

REGIONAL EXPERIENCE SHARING WORKSHOP ON THE IMPLEMENTATION OF NATIONALLY DETERMINED CONTRIBUTIONS AND MONITORING, REPORTING AND VERIFICATION (MRV) TRAINING FOR THE WASTE SECTOR



Group photo: Regional workshop participants. Photo credits: UNEP/SEI

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WORKSHOP REPORT

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Acronyms

PA: Paris Agreement

DNA: Designated National Authority

UNFCCC: United Nations Framework Convention on Climate Change

ECOWAS: Economic Community of West African States

IWRC: Integrated Waste Recycling Centre

CCAC: Climate and Clean Air Coalition

CCD: Climate Change Directorate

ECCC: Environment and Climate Change Canada

GCF: Green Climate Fund

GHG: Greenhouse Gases

CDM: Clean Development Mechanism

MINEDD: Ministry of the Environment and Sustainable Development

MRV: Measurement, Reporting and Verification

NGO: Non-Governmental Organizations

UNEP: United Nations Environment Programme

CSO: Civil Society Organizations

NWMP: National Waste Management Program

SEI: Stockholm Environment Institute

Introduction

As part of the "*Support to the implementation of National Determined Contributions (NDCs) in the waste sector in Côte d'Ivoire and Senegal*" project, UNEP and Stockholm Environment Institute (SEI) organized the Regional Workshop for experience sharing on the implementation of National Determined Contributions (NDCs) and training on Measurement, Reporting and Verification (MRV) in the waste sector from 17 to 21 February 2020 at Seen hotel in Abidjan, Cote d'Ivoire. [ONG Page Verte](#), an NGO based in Cote D'Ivoire was contracted to support the workshop logistics.

Côte d'Ivoire and Senegal have identified waste as one of the key sectors to achieve their NDCs. Though the waste sector emits less Green House Gases (GHG) compared to other sectors such as energy, agriculture and land-use change, it offers enormous opportunities of emission reduction and job creation for the populace. Côte d'Ivoire committed to reduce 28% of its GHG emissions by 2030 with 2% from the waste sector, and Senegal committed to reduce 13% of its total emission by 2030 with 50% from the waste sector. Both countries have targeted compost and biogas as means to fulfil their commitments. However, the pathways to achieve these targets in the waste sector are not clearly defined in their NDCs. There is a policy gap on compost and biogas development which need to be addressed. Furthermore, like other countries in the region, there is a lack of Monitoring, Reporting and Verification (MRV) system in place to track actions under the NDCs for transparency as requested by the Paris Agreement. MRV is a concept which allows tracking progress towards climate change-related targets and steer mitigation actions so that the targets can be achieved. MRV systems are key elements to guarantee transparency, precision and comparability on climate change information.

With the support from the Government of Canada, through Environment and Climate Change Canada, and UNEP and SEI's support, Côte d'Ivoire and Senegal (through their Ministries of Environment and Sustainable Development) are addressing these challenges by developing national compost and biogas strategies for 2020 – 2030. Concrete biogas and compost plants are planned to be installed in Abidjan and Dakar for GHG emission reduction. The "Support to the implementation of National Determined Contributions (NDCs) in the waste sector in Côte d'Ivoire and Senegal" project aims also to assist countries to setup a MRV system for the Waste sector and share that experience across the ECOWAS region. To this end, the workshop had two objectives:

- To share experiences gained in Côte d'Ivoire and Senegal with other ECOWAS Member States on the implementation of NDCs in the waste sector;
- To gain experience from Burkina Faso and Madagascar on the implementation of projects related to waste management and resource recovery;
- Train national experts from Côte d'Ivoire and Senegal on how to configure, implement and monitor an MRV system for the waste sector.

The experience-sharing and training workshop on the MRV system was a great success in view of the number of participants (e.g. - more than 30 participants from various sectors including development partners, sub-regional organizations, governmental organization, private sector, CSOs, NGOs, media for the workshop - and nearly 20 participants for the training); the representation of the research and development partners, in particular, the Government of Canada, UNEP and SEI; the quality of the contributions and recommendations

resulting from the technical sessions, and strong local government support, through the presence of the Director of Cabinet of the Minister of Environment and Sustainable Development in Cote d'Ivoire and representatives from the Climate Change Directorate. This workshop report presents the proceedings of the two-day experience sharing workshop and the three-day training.

1. Session 1: Experience sharing workshop on the implementation of the Nationally Determined Contributions in the waste sector (17-18 February 2020)

1.1. Opening remarks

In her opening remarks, Mrs. Angèle LUH, Head of the UNEP West Africa Office, acknowledged the support of the Government of Canada, emphasized the mission of UNEP to countries and reiterated the commitment of UNEP in the implementation of the project. Mr. Franck PORTALUPI, Environment Manager at Environment and Climate Change Canada, commended efforts made by Côte d'Ivoire and Senegal in the implementation of NDCs in the waste sector and highlighted the overall objectives of the Government of Canada's support to African States particularly, Côte d'Ivoire and Senegal. Mr. Franck PORTALUPI reiterated the technical and financial commitment of the Government of Canada to Côte d'Ivoire and Senegal in the implementation of their NDCs in the waste sector and called on the actors involved to take ownership of MRV systems as a guarantee of transparency in climate action but also to mobilize financial resources from other financial partners, stating that *"MRV is the key to the implementation of NDCs if we want to go further. Efforts to reduce GHGs must be justified for the purpose of assessing initiatives to support the global effort to reach 2°C or even 1.5°C"*.

Mr. Bernard KOFFI, representative of the Economic Community of West African States (ECOWAS) Commission, thanked the Canadian Government for the technical and financial assistance to the Community of West African States. He presented the prospects for harmonization of environmental policies in the context of climate change and the NDCs. He reassured technical and financial partners of the ownership of the initiatives put in place regarding MRV.

Finally, Mr. François KOUABLAN, Director of Cabinet of the Minister of Environment and Sustainable Development, welcomed and thanked the support for climate action from the Government of Canada, through Environment Climate Change Canada and the Stockholm Environment Institute (SEI) provided to Côte d'Ivoire and Senegal. He emphasized the merits of the project, Côte d'Ivoire's commitment to reduce its GHG emissions by 28% by 2030 and the need for inclusive actions supported by a conducive, dynamic, operational and transparent institutional framework for effective climate action in Côte d'Ivoire and Senegal. Thanking the technical and financial partners, the Director of Cabinet of the Minister of the Environment of Cote d'Ivoire expressed the gratitude to Governments of Côte d'Ivoire and Senegal on the project progress and called for increased commitments.

Mr. François KOUABLAN noted that: *"This project has thus enabled Côte d'Ivoire to have a clear vision in terms of organic and energy recovery of waste. Indeed, thanks to this project, Côte d'Ivoire now has a National Strategy for the Development of Composting and Biogas. Senegal has made similar progress and intends to continue implementing the project. All these achievements of this project demonstrate a clear political will of the Ivorian and Senegalese Governments and their determination to work firmly to strengthen climate action. We must, however, recognize that we still have a lot to do to meet the requirements of the project's financial partner, in this case the Canadian Government"*. These words of thanks and guidance marked the opening of the regional workshop for sharing experiences on the implementation of NDCs and training on MRV system in the waste sector.



Figure 1: From left the right: Bernard KOFFI, representative of ECOWAS; Angèle LUH, Head of the UNEP West Africa Office; François KOUABLAN, Director of Cabinet of the Minister of Environment and Sustainable Development in Cote d'Ivoire and Franck PORTALUPI, Manager at Environment and Climate Change Canada. Photo credits: UNEP/SEI



Figure 2: Dr. Rocio A. Diaz-Chavez, Deputy Africa Centre Director, Research, Energy and Climate Change Programme Leader, Stockholm Environment Institute. Photo credits: UNEP/SEI

1.2. Presentation of the overall objectives of the project and the expected results & prospects

Mr. Franck PORTALUPI, from Environment Canada, first presented the “Support Project for the Implementation of Nationally Determined Contributions (NDCs) in the waste sector in Côte d'Ivoire and Senegal” project. The project aims to assist the two countries to implement their NDCs in the waste sector by supporting the development of policy measures and capacity building to facilitate emission reduction in the waste sector. The project also aims to assist countries to establish an MRV system for the waste sector and to share this experience in the ECOWAS region.

This project is an instrument for mobilizing parties for climate action, as part of Canada's international cooperation, which focuses on the following priorities: (i) Sensitize all parties (Governments, local and regional authorities, private sector, civil society) to develop innovative initiatives in the waste sector; (ii) Mobilize technical and financial partners and focus on the involvement of the private sector, (iii) set up a MRV system; and (iv) facilitate regional dialogue and regional partnerships. This will be achieved through South/South collaboration, capacity building and sharing of experiences with the rest of African countries.

Frank then gave the context of the Canadian government's support for Côte d'Ivoire and Senegal, within the framework of this international cooperation. First, it is important to note that Côte d'Ivoire and Senegal, both States Parties to the United Nations Framework Convention on Climate Change, have identified waste as one of the key sectors for achieving their Nationally Determined Contributions (NDCs) under the Paris Agreement.

Côte d'Ivoire and Senegal have identified waste as one of the key sectors to achieve their NDCs. Though the waste sector emits less Green House Gases (GHG) compared to other sectors such as energy, agriculture and land-use change, it offers enormous opportunities of emission reduction and job creation for the populace.

However, the pathways to achieve these targets in the waste sector are not clearly defined in their NDCs. There is a policy gap on compost and biogas development which need to be addressed. Furthermore, like other countries in the region, there is a lack of Monitoring, Reporting and Verification (MRV) system in place to track actions under the NDCs for transparency as requested by the Paris Agreement. MRV is a concept which allows tracking progress towards climate change-related targets and steer mitigation actions so that the targets can be achieved. MRV systems are key elements to guarantee transparency, precision and comparability on climate change information.

The project has four components:

- Component 1: Strengthening the policy framework to reduce GHGs and short-lived climate pollutants (SLCPs) in the municipal solid waste sector
- Component 2: Strengthening technical and operational capacities for monitoring, reporting and data verification in the waste sector
- Component 3: Provide technical assistance to countries for the installation and operation of the biogas and compost plant
- Component 4: Coordination, reporting and sharing of experiences

To support the implementation of the project, the Government of Canada, through Environment and Climate Change Canada, allocated financial resources to UNEP which in turn partnered with SEI to support project implementation.



Figure 3: Franck PORTALUPI, Environnement Changement Climatique Canada. Photo credits: UNEP/SEI

1.3. Experiences from Senegal

National Integrated Municipal Solid Waste Strategy

Mrs. Estelle Ndour, a representative from the Solid Waste Management Coordination Unit, presented the National Integrated Municipal Solid Waste Management Strategy developed to fulfill Senegal's commitments. The experiences from Senegal shared with other countries revealed remarkable innovations both in the process of mobilization of actors (strong institutional anchorage) and the mobilization of technical and financial resources.

The Strategy focuses on five strategic orientations:

- **Legal and financial reforms:** these reforms have enabled the country to adopt a guiding law and to issue decrees, orders, directives and guidelines for its implementation. Also, this strategy considers an innovative financing mechanism.
- **Development of circular waste economy:** for its development, several infrastructures will be set up and functional. These include a Standardized Waste Collection Point, waste collection and marketing Centre, Integrated Waste Recovery Centre, the acquisition of equipment and the implementation of a project to support community actors in waste management.
- **Improvement of solid waste management systems:** in view of the weakness of the systems, capacities and lack of means, a program for promoting cleanliness, an Operational Waste Management Plan (POGD) and the Urban Solid Waste Management Program (PGDSU DAKAR) have been put in place.

- Participatory, inclusive and responsible management: the country intends to implement a project on Education and Promotion of Eco-responsible Practices in Waste Management (EPWP / GD), develop a training plan and a communication strategy and Social Marketing.
- Efficient governance of the waste sector: given the lack of data and the growing number of actors, the country will implement strategic partnerships and put in a mechanism for monitoring and evaluation.



*Figure 4: Mrs. Estelle Ndour, a representative of the Solid Waste Management Coordination Unit.
Photo credits: UNEP/SEI*

NDC of Senegal in the waste sector

Mr. Idrissa DIATTA, project focal point in Senegal, Solid Waste Management Coordination Unit, noted that Senegal ratified the Paris Agreement in September 2016 and committed to reduce its total emissions by 13% by 2030 with a 50% contribution from the waste sector. This ambition will be achieved through mitigation measures in energy, transport, waste, industries, agriculture and forestry sectors. He noted that the main sources of emissions in the waste sector include disposal of solid waste in landfills, dumpsites and open burning of waste.

The Country has established an institutional framework to support the implementation of the Climate Conventions comprising the Directorate of Environment and other designated institutions (e.g. UNFCCC Focal Point, Designated National Authority (DNA) for the CDM and Green Climate Fund Focal Point), National Agency for Civil Aviation and Meteorology (ANACIM)- IPCC Focal Point, the Centre for Studies and Research on Renewable Energies - Designated National Entity for Technology Transfer-, National Committee for Climate Change and Regional Committee for Climate Change).

Biogas and compost strategy in Senegal

Finally, Idrissa gave an overview of the National Waste Management Program (NWMP) through which a situation analysis of the organic waste sector was conducted to assess the regulatory, institutional, organizational (actors of the sector), technical (sources of waste) and technological (equipment and infrastructures) frameworks and the economic and social framework (markets). Based on the analysis, the country has developed a strategic framework for biogas and compost development focusing on the regulatory, organizational and normative framework, development of infrastructures and equipment, strengthening technical systems, training, R&D and community development, communication and awareness raising. He also presented the financing mechanism of the NWMP.



Figure 5: Mr. Idrissa DIATTA, project focal point in Senegal. Photo credits: UNEP/SEI

1.4. Experiences from Côte d'Ivoire

NDC of Côte d'Ivoire in the waste sector

Mr. TIANGOUA Koné, project focal point in Cote d'Ivoire, Climate Change Directorate, noted that Côte d'Ivoire ratified the United Nations Framework Convention on Climate Change and the Paris Agreement. Côte d'Ivoire committed to reducing its GHG by 28% by 2030 in its DNC. There are 5 main emitting sectors in the country: Energy (59.0%), Agriculture (31.3%), Waste (8.5%), Industrial Processes (1.2%) and Transport. To achieve, its commitment, the Government has taken concrete measures in these sectors including: smart agriculture and zero deforestation; 15% renewable energies in the energy mix by 2020, 20% by 2030; promotion of waste recovery and recycling. Concrete biogas and compost plants are planned to be installed in Abidjan. The country has also set up an institutional and regulatory framework to operationalize the Paris Agreement.

Tiangoua also gave an overview of the waste sector and existing solid waste management initiatives. He recalled that Côte d'Ivoire, an agricultural country, produces annually about 4 to 8 million tons of agricultural residues, most of which are not yet recycled or recovered. To these quantities should be added household waste from cities and towns. For example, Abidjan with a population of about 5 million inhabitants produces each year about 1,250,000 tons of waste. These large quantities of agricultural and household waste pollute the air and the environment through emission of unpleasant odours and hazardous waste deposits, as well as large quantities of GHG, in particular, methane (CH₄) and carbon dioxide (CO₂).

Policy on biogas and compost in Côte d'Ivoire

To reduce emissions in the waste sector and promote circular economy, Cote d'Ivoire recently developed National Biogas and Compost policies for 2020-2030. The Compost Policy 2020-2030 comprises six (6) strategic orientations: Strengthen the institutional and regulatory framework related to waste management and composting; develop waste sorting and recovery systems; establish a legal framework related to the production of compost; create a value chain around compost; capacity building of actors involved in the sector and; financing for the implementation of the national composting strategy by encouraging investments and incentive taxes.

Likewise, the National Biogas focuses on five orientations: 1) strengthening the legal and institutional framework; 2) technical and organizational aspects; 3) strengthening technical capacity; 4) financing; 5) planning, implementation, monitoring and evaluation of biogas production chains.

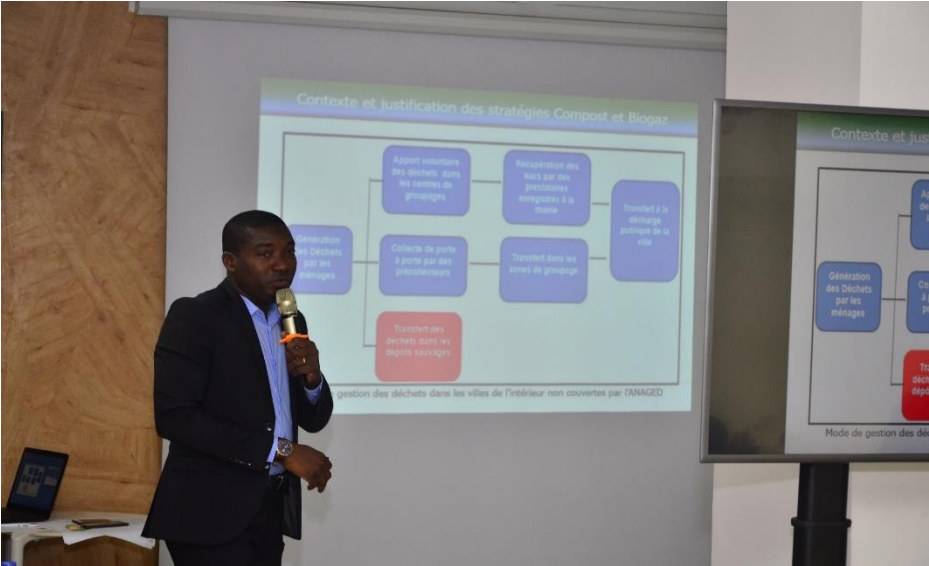


Figure 6: Mr. TIANGOUA Koné, project focal point in Cote d'Ivoire. Photo credits: UNEP/SEI

1.5. Status of NDC implementation by ECOWAS Member States

Mr. Bernard KOFFI noted that ECOWAS, through its 15 Member States, has adhered to the Paris Agreement (Agenda 2030) to address climate change and to achieve the objective of keeping the global temperature at 2°C or even 1.5°C. This commitment has been translated into the implementation of policies and programs. These include an environmental policy, an ECOWAS agricultural policy, a sub-regional action program to combat desertification, a strategic program to reduce vulnerability and adapt to climate change in West Africa, Strategies for the management of chemical products and hazardous waste, an integrated plan for the management of chemical products and hazardous waste and a climate strategy which is currently being developed.

All the countries have anchored the NDCs at the level of the Ministry of the Environment, sometimes supported by a specific steering platforms (Togo, Senegal, Nigeria, Niger, Mali, Côte d'Ivoire) including non-governmental actors. These NDCs have been translated into public policies - or integration of the NDC into existing sectoral policies - and laws. He noted, however, the role of local governments is not always clearly defined.

Regarding the status of implementation, operational roadmaps have been defined by some countries (e.g. Nigeria, Mali and Côte d'Ivoire, Etc.) with a clear division of roles and responsibilities. The implementation of the NDCs in the ECOWAS space is facilitated by its governance, through the establishment of an Institutional, legislative and regulatory framework and the implementation of operational actions with a MRV system, the development of a common database for the member states (Data collection); and a strategy to mobilize funding through innovative tools such as green bonds or the CDM and the private sector.

To date, it should be noted that the implementation of NDCs at the ECOWAS level requires additional efforts, capacity building of member countries; capitalization on past capacity building initiatives - in particular the development of NDCs; contribution to the harmonization of the NDC review framework in order to facilitate regional transparency and comparability; emission calculation methodologies adapted to West Africa, guidelines for NDC cost estimates; and MRV manual adapted to the local context.

For its regional outlook, ECOWAS intends, among other things, to:

- Combine efforts to create synergies, for example on matters to data acquisition, processing and analysis, but also on "niche" subjects that cannot be dealt with at the national level (research);
- Combine efforts to foster regional political leadership, in particular regarding climate negotiations but also access to climate financing.
- Creation of knowledge/exchange platforms to strengthen regional solidarity;
- Use the Commission's regulatory mechanism to suggest (directives) or impose (regulations) changes towards low-carbon development paths;
- Assist, at the request of country members, at the national level to translate regional orientations into national public policies or regulatory frameworks.



Figure 7: Bernard KOFFI, representative of ECOWAS Commission. Photo credits: UNEP/SEI

1.6. Experiences from Burkina Faso: National Biodigester Program of Burkina Faso (PNB-BF)

Mr. Xavier BAMBARA, a representative of Alliance for Biodigester in West and Central Africa (AB/AOC), presented the Biodigester Program in Burkina Faso to promote the use of biogas. The Program was established following the recommendation from the World Summit on Sustainable Development in Johannesburg in 2002: "to develop technologies that are adapted and provide solutions to the concerns of the populations, which are poverty, food insecurity, sustainable management of natural resources and sustainable access to energy". The Program, which is operational since 2009, was developed through a participatory and inclusive approach and has yielded positive results including:

- Development of a FasoBio-15 biodigester model
- Achievement as of September 30, 2019: 13,100 domestic biodigesters and 01 institutional biodigesters of 40 m³ at MACO;
- 14 Biodigester Construction Enterprises (ECB);
- Development of an ECB model;
- Registration of the PNB-FB to the CDM in September 2014;
- Validation by the UNFCCC of 44,000 certified emission reductions units;
- Development of good practices for the use of effluent / compost;

- Program technical assistance to countries (Mali, Niger, RCI, Guinea, Benin, Ethiopia, Kenya); etc.

Mr. Xavier also presented the Alliance for Biodigester in West and Central Africa (AB/AOC), which was set up following the first International Conference on Biodigester Technology organized in 2017 by the Government of Burkina Faso. Eleven countries (Benin, Burkina Faso, Cameroon, Chad, Côte d'Ivoire, Guinea, Guinea Bissau, Mali, Niger, Senegal and Togo) and inter-African and international organizations attended the conference.

According to the declaration of Ouagadougou 1, a mandate was given to Burkina to develop draft texts needed for the establishment of a regional body for the promotion of biodigester technology.

Three countries including Burkina Faso, Guinea and Mali have ratified the convention. This regional workshop was an opportunity to deepen discussions on the ratification of Côte d'Ivoire and Senegal and countries such as Benin, Niger, and Togo (ongoing process).

Mr. Xavier emphasized that one of the main challenges of the AB/AOC has been to gather three additional ratifications in order to implement the convention by November 2019.

The main mission and activities of the AB/AOC include: i) providing technical support to countries through information sharing and support to the mobilization of technical assistance; ii) organizing of periodic meetings of the Ambassadors of the AB/AOC countries. and iii) fundraising.



Figure 8: Mr. Xavier BAMBARA, a representative of Alliance for Biodigester in West and Central Africa (AB/AOC). Photo credits: UNEP/SEI

1.7. Experiences from Madagascar: Support to public and private waste management services in Madagascar

Virginia Careri, Lead at [NGO WELTHUNGERHILFE](#) in Madagascar, presented the experience of North/South cooperation between the German Cooperation, through the NGO WELTHUNGERHILFE, and the City of Toliara in Madagascar on integrated municipal waste management. Based on a participatory and inclusive approach, the 'Support to public and private waste management services in Madagascar' project established a Centre for waste storage and resource recovery of 5ha and has achieved the following:

- 4 landfill ponds for an estimated life span of 15 years.
- 6 Value chains: organic (compost), plastic (paving stones and bricks), green waste (briquettes), cardboard (bricks), scrap metal and sandals (gross sales).
- 45 polycrystalline solar panels of 300 W (13.500 watt) with an average daily output of about 65 KW
- More than 100 job opportunities created in the city for waste sorting and recovery.

To this day Toliara is a cleaner site returned to its owners and is no longer considered the "stinking part" of the city. Other positive changes include the decrease of prevalence of infectious diseases; the improvement of the tourism sector, compliance with hygiene measures and population behavior change.



Figure 9: Virginia Careri, Lead at NGO WELTHUNGERHILFE in Madagascar. Photo credits: UNEP/SEI

1.8. CCAC Waste Initiative

Mr. Franck PORTALUPI, gave an overview of the CCAC Waste Initiative and invited countries, local governments, the private sector and NGOs to sign up. Like Canada, countries joining this global coalition will be required to take action through a series of air pollution regulations that will reduce SLCPs in the major emitting sectors of countries as part of the implementation of their NDCs.

As a founding member of the CCAC, Canada recognizes the importance of reducing SLCPs - including black carbon, methane, ground-level ozone and hydrofluorocarbons - as part of its broader climate change and clean air agenda. Addressing these pollutants is particularly important for Canada's North region, a region that is warming faster than the rest of the world, partly because of black carbon.

1.9. Recommendations

Following the various presentations on the implementation of the NDCs in the waste sector in countries, participants discussed the means to improve waste management policies, to mobilise stakeholders and technical and financial resources, and to operationalize the strategies developed, in order to develop the waste sector, which will ultimately create jobs, improve living conditions of the populations and reduce GHGs. In this regard, the participants stressed the importance of moving towards a new paradigm, adopting the concepts of waste economics; and adapting waste management systems to the new technological tools in order to digitalize the sector. Participants highlighted the dispersion of actions and the lack of involvement of the private sector in the implementation of NDCs in the waste sector.

The key recommendations from the discussions included:

- Invite all stakeholders (States, local authorities, NGOs, etc) to take ownership of Canada's support for the implementation of the NDCs in the waste sector;
- Develop strategies for mobilizing indigenous/domestic financial resources through the effective involvement of the private sector in waste management;
- Create a virtual platform for sharing experiences and strategic documents in the waste sector.
- Aligning national waste management strategies with national and sub-regional policies to facilitate reporting on GHG reductions;
- Develop sustainable cities programs through integrated projects on circular economy.
- Define the gender approach in national strategies for the development of biogas and composting.

2. Session 2: Training on Measurement, Reporting and Verification in the waste sector (19-21 February 2020)



Figure 10: Group photo: Patrick Hardy, Frank Portalupi, Jeanne Koumo (ONG Page Verte) (in orange) and national experts participating in the MRV training. Photo credits: UNEP/SEI

2.1. Training on Measurement, Reporting and Verification (MRV) in the waste sector

The training session for national experts on the MRV system for the waste sector was opened by Mr. Franck PORTALUPI. Franck indicated that training is part of achieving the component 2 of the project. The three-day training was conducted by Mr. Patrick Hardy, Chief Operating Officer of CHECK Climate CHECK Corporation, and focused on seven modules as follows:

Module 1: Introduction to the Basics of GHG MRV

- Key Concepts in GHG Monitoring, Reporting and Verification
- Types of standards, protocols, methodologies and systems for GHG monitoring, reporting and verification
- The use of GHG monitoring, reporting and verification tools differs depending on the user's objectives, use and intended applications.
- Summary of Key Issues in GHG Monitoring, Reporting and Verification Programs

Module 2: Overview of MRV of GHG Inventories

- Why do organizations develop GHG inventories?
- Verifiable GHG Inventories
- Standards available for GHG inventories
- Standard ISO 14064-1
- GHG Inventory Limitations
- GHG Quantification
- Inventory of the reference year
- Documentation, reporting and verification

Module 3: Overview of GHG Project MRV

- Why develop a GHG project?
- Key Concepts for GHG Project Accounting
- GHG Project Cycle
- Existing standards
- Project and Reference Scenario
- GHG Quantification
- Monitoring, reporting and verification

Module 4: Overview of GHG Verification

- Key Concepts - GHG Verification Process
- GHG Verification Process
- Basic Principles of Verification
- Assessment of GHG Controls
- Assessment of GHG data
- Risk Assessment
- Conducting the audit
- Auditor Accreditation

Module 5: Landfill Gas Capture and Disposal

- Overview of Chile's Protocol for Landfill Gas Capture and Disposal
- Project Scenario and Reference Scenario
- Measurement monitoring

- Statement
- Verification

Module 6: The Role of MRV in Carbon Markets

- Overview of Existing Carbon Markets and Regulations and Policies
- Roles of the monitoring, reporting and verification system in these contracts
- The role of monitoring, reporting and verification in climate finance

Module 7: GHG Protocol Adaptation Processes

- Principles for adapting the Protocol
- ICAT Guidelines
- World Bank - METRIC Guidelines
- World Bank - MAAP
- Protocol adaptation process

This session was an opportunity for national experts to address the major issues and challenges they face in monitoring climate actions. Francophone countries are already monitoring climate adaptation actions using early warning systems based on GIS. The training enabled participants to understand the need to also strengthen the GIS for monitoring mitigation actions. It emerged from this session that the mobilization of technical, material and financial resources depends on the capacity of each State to develop and implement MRV systems to justify GHG emissions and evaluate the initiatives of the parties to reduce these emissions for a global temperature of 2°C or even 1.5°C.

2.2. Recommendations

The participants discussed the mechanisms for the development and effective implementation of MRV systems as part of the project to support the implementation of NDCs in Côte d'Ivoire and Senegal in the waste sector. The participants highlighted the challenge of having to deal with multiple measurement tools in NDCs and the lack of local skills in the evaluation of GHG emissions. Participants stressed the need to build the capacities of all stakeholders to help States ensure the traceability of actions for evaluating GHG emissions. Key recommendations include:

- Strengthen capacities of all stakeholders (States, local authorities, NGOs) on MRV systems in the implementation of NDCs - Waste sector;
- Develop a National MRV System to be integrated in the revision of the NDCs.
- Develop a training plan for key stakeholders in the GHG emission sectors on MRV systems
- Establish a regional platform for sharing experience with other countries on the process of developing MRV systems in the waste sector.

3. Conclusion

The experience-sharing on the implementation of NDCs in the waste sector and training workshop on MRV systems in the waste sector was a great success through the active participation of over 30 participants from Côte d'Ivoire, Senegal, Burkina Faso, Madagascar, the ECOWAS Commission, the Government of Canada through Climate Change Environment Canada, UNEP, SEI, local authorities, the private sector and NGOs.

The workshop provided a platform to present the progress on implementation of the project in Senegal and Cote d'Ivoire, the vision and sectoral policies for the promotion of integrated municipal waste management and circular economy, as well as to share good practices and mitigation measures to be considered in the revision of the NDCs of each country.

The Government of Canada reiterated its commitment to increase its collaboration with countries to support the implementation of NDCs in the waste sector in Africa and to assist countries in the implementation of an MRV system for the waste sector and to make it a reference in the ECOWAS region. An invitation was made to the ECOWAS Commission to deepen reflections on the harmonization of environmental and climate change policies in order to monitor the actions of each member State in the implementation of the commitments under the Paris Agreement.

The participants made suggestions to improve national strategies for the development of compost and biogas, carbon market access programs and the creation of competitive value chains that the countries will implement with the support of the Canadian government as part of the project. Also, the accountability and ownership of the private sector to ensure resource mobilization and the sustainability of the projects and programs implemented was emphasized. One of the key recommendations of this session was the setting up of a virtual platform for sharing of strategic documents on the progress of the strategies presented, good practices and major innovations in the implementation of NDCs in waste sector.

A training session was organized on MRV systems for tracking track actions under the NDCs. key recommendations to the Government of Canada were the needed support for capacity building programs on MRV systems and integration into policies and strategies for ECOWAS countries; and support to develop sustainable urban programs through integrated projects for promoting circular economy. At the end of the five days of experience sharing and training, the country representatives expressed their gratitude to the Government of Canada through Environment Climate Change Canada, UNEP and SEI; while reiterating their commitment to enhance their ambitions to reduce GHG emissions as defined in their NDCs.

4. Annex

Annex 1: Workshop and training agenda

Day 1 - 17 February 2020 - Opening ceremony and presentation of the project objectives		
Opening ceremony		
Horaire	Activities	Facilitator
08h00 - 09h00	Participants Registration	ONG Page Verte (Event organiser)
09h00 - 10h00	Opening remarks - Welcome and Introduction (1h) <ul style="list-style-type: none"> - UN Environment (10 min) - Environment and Climate Change Canada (10 min) - ECOWAS (10 min) - Both Ministries of Environment and Sustainable Development (30 min) 	Institution representatives
10h00 - 10h30	Group photo (30 min)	ONG Page Verte
10h30 - 11h15	Press Interviews (Ministry, UN Environment ECCC) – Coffee Break (45min)	Communication Officer
Séances techniques		
11 h 15 - 12 h 30	Session 1: Presentation of the overall project objectives and expected results & perspectives (1h15) Presentation 1: Integrated municipal solid waste strategy of Senegal	Frank PORTALUPI, ECCC
12h30 - 13h00	Q&A - Discussions (30min)	Dr Tiangoua KONE
13h00 - 14h15	Lunch	ONG Page Verte
14h15 - 16h15	SENEGAL (2h) <ul style="list-style-type: none"> - Presentation 2: Senegal's NDC in the waste sector - Presentation 3: Biogas and compost strategy in Senegal 	Xavier Bambara, Alliance pour le Biodigesteur en Afrique de l'Ouest et du Centre (AB/AOC)
16h15 –17h00	Q&A - Discussions (30min)	Dr Tiangoua KONE
Day 2 - 18 February 2020 – Technical session		
09h00 - 9h15	Welcome (15min) <ul style="list-style-type: none"> - Summary of Day 1 	Dr. Rocio A. DIAZ-CHAVEZ, SEI
09h15 - 11h15	COTE D'IVOIRE (2h) <ul style="list-style-type: none"> - Presentation 4: Cote d'Ivoire NDC In the waste sector - Presentation 5: Biogas and compost Policy/strategy in Cote d'Ivoire 	Xavier Bambara, Alliance pour le Biodigesteur en Afrique de l'Ouest et du Centre (AB/AOC)

11h15 - 12h00	Q&R - Discussions (45min)	Dr KONE Tiangoua
12h00 - 13h30	Lunch	ONG Page Verte
13h30 - 14h30	ECOWAS (30min) - Presentation 6: Status of NDC implementation in ECOWAS countries BURKINA FASO (15min) - Presentation 7: National Biodigester Program of Burkina Faso (PNB-BF) MADAGASCAR (15min) - Presentation 8: Support to public and private waste management services	Frank PORTALUPI, ECCC
14h30 - 15h00	CCAC Waste initiative (30min) - Presentation 9: Opportunities to scale up the development of NDC implementation plans in the waste sector through dissemination of best practices and South-South Cooperation. – Franck Portalupi	
15h00 - 16h00	Discussions and Q&A – Opportunities for Private sector engagement in waste Management	
16h00 - 17h00	Discussions and Q&R – Wrap up (1h)	

Day 3– 19 February 2020 – Monitoring, Reporting and Verification (MRV) Training for the waste sector

Horaire	Activities	Responsible
9h00 – 10h00	Opening Remarks - UN Environment (15 min) - Environment and Climate Change Canada (15 min) - Both Ministries of Environment and Sustainable Development (30 min)	Tiangoua Koné (MC) Franck Portalupi
10h00 – 10h40	Overview of MRV Fundamentals - Introduction to GHG MRV - MRV Program Overview	ClimateCHECK (Trainer) Franck Portalupi (Facilitator)
10h40 – 11h00	Break	
11h00 – 12h00	Overview of GHG Inventory MRV - Why develop GHG Inventories? - Key Concepts - GHG Inventory Boundaries - GHG Quantification - Base Year Reporting and Verification	ClimateCHECK (Trainer)
12h00 – 13h30	Lunch	
13h30 – 15h00	Overview of GHG Project MRV	ClimateCHECK

	<ul style="list-style-type: none"> - Why Develop a GHG Project - Key Concepts - GHG Project Cycle - Project and Baseline Scenario - GHG Quantification - Monitoring, Reporting and Verification 	(Trainer) Franck Portalupi (Facilitator)
15h00 – 15h20	Break	
15h20 – 16h00	Discussion and Q&A	

Day 4 - 20 February 2020 - Monitoring, Reporting and Verification (MRV) Training for the waste sector

Hours	Activities	Responsible
9:00 – 10:30	Overview of GHG Verification <ul style="list-style-type: none"> - Key Concepts - GHG Verification Process - GHG Verification Process - Verification Fundamentals - Assessing GHG Controls - Assessing GHG Data - Assessing Risks - Performing the Verification - Accreditation of Verifiers 	ClimateCheck (Trainer) Franck Portalupi (Facilitator)
10:30 – 10:50	Break	
10:50 -12:00	Carbon Markets & MRV Systems <ul style="list-style-type: none"> - Overview of existing Carbon Markets and Regulations, Policies - Roles of MRV System within these markets 	Patrick Hardy (Trainer)
12:00 – 13h30	Lunch	
13h30 – 15h00	Carbon Markets & MRV Systems <ul style="list-style-type: none"> - Role of MRV Systems within Climate Finance - Offsets - GHG Quantification Methodologies 	ClimateCheck (Trainer) Franck Portalupi (Facilitator)
	GHG Waste Sector Quantification Methodology <ul style="list-style-type: none"> - LFG Methodology Case Study 	
15h00 – 15h20	Break	
15h20 – 16h00	Discussion and QA	

Day 5 - 21 February 2020 - Monitoring, Reporting and Verification (MRV) Training for the waste sector

Hours	Activities	Responsible
9:00 – 10:30	GHG Waste Sector Quantification Methodology (con't) <ul style="list-style-type: none"> - LFG Methodology Case Study 	ClimateCheck (Trainer) Franck Portalupi (Facilitator)
10:30 – 10:50	Break	
10:50 -12:00	GHG Methodology Development Process <ul style="list-style-type: none"> - Waste Methodology in Chile 	Patrick Hardy (Trainer)

Annex 2: List of presenters/speakers

Session	Presenters/Speakers	Contacts
Keynote speeches	Koné TIANGOUA, project focal point in Cote d'Ivoire, Climate Change Directorate	tiangoua.kone@yahoo.fr
Opening remarks	Angèle LUH, Head of the UNEP West Africa Office	angele.luh@un.org
	Franck PORTALUPI, Manager Environnement Changement Climatique Canada (ECCC)	franck.portalupi@canada.ca
	Bernard KOFFI, ECOWAS	bernard.koffi2016@gmail.com
	François KOUABENAN, Director of Cabinet of the Minister of Environment and Sustainable Development in Cote d'Ivoire	conseillerkouablan@gmail.com
Experience sharing session	Idrissa DIATTA, project focal point in Senegal, Solid Waste Management Coordination Unit	idrissadiatta@gmail.com
	Estelle NDOUR, Solid Waste Management Coordination Unit	pod.estelle.ndour@ucg.gouv.sn
	Koné TIANGOUA, project focal point	
	Xavier BAMBARA, Alliance for Biodigester in West and Central Africa (AB/AOC)	xavierbambara@ab-aoc.org
	Virginia Careri, NGO WELTHUNGERHILFE	virginia.Careri@welthungerhilfe.de
Training Session	Patrick Hardy, Manager Climate CHECK	pat@climat-check.com

Annex 3: List of participants

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Annex 4: Additional photos



Figure 12: ONG Page Verte team. Photo credits: UNEP/SEI



Figure 11: Workshop participants interacting during the coffee break. Photo credits: UNEP/SEI



Figure 13: National NDC experts attending the MRV training. Photo credits: UNEP/SEI