from data and information collection through quality assurance and quality control at all stages to results is used. We will examine the existing MRV arrangements on; (i) emissions MRV; (ii) measurement MRV: and (iii) support MRV.

4.2.1 Emissions MRV

4.2.1.1 Measurement of GHG emissions

Senegal, a country party to the climate convention, has prepared three national communications (submitted in 1997, 2010 and 2015).

As part of the fight against climate change, parties are required to regularly submit information contained in reports called "national communications on climate change (NCCCs)" on their level of GHG emissions. Senegal has submitted a total of three NCCCs in which measurements of GHG emissions have been quantified. The current system for measuring emissions is essentially based on greenhouse gas inventories. In the process of elaborating the various national communications and the first biennial update report (BUR) (ongoing) on climate change. The inventories are based on four sectors: energy, agriculture, waste and industrial processes. The detailed information on the three communications submitted is summarized in the table below:

Table 1: Summary of emissions as per the three national communications.

Sectors (data in Gg Eco2)	First national communication	Second national communication	Third national communication
Energy	3,788.6	8221.1	5178.93
Agriculture	2,957.6	6275.89	6359.84
Waste	2226.2	2075.64	970.57
Industrial processes	345.5	301.51	541

Sources: Senegal's national communications submitted to UNFCCC.

Based on the information developed above, the profile of GHG emissions in Senegal by sector shows that the energy and agriculture sectors remain the largest emitters, and therefore require special attention in the planning, monitoring and evaluation of actions to reduce GHG emissions.

Note that our country will soon launch its BUR1, its fourth national communication and later (around 2021) its capacity-building initiative for transparency (CBIT).

4.2.1.2 GHG emission reporting

Emissions are reported in the IPCC Excel spreadsheets as well as in the sector GHG inventory reports.

4.2.1.3 Verification of GHG emissions

Based on the QA/QC procedures, an emission check is carried out. Quality control and quality assurance are an essential requirement in the development of GHG inventories in order to ensure and improve the transparency, consistency, comparability, completeness and reliability of national GHG estimates and removals and to meet commitments under the UNFCCC.

4.2.2 MRV actions

Measurement, reporting and verification activities, as in current state, can be likened to the monitoring plans put in place to track carbon projects (CDM, NAMAs, Green Climate Fund (GCF), etc.). Our country has about a dozen or so CDM projects, three NAMAs and five GCF projects; a detailed analysis cannot be made under this study. A comprehensive review of the guiding principles governing the MRV framework will be presented. The following areas may be considered.

4.2.2.1 Measurement

Emissions will be monitored by the project leader according to the approved carbon methodology applied. The proposed monitoring system must foster real-time monitoring of emissions based on the project's impact indicators.

4.2.2.2 Reporting

The data collected will be reported on in an annual report containing specific information on the project. Spreadsheets will also be used to report on the achievement of the indicators.

4.2.2.3 Verification

It is suggested that the avoided GHG emissions and sustainable development impacts should be verified by an approved auditing firm.

4.2.3 Support MRV

This MRV mainly applies to financing to support climate initiatives in Senegal. As part of its engagement with the Green Climate Fund, the Government of Senegal has put in place an institutional architecture to improve its access to the Green Climate Fund resources. These advances enabled Senegal to benefit very early on from the resources of the Fund with the approval of five projects between 2015 and 2017:

- Salt land restoration project to improve the resilience of ecosystems and communities in the groundnut basin. It is financed to the tune of US\$8.2 million, of which \$7.6 million is from the GCF and \$556,000 in joint financing. The duration of the project is four years;
- Integrated flood management project in Senegal: The total cost of the project is 71 million euros, including a 15 million-euro grant from the GCF, 50 million euros from the Agence Française de Développement (AFD) in a concessional loan and a 6 million-euro contribution from Senegal;
- "Building the climate resilience of vulnerable smallholder farmers through integrated climate risk management (the 4R initiative)" project: the project cost is \$10.72 million with a GCF grant of \$9.98 million and State co-financing of \$0.74 million;
- The structural transformation of climate-sensitive finance project with AFD to the tune of \$742 million, with GCF co-financing of \$272.5 million;
- Project to promote the use of improved cookstoves under the Endev program at a total cost of 58.822 million euros, with GIZ as an accredited body. Also, Senegal is in the process of accrediting other national entities, including those from the banking sector.

Under the Adaptation Fund, in conjunction with the Centre for ecological monitoring (CSE), an accredited body, two projects have been implemented.

Also, as part of the NAPA, projects under the adaptation component have been implemented, including:

- PRGTE/UNDP: Strengthening land and ecosystem management in the Niayes and Casamance in a context of climate change - Republic of Senegal (PRGTE) totaling \$18 million;
- FAO/Field schools: "Integration of climate resilience in agro-pastoral production for food security in vulnerable rural areas using the farmer field school approach" is a climate resilience project implemented in three eco-geographical areas of Senegal prone to climate vulnerability, food insecurity and malnutrition. The project, funded by the Global Environment Facility (GEF) through FAO, is designed for Least Developed Countries;
- PAFA/IFAD to: contribute to improving the resilience of the livelihoods of populations affected by or exposed to climate change, by promoting investments related to the sustainable and rational management of water resources (mainly through watershed management and catchment basins).

Other projects are underway or completed, with the support of technical and financial partners such as UNEP, the World Bank and GIZ.

With regard to support MRV, the Ministry of Environment and Sustainable Development (MEDD), as part of the GCF readiness program, is considering arrangements to set up the MRV finance architecture, in conjunction with the Ministry of Finance, the private sector and climate finance stakeholders.

4.3 Strengths and opportunities, weaknesses and threats of the MRV system in Senegal

4.3.1 SWOT analysis of emission measurement, reporting and verification

Strengths

- Existence of the Directorate of environment and classified establishments, climate focal point, and COMNACC, in charge of coordinating climate action.
- Expertise in coordinating and undertaking inventories for national communications and Biennial Update Reports;

Weaknesses

- Unavailability of a web interface in the form of a portal to access sectoral and GHG data;
- Lack of familiarity with the IPCC inventory guidelines and tool;
- Inadequate resources to conduct surveys to improve data availability;

- | | |
|--|--|
| <ul style="list-style-type: none"> • Existence of sectoral institutional frameworks responsible for data collection, planning and evaluation; • Need to establish a transparency framework at the national level to monitor the NDC under Article 10 of the Paris Agreement. | <ul style="list-style-type: none"> • Lack of dedicated staff to manage sectoral and GHG data. |
|--|--|

Opportunities

Threats

- | | |
|---|--|
| <ul style="list-style-type: none"> • Existence of national data collection institutions such as the National agency for data statistics; and socioeconomic development planning institutions such as the Operational office for follow-up on the emerging Senegal plan; • Existence of international initiatives committed to the implementation of the transparency framework of the Paris Agreement; • Existence of projects for setting up sectoral MRV systems (solid and liquid waste, energy, transport, etc.) with the support of international technical partners. | <ul style="list-style-type: none"> • Staff mobility; • Failure to address actions developed by non-State actors; • No budget available. |
|---|--|

4.3.2 SWOT analysis of action measurement, reporting and verification

Strengths

Weaknesses

- Project leaders have a good grasp of carbon market requirements and the methods applied;
- Appropriate data collection system.

- The Designated National Authority (DNA) often has no feedback on project implementation (certified emissions, avoided emissions, verification report, etc.), CDM/Kyoto Protocol.

Opportunities

Threats

- Establishment of a DNA/CDM at the Ministry of Environment;
- Role of information on opportunities derived from the carbon market.

- Fluctuating carbon market price.

4.3.3 SWOT analysis of support MRV

Strengths

- Setting up the DNA/CDM and DNA/GCF at the level the MEDD;
- Project to set up a national climate fund;
- Existence of COMNACC.

Weaknesses

- Climate finance initiatives underway in the country without being captured by the DNA.

Opportunities

- Involvement of the Ministry in charge of Finance on "climate finance" with the creation of the Innovative Financing Department;
- Involvement of technical and financial partners;
- Establishment of sectoral committees on climate finance

Threats

4.3.4 SWOT analysis of institutional framework MRV

Strengths

- Existence of the Directorate of environment and classified establishments, climate focal point and COMNACC, to coordinate climate action.

Weaknesses

- Inventories are not institutionalized at line ministries. Until the third national communication, the inventory was carried out by consultants.

Opportunities

- Existence of national bodies specialized in data collection (National data statistics agency) and in socioeconomic development planning (Plan for an emerging Senegal operational office).

Threats

- Staff mobility
- Failure to address actions developed by non-State actors.

4.4 Assessing "needs and wants" for a better national MRV system

Several parties have begun to identify the key areas of focus that will facilitate the effective implementation of the NDC. These include the establishment of a

transparency framework, as stipulated in Article 10 of the Paris Agreement, which should help improve monitoring of the actions of the NDC.

The key challenge under the Paris Agreement will be the countries' intrinsic capacity to accurately and reliably measure, report and verify mitigation and adaptation actions in their NDCs.

Implementing a sound MRV system should facilitate monitoring progress towards the individual and collective objectives set out in the NDCs.

In concrete terms, it will entail considering the modalities for setting up data management systems at the sectoral and national levels to facilitate sector planning and monitoring of NDCs.

Based on this observation, the Ministry of Environment, through the Directorate of environment and classified establishments, the UNFCCC focal point, has, with the support of partners, launched an MRV system to monitor its NDC.

The needs expressed by the national level on setting up an MRV system are as follows:

- Establishment of an NDC measurement, reporting and verification framework that includes all categories of stakeholders, including non-State ones;
- Diagnostic analysis of existing monitoring and evaluation systems at line ministries in the NDC and see the modalities for integrating climate data into the system;
- Capacity-building of institutions/experts on guidelines for MRV system implementation;
- Determining the areas of operation (technical, technological, financial, regulatory, etc.) of the MRV system;
- Discussion on the opportunities offered by the establishment of such a system at the national and sectoral levels.

5. SUMMARY OF REQUIREMENTS

Sectors	Strengths	Weakness	Requirements
Energy sector led by the Energy information system	<ul style="list-style-type: none"> • Existence of: <ul style="list-style-type: none"> ○ A data collection mechanism; ○ An energy balance and analysis format (tables and graphs); ○ A data validation framework (energy information system (EIS) team that meets at the time of the review). 	<ul style="list-style-type: none"> • Constraints peculiar to the energy sector monitoring system: <ul style="list-style-type: none"> ○ Lack of resources to finance monitoring and evaluation missions; ○ Weak monitoring-evaluation capacities of the system's stakeholders (Project implementation unit and national directorates); ○ Lack of funding for data collection and dialogue with system stakeholders; ○ Unavailability of mission-specific logistics, including those pertaining to surveys for data collection. • EIS-specific constraints: <ul style="list-style-type: none"> ○ Unavailability of a web interface in the form of a portal for access to energy data and information; ○ Difficulties in accessing upstream data (state of national energy resources, particularly useful to investors) and downstream data, especially the technologies used by consumers, possible 	<ul style="list-style-type: none"> • Capacity-building in the production, processing and analysis of GHG inventory data; • Identification of all industries in Senegal and their subdivision according to the International Standard Industrial Classification, and with the IPCC guidelines; • Taking into account data upstream of the oil and gas industry; • Identification of all potential data providers and their adherence to the cooperation framework; • For wood and charcoal: Directorate of water and forestry, producers of

Sectors	Strengths	Weakness	Requirements
		<p>alternatives and some energy indicators of the final energy balance;</p> <ul style="list-style-type: none"> ○ Difficulty in accessing data on access to energy services for several major socioeconomic sectors such as education, health, agriculture, transport and hydraulics, as suggested in the ECOWAS White Paper; ○ Lack of data on the mining, tertiary and industrial sectors and energy efficiency indicators, in general; ○ Lack of resources to conduct surveys on domestic fuel consumption practices, few surveys conducted and not taken into account in the surveys by others; ○ Lack of a harmonized approach to hydrocarbon data between EIS, Customs and ANSD; ○ Absence of an updated regulatory text defining the tasks of the EIS, which makes collaboration with external partners difficult (no formalization of relations); ○ Lack of dedicated EIS staff. 	<p>improved stoves, ANSD, need to investigate;</p> <ul style="list-style-type: none"> ● For hydrocarbons (imports, exports, production and sales): Customs, ANSD, Directorate of domestic trade, Directorate of foreign trade, CNH, SAR, PETROSEN, Groupement des Pétroliers.

Sectors	Strengths	Weakness	Requirements
Transport	<ul style="list-style-type: none"> • All the units of the Ministry of Transport have an operational database or are in the process of doing so. 	<ul style="list-style-type: none"> • Sector databases have been created only for internal needs, and are only tied to the tasks of the units; • Data from these databanks are not always shared with external and internal users, and are sometimes difficult to access and not officially validated; • Data from different structures are produced at different intervals, not harmonized and sometimes collected only occasionally. 	<ul style="list-style-type: none"> • Set up/ strengthen national institutions (responsible for monitoring and planning) for MRV purposes; • Build capacity on IPCC software; • Make the proposed MRV system operational.
Solid waste	<ul style="list-style-type: none"> • Existence of a report on the national household waste characterization campaign; • Existence of regional UCG offices; • Lots of data collected; • Existence of an intelligent territorial waste 	<ul style="list-style-type: none"> • Institutional instability of the Ministry. 	<ul style="list-style-type: none"> • Proposal for the establishment of an MRV system supported by the UCG; • Expected support; • Capacity-building on IPCC 2006; • Capacity building on the stages of setting up an MRV system; • Operationalization of STIG.

Sectors	Strengths	Weakness	Requirements
Agriculture	<p>management system (STIG);</p> <ul style="list-style-type: none"> • Regular reporting on the data collected. • The Directorate of analysis and forecasting of agricultural statistics (DAPSA) has the mandate, among others, to collect, centralize, process and disseminate data and information from the agricultural sector, as well as to monitor and evaluate agricultural policies, programs and projects; 	<ul style="list-style-type: none"> • Weak human capacity in M&E mainly due to an insufficient number of technical staff, with little training in M&E in general and in the processing and analysis of statistical data; • Inadequate hardware capacity in the area of IT, especially computers; • Difficulties in coordinating the interventions of stakeholders involved in the agricultural sector (projects, programs, agencies, development companies, etc.) as there is no effective information-sharing mechanism at the regional and departmental levels; • A lack of harmonization in the collection and processing of agricultural statistics, due to the absence of a formal M&E framework (e.g. M&E manual) that would describe and share harmonized procedures for collecting, processing and analyzing data on standard indicators. 	<ul style="list-style-type: none"> • Make the proposed MRV system operational; • Build capacity on IPCC software; • Ensure better data collection needed for IPCC/NDC.

Sectors	Strengths	Weakness	Requirements
Forestry	<ul style="list-style-type: none"> • With the support of the Agricultural Policy Support Project (USAID/PAPA), MAER now has a monitoring and evaluation procedures manual and a computerized data collection system for the indicators monitored in the sector. • The Directorate of water, forestry, hunting and soil conservation (DEFCCS) has a Monitoring and evaluation division which centralizes all statistics in the 	<ul style="list-style-type: none"> • The sector's monitoring-evaluation system does not run smoothly, in that the Environmental planning and surveillance directorate (DPVE) is experiencing difficulties with the systematic reporting of data by the technical branches and in the desired format; • The sector has neither a manual of monitoring-evaluation procedures nor a 	<ul style="list-style-type: none"> • Create a web platform for centralizing data management system; • Make the proposed MRV system operational; • Build capacity on IPCC software;

Sectors	Strengths	Weakness	Requirements
Industry	<p>forestry sector. These data are sent back by the regional services following a written report or by e-mail and stored in a database in Excel format.</p> <ul style="list-style-type: none"> • Experience in annual reviews with the Ministry of Finance; • Existence of focal points in the technical departments for data collection; • In the action plan, aspects of green industry are taken into account; 	<p>harmonized computerized data collection system.</p> <ul style="list-style-type: none"> • The absence of a central data management framework or structure for the sector, with the production of annual reports; • The absence of a formal framework for exchanging and validating information on the sector with other units under the supervision of other ministerial departments; • The absence of electronic databases on the sector; • Shortcomings of the project implementation unit, a structure that is supposed to play the central role of managing the flow of information on the sector, in terms of human and financial resources; 	<ul style="list-style-type: none"> • Ensure better data collection needed for IPCC/NDC. • Proposed capacity-building; • Capacity-building on energy, environmental aspects of industry; • Capacity-building in the area of climate change; • Capacity-building on the different stages of an MRV system; • Training on the IPCC GHG emissions calculation tool; • Operationalize the industry observatory and extend it to NDC industry data;

Sectors	Strengths	Weakness	Requirements
	<ul style="list-style-type: none"> • Creation of the industry observatory. 	<ul style="list-style-type: none"> • The weak capacity of the units responsible for producing and disseminating information on the sector in database development and monitoring-evaluation. 	<ul style="list-style-type: none"> • Set up and operationalize an MRV system, with a database for the sector; • Institutional support; • Proposed establishment of a technical committee by inter-ministerial decree (industry, trade and energy) in order to collect data from all NDC bodies; • Cement manufacturers are members of this technical committee; • The Industrial development strategies directorate (DSDI)/PIU could serve as secretariat.

*Analysis made on the basis of the studies carried out under the ICAT project and the questionnaire.

6. SENEGAL'S CLIMATE MRV KNOWLEDGE BASE AND NATIONAL INFORMATION RESOURCES

Transparency has always been a key issue in climate negotiations. Indeed, the Cancun COP in 2010 had already established a verification and review mechanism for the Parties. Article 13 of the Paris Agreement has followed the same trend by establishing the Enhanced Transparency Framework.

Senegal has incorporated MRV in climate policy as follows:

A. Prior to signing the Paris Agreement

Climate action was monitored at the national level through the GHG inventories produced by countries, as part of their national communications.

With regard to activity programs, MRV has been driven by the certification of avoided emissions under CDM and NAMA projects, underpinned by the implementation of robust monitoring and evaluation systems based on carbon methodologies approved by the UNFCCC.

B. Following the signing of the Paris Agreement

The relevant information on this point is summarized in the following table:

Description	Goal	Availability of documentation
Initiative for Climate Action Transparency (ICAT)	<ul style="list-style-type: none"> • Conduct an analysis of data management systems in the energy and transport sectors; • Propose a capacity-building plan for targeted stakeholders on the IPCC tool and carbon methodologies; • Set up an appropriate MRV system for Senegal. 	<ul style="list-style-type: none"> • Energy MRV report available; • Transport MRV report available; • National MRV report ongoing.

Description	Goal	Availability of documentation
Project to support the implementation of NDCs on solid waste	<ul style="list-style-type: none"> • Support the development of policy measures and capacity-building to facilitate emission reductions in the solid waste sector. 	<ul style="list-style-type: none"> • Study not yet launched.
Support for the establishment of an NDC monitoring system (water and sanitation)	<ul style="list-style-type: none"> • Establish a climate policy monitoring framework in the sanitation sector. 	<ul style="list-style-type: none"> • Study not yet launched.
Implementation of a standardized system for allocating carbon credits	<ul style="list-style-type: none"> • Simplify the procedure for obtaining carbon credits; • Set up an appropriate governance structure to take better advantage of the carbon market (Art. 6.2); • Follow up on the NDC. 	<ul style="list-style-type: none"> • Documentation available.
Preparation of the fourth national communication	<ul style="list-style-type: none"> • Report on national arrangements undertaken to participate in the international process of GHG mitigation and adaptation to climate change. 	<ul style="list-style-type: none"> • Launched in 2020.
Development of BUR1	<ul style="list-style-type: none"> • Report on national arrangements made to participate in the international GHG mitigation process and the related monitoring mechanism. 	<ul style="list-style-type: none"> • Launched in 2020.
Development of the Capacity Building Initiative for Transparency (CBIT)	<ul style="list-style-type: none"> • Build the capacity of developing countries to meet the requirements of the enhanced transparency framework under the Paris Agreement. 	<ul style="list-style-type: none"> • Will be launched in 2021.

Description	Goal	Availability of documentation
<p>Study on the implementation of a carbon pricing tool in Senegal</p>	<ul style="list-style-type: none"> • Have a framework for monitoring emissions by private entities • Have additional financial resources for controlling climate change. 	<ul style="list-style-type: none"> • Opportunity studies available • A second phase will be carried out with more detailed feasibility studies.
<p>Setting up a monitoring tool for funding received from Green Climate Fund</p>	<ul style="list-style-type: none"> • Improve monitoring of GCF funding. 	<ul style="list-style-type: none"> • Not yet operational.

7. RECOMMENDATIONS

To develop capacities (technical, institutional, informational and systemic) to strengthen Senegal's climate MRV system, below are a few recommendations:

- Improve the regulatory and institutional framework to facilitate the proper functioning of national and sectoral MRV systems (proposal for a framework law on climate change);
- Continue capacity-building on IPCC software across all sectors;
- Based on Senegal's QA/QC diagnostic report on inventories, make inventory data available (through surveys or studies);
- Make the proposed MRV system operational at national and sectoral levels (technical, technological, equipment and financial);
- Provide the support needed for the development of MRV systems for the oil/gas, industry, agriculture and forestry sectors;
- Review the architecture of MRV finance with the involvement of the Ministry of Finance, the private sector and the actors involved in climate finance;
- Consider ways of monitoring the activities of local authorities, the private sector and civil society.

8. CONCLUSION

Establishing MRV systems for better monitoring of climate policy is a complex exercise. Different parameters, including existing climate change arrangements, national and sectoral data management reporting frameworks, and capacity-building of stakeholders will have to be taken into account to ensure successful operationalization of this climate action monitoring tool.

The diagnostic study showed that Senegal has demonstrated dynamism in the implementation of its NDC as well as in the establishment of a relevant MRV framework, which is underway.

Ways of improving this system are being considered, including the following:

- Institutionalization of the MRV system at the national and sectoral levels;
- Increased involvement of institutions in charge of monitoring and evaluation and the Agency for statistics and demography, in order to set up appropriate activity data for the NDC;
- Implementation of MRV systems for the industrial, oil/gas, agriculture and forestry sectors.

Setting up a climate policy monitoring system will also entail the support MRV framework, which will focus on climate financing. The upcoming implementation of a national climate fund and the development of monitoring tools for projects approved with the GCF, as well as the creation of the Innovative financing directorate could facilitate the monitoring of this type of MRV.

Also, non-State actors (civil society, private sector and local authorities) are an important category to be considered in the establishment of MRV systems. It will be important to reflect on how to define appropriate engagement strategies for this category of actors.

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ANNEX

[MRV Initiatives](#)

[Survey Questionnaire](#)