



REPUBLIC OF CÔTE D'IVOIRE

NATIONAL ACTION PLANNING DOCUMENT FOR THE REDUCTION OF SHORT-LIVED CLIMATE POLLUTANTS (SLCP)

SUMMARY

2019





FOREWORD

It is now recognized that air quality and climate change are two closely related issues. Indeed, the sources of emissions of air pollutants and greenhouse gases are often the same. Thus, the planning of actions for the joint reduction of short-lived climate pollutants (SLCP) and long-lived climate pollutants such as carbon dioxide (CO₂) has attracted the attention of the international community through forums such as the Climate and Clean Air Coalition (CCAC). The joint reduction of these pollutants represents a large opportunity for our countries to reconcile short-term development objectives with long-term sustainability aspirations. Reducing short-lived climate pollutants, in particular black carbon and methane, would, according to scientific estimates, slow global warming by 0.6°C by 2050, prevent more than 3 millions premature deaths and the loss of 52 million tonnes of agricultural yields per year.

Since Côte d'Ivoire does not wish to be on the sidelines of efforts to meet these challenges, in 2009 it adopted the Abidjan Agreement for the Improvement of Air Quality in Central and West Africa. In addition, since 2013, our country has been working within the CCAC to achieve the

objectives of the Coalition, in particular to improve scientific knowledge on short-lived climate pollutants. The outcome of this commitment is reflected in this planning document, the conclusions of which will be used to advance the Coalition's work in the context of the African Regional Assessment on Short-Lived Climate Pollutants.

The findings of the assessments conducted as part of the national action planning process on SLCPs suggest that there is potential for a significant reduction in emissions of black carbon, methane and other air pollutants in Côte d'Ivoire. The health and climate benefits of these reductions are enormous. This represents nearly 2200 premature deaths prevented and about 20% reduction in greenhouse gas emissions by 2030.

These results are of strategic importance for planning in the different development sectors in Côte d'Ivoire. This is why taking them into account in the preparation of the next national development plan and strengthening the ambition of our Climate Change Commitment (Nationally Determined Contribution) through the upcoming revision is a priority for us.

Finally, the action plan to reduce short-lived climate pollutants in Côte d'Ivoire represents an example of successful collaboration between national and international experts, but also and above all a step forward in integrating the results of science into decision-making processes, particularly in terms of co-governance on air quality and climate, a guarantee of healthy and sustainable development.



A handwritten signature in black ink, consisting of several fluid, overlapping strokes that form the name 'Joseph Séka SEKA'.

Joseph Séka SEKA
Minister of the Environment
and Sustainable Development

PREFACE & ACKNOWLEDGEMENTS

Preface

This national action planning document for the reduction of short-lived climate pollutants (SLCP) is the result of collaboration between UN Environment and the Ministry of Environment and Sustainable Development (MINEDD) as part of the work programme of the Coalition for Climate and Clean Air (CCAC). This effort was also supported by the coalition's leading partners in the Supporting National Action Planning (SNAP) Initiative, including the Stockholm Environment Institute (SEI) and the International Union of Air Pollution Prevention and Environmental Protection Associations (IUAPPA). The team responsible for developing this plan worked with key stakeholders from the energy, transport, waste management, agriculture, oil & gas, civil society organizations, the private sector and the scientific research community.

The SLCP planning document represents one of the first national assessments of air pollutant emission levels and the expected benefits of air pollutant emission control measures in Côte d'Ivoire. As such, it constitutes a major step forward in air quality management and air pollution control planning. As a national entity that facilitated the implementation of this project and whose main mission is to monitor the environmental matrices of water, soil and air, the Ivorian Anti-Pollution Centre (CIAPOL) would like to welcome the progress made in this evaluation, which demonstrates our commitment to using these results for the implementation of air quality management policies at the national level.

Acknowledgements

The Ministry of Environment and Sustainable Development through the Ivorian Anti-Pollution Centre would like to express its deep gratitude to the Climate and Clean Air Coalition (CCAC) for initiating this major project to reduce short-lived climate pollutants in order to contribute to reducing global warming and improving air quality.

We would like to thank the Stockholm Environment Institute (SEI) team, Dr. Johan Kuylenskierna, Dr. Harry Vallack, Dr. Taylor Binnington, for their scientific and technical support in conducting this evaluation. Special thanks to Dr Chris Malley for his continued assistance in the formulation and implementation of the analysis of emission trajectories for the reduction of SLCPs in Côte d'Ivoire.

We would also like to thank Mr Richard Mills, Director General of the International Union of Air Pollution Prevention and Environmental Protection Associations (IUAPPA), for his contributions in guiding this evaluation and making recommendations to policy makers.

Our acknowledgements go to the coordinators of the SNAP initiative, Elsa Lefèvre of the Secretariat of the Coalition for Climate and Clean Air (CCAC) and Mr. Kouadio Désiré N'Goran of the UNEP Regional Office for Africa, for all their advice and participation in the preparation of the plan.

We also thank the steering team with Professor KOUADIO Kouame Georges (Former CCAC National Focal Point), Professor YAPO Ossey Bernard (Head of the Lab at Ivorian Anti-Pollution Centre), Professor BOUO Bella Djezia François Xavier (Lecturer at Nangui Abrogoua University), Dr ASSAMOI Éric-Michel (Director of Climate Change), Dr BITTY Marie Joseph (Director of Health Facilities and Professions), Dr KOFFI Claude (Deputy Director at the Directorate of Public Hygiene and Health-Environment), Mr KOYA Jean-Claude (Technical Advisor at the Ministry of Planning and Development), Mr KOUADIO Kirine Jean-Rock (Head of Environment at Chamber of Trade and Industry), Mr SAHODE Kobenan Guillaume (Head of Department at National Waste Management Agency), Mr DOGO Claude (Head of Environment Department at Abidjan Autonomous District).

Special recognition to the entire team of national experts headed by Prof YOBOUE Véronique, from the Laboratory of Atmospheric Physics and Fluid Mechanics (LAPA-MF), Dr KOUAME Kouadio from the Health and Environment Department of Pasteur Institute of Abidjan, who have demonstrated their ability to surpass themselves in order to achieve this crucial contribution. We are also grateful for

the contributions of the junior consultants, Mr. AKOSSI Oreste Santoni from the Directorate of Climate Change, and Miss ATTEMENE Pauline, from the WASCAL network (West Africa Science Service Centre on Climate Change and Adapted Land Use).

The Ministry of Environment and Sustainable Development gratefully acknowledges the efforts of all stakeholders, particularly those who have made activity data available. These include the National Waste Management Agency (ANAGED), the Ministry of Energy, the Ivorian Oil Operation Company (PETROCI), the Ministry of Transport, the Vehicle Importation Authority (GIUA), the Ministry of Agriculture, the National Rice Development Agency (ADERIZ).

We would like to conclude by thanking all the administrative and technical staff of the Ivorian Anti-Pollution Centre as well as all those who have contributed in one way or another to the conceptualization, preparation and success of the national action planning document for the reduction of short-lived pollutants in Côte d'Ivoire.



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Short-lived climate pollutants and opportunities for their reduction

The degradation of air quality is undoubtedly one of the major environmental challenges of the coming decades. Indeed, the socio-economic development of Africa in general and the West African sub-region in particular is increasing the quantities of pollutants released into the atmosphere. According to the World Health Organization (WHO), air pollution is now the greatest environmental health risk with more than eight (8) millions premature deaths worldwide in 2014. In 2017, an estimated 670,000 premature deaths in Africa were linked to exposure to air pollution, including about 13,000 in Côte d'Ivoire. These alarming WHO statistics highlight the need for urgent action to eradicate this threat in order to maximize the benefits for our populations and the development of our respective countries.

At the same time, climate change is already affecting vulnerable populations and ecosystems around the world, leading to crop yield losses, regional climate change and increased ecosystem damage from extreme weather events, in addition to the premature deaths mentioned above (UNEP, 2016). Recently, the Intergovernmental Panel on Climate Change (IPCC) warned that the time available to take action to achieve the global temperature targets set out in the Paris Agreement is very short and that immediate action is needed¹. The problems of air pollution and climate change are closely linked, as some air pollutants also have effects on climate and the sources of greenhouse gas emissions and air pollutants are often the same. Therefore, identifying strategies that can simultaneously mitigate them could generate substantial benefits.

In 2011, a group of pollutants with a much shorter atmospheric lifetime (from days to a decades) and a significant influence on global warming, were identified as Short-Lived Climate Pollutants (SLCP). The main SLCPs are Black Carbon (BC), Methane (CH₄), Ground-level ozone (O₃) and some Hydrofluorocarbons (HFCs). The main feature of SLCPs is their short lifespan, so the development of mitigation strategies for these pollutants, in addition to reducing their emissions, can provide immediate benefits by slowing global warming in the short term while reducing air pollution.

Scientific studies² indicate that the rapid and large-scale implementation of SLCP control measures at the global level could provide short-term benefits for climate protection, human health, food and energy security. The expected overall benefits would allow:

- reducing global warming by 0.6°C by 2050;
- to slowing the rate of sea-level rise by about 20% by 2050;
- reducing disruptions to weather patterns;
- preventing 2.4 million premature deaths per year due to air pollution;
- avoiding the loss of 52 million tonnes of crops (wheat, maize, rice, soya) per year.

These benefits will be widely felt locally, which means that countries that take action to reduce their SLCP emissions will directly experience the benefits, in terms of air quality, agricultural yields and public health.

¹IPCC, 2018: Summary for Policymakers. In: Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty [Masson-Delmotte, V., P. Zhai, H.-O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J.B.R. Matthews, Y. Chen, X. Zhou, M.I. Gomis, E. Lonnoy, T. Maycock, M. Tignor, and T. Waterfield (eds.)]. World Meteorological Organization, Geneva, Switzerland, 32 pp

²UNEP (2011) Near-term Climate Protection and Clean Air Benefits: Actions for Controlling Short-Lived Climate Forcers, United Nations Environment Programme (UNEP), Nairobi, Kenya, 78pp.
UNEP/ WMO (2011) Integrated Assessment of Black Carbon and Tropospheric Ozone: Summary for Decision Makers. UNON/Publishing Services Section/ Nairobi, ISO 14001:2004. Available from: <http://www.unep.org/dewa/Portals/67/pdf/BlackCarbon_SDM.pdf>.

National Action Plan for the Reduction of Short-Lived Climate Pollutants

Understanding the challenges related to air pollution caused by economic development, Côte d'Ivoire joined several conventions and coalitions at the international level, including the United Nations Framework Convention on Climate Change (UNFCCC) and the Climate and Clean Air Coalition (CCAC). This awareness has also emerged at sub-regional level with the adoption in 2009 of the Abidjan Agreement, a regional framework agreement for improving air quality in West and Central Africa.

In light of these commitments, Côte d'Ivoire has embarked on a major project to reduce the footprint of its economic development on its natural environment by setting a target to reduce 28% of its greenhouse gas emissions by 2030 and adopting legal instruments for implementation such as the air quality decree to control air pollution.

As a party to the UNFCCC and a member of the CCAC, Côte d'Ivoire intends, through this national action plan on short-lived climate pollutants, to align its short-term development objectives with its long-term aspirations to reduce greenhouse gas emissions. This document will help to fill the gaps in information on air pollutants, their impacts, the concrete measures that can be taken to reduce them and the benefits for improving air quality, human health and the contribution to reducing global warming.

The overall objective of this work was to make an inventory of emissions of short-lived climate pollutants and to identify measures to reduce emissions of these pollutants at the national level. To do so, the following specific objectives were defined:

Specific objective 1

Assess the current situation of air quality and short-lived climate pollutants in Côte d'Ivoire. These include in particular:

- collect information on emission levels of short-lived climate pollutants;
- identify sources and critical exposure points;
- collect information on the institutional and regulatory framework related to SLCPs in Côte d'Ivoire;

- construct baseline scenarios for emissions of key pollutants.

Specific objective 2

Identify measures to mitigate SLCP emissions, taking into account measures with high potential to reduce SLCP, ongoing sectoral policies and future opportunities in the transition to low-carbon economies. These included, in particular:

- analyse the key sectors, sources of SLCP emissions in Côte d'Ivoire and propose new measures to control these emissions with a view to prioritizing mitigation actions;
- identify the legal, political and technological actions to be implemented in the short, medium and long term for an effective reduction of SLCP emissions.

Specific objective 3

Develop a national action plan to reduce short-lived climate pollutants and policy briefs on SLCP reduction measures in priority sectors to inform policy makers in their decision-making.

Emissions of short-lived climate pollutants in Côte d'Ivoire

The assessment of climate pollutants highlighted the contributions of the different sectors of activity to the emissions of particulate (BC and PM) and gaseous (NO_x, CO, CO₂, SO₂, CH₄) pollutants at the national level. In addition to assessing the emission levels of the two short-lived climate pollutants directly emitted into the atmosphere, Methane (CH₄) and Black Carbon (BC), this study also estimates the emission levels of other pollutants and thus provides a comprehensive mapping of the sources and emission levels of air pollutants in Côte d'Ivoire (Figure ES 1).

We note in general:

- a predominance of the Residential sector for emissions of particulate pollutants (BC, OC, PM 2.5);
- a predominance of the Transport sector for gaseous pollutants such as carbon dioxide and nitrogen oxides (CO₂, NO_x).

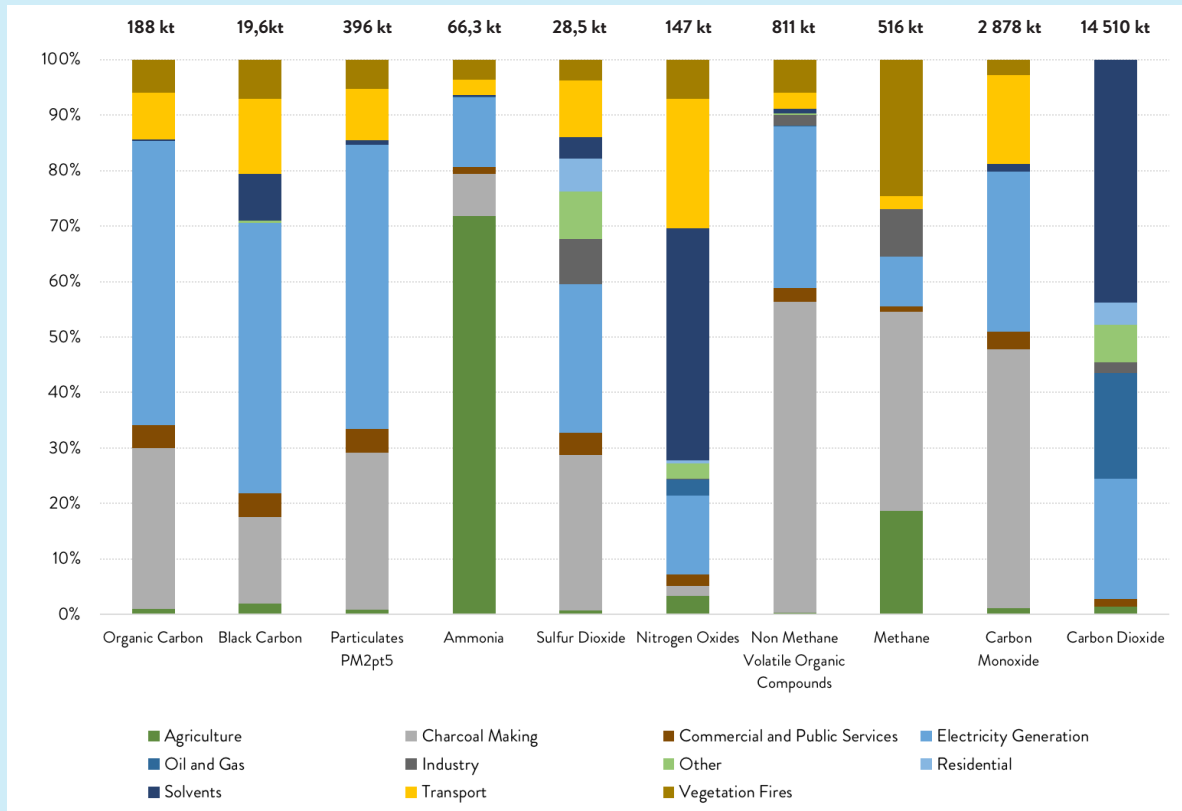


Figure ES 1: Summary of emissions of SLCPs, air pollutants and greenhouse gases in the base year (2010) in Côte d'Ivoire

For the two short-lived climate pollutants to be assessed in this study, the main sources of emissions are as follows:

- Black Carbon (BC): emissions come mainly from domestic fires, the burning of agricultural waste and residues and the production of charcoal;
- Methane (CH₄): emissions come mainly from rice cultivation, landfills and domestic waste water, and oil and natural gas exploitation.

to different planning horizons (2030 and 2040). If nothing is done, emissions of Black Carbon (BC) and Methane (CH₄) in Côte d'Ivoire are projected to at least double by 2040 (Figure ES 2 and ES 3).

The analysis goes further by projecting emissions of pollutants

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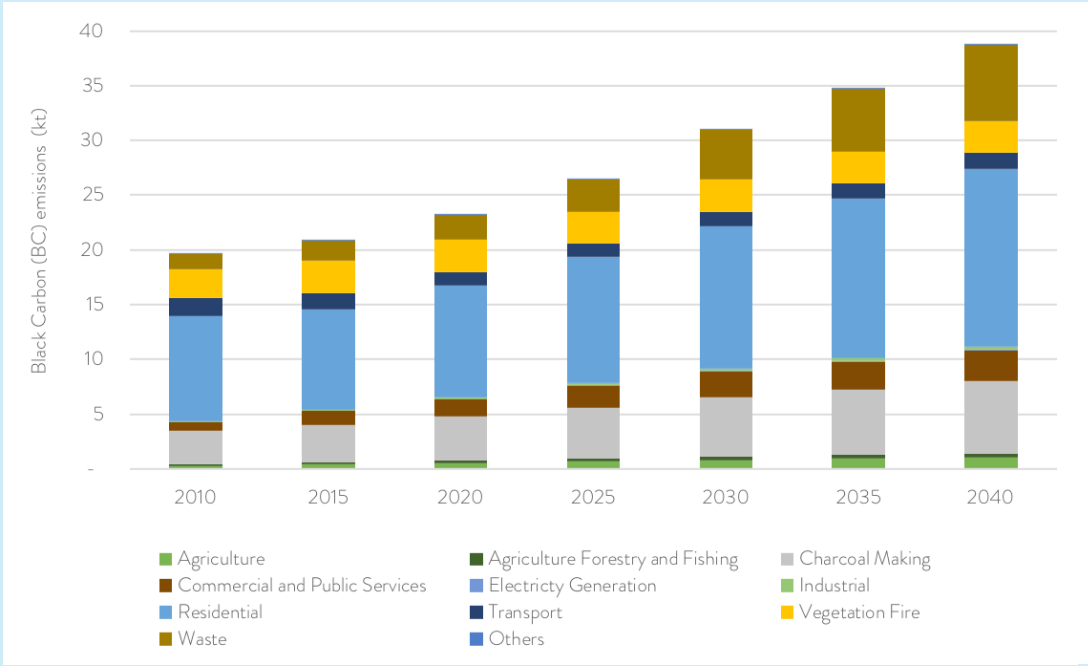


Figure ES 2: Baseline projections of Black Carbon (BC) emissions from 2010 to 2040



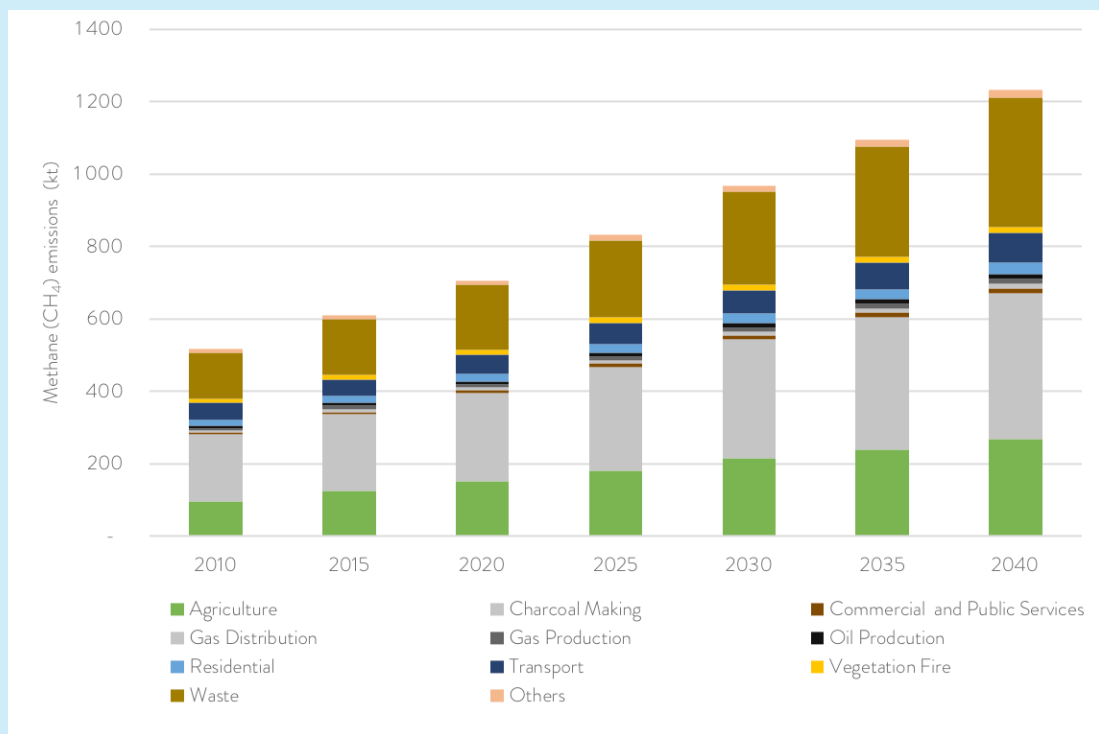


Figure ES 3: Baseline projections for methane (CH₄) emissions from 2010 to 2040

Measures to reduce SLCP and their benefits for climate and air quality

Following the identification of the main sources of emissions of short-lived climate pollutants in Côte d'Ivoire, a set of measures and actions to reduce emissions of these pollutants were reviewed with a view to identifying the most relevant ones. Overall, 16 measures, including 8 targeting sources of black carbon (BC) and another 8 targeting sources of methane (CH₄), were identified and prioritized as part of the planning for actions to reduce short-lived climate pollutants. This plan identifies for each measure the assigned ambition, the level of priority and the actors involved in the implementation of

these measures, each measure being supported by specific actions. These 16 measures were prioritized at the national level in consultation with key stakeholders based on their mitigation potential and feasibility in the national context. They are briefly described below and a more comprehensive summary is given in Tables ES I and ES II:

Black Carbon (BC) measures

Residential

1. **Promote improved biomass stoves:** it aims to support the deployment of improved stoves through support to ongoing projects and programmes such

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as the Clean Cookstove Alliance's Improved Stoves Extension Programme.

2. **Replace biomass with clean cooking fuels (biogas and natural gas):** this measure aims to establish a program to support the adoption of cleaner fuels, including natural gas and biogas. This involves increasing natural gas storage capacity and removing barriers to adoption by poor and rural households through subsidies.
3. **Promote clean lighting:** it concerns support for the energy services access programme and the rural electrification programme by increasing clean lighting technologies;

Transport

4. **Renew gradually the vehicle fleet:** this is to facilitate the adoption of regulatory and incentive measures to promote the use of newer and cleaner technology vehicles. It includes the control of emissions during technical inspections, the labelling of vehicles, the introduction of the feebate/rebate scheme and the support for the implementation of the age limit measure on vehicle imports.
5. **Promote cleaner diesel (10 ppm of sulphur):** it mainly concerns support for the updating and implementation of the project to install a desulphurisation unit at the National Refining Company (SIR) as well as the adoption of new standards for diesel quality, gaseous and particulate emissions.
6. **Facilitate the transition to cleaner fuels for transport (gas and electricity):** this measure mainly concerns the establishment of the institutional and technical capacity building programme to facilitate the national adoption of electric and gas vehicles for mass transport.

Waste

7. **Suppress open burning of waste:** the aim is to strengthen the regulatory framework and implement measures to prohibit open burning of waste in line

with the Environmental Code, while improving at the same time waste collection and management.

Agriculture

8. **Reduce open burning of agricultural residues:** this will also involve strengthening the regulatory framework and implementing measures to prohibit uncontrolled fires in line with the Environmental Code and the Agricultural Guidance Act, by promoting good agricultural practices.

Methane (CH₄) measures

Waste

9. **Suppress uncontrolled landfills and create modern landfills:** it concerns the establishment of improved landfills meeting recommended standards in Abidjan and major urban areas.
10. **Improve the collection and treatment of biodegradable municipal solid waste:** support will be provided for the national dissemination of the experiences of the pilot project on waste sorting (i.e. pilot project on sorting and recycling in Yamoussoukro).
11. **Recover methane from landfills:** this concerns the implementation of methane recovery from old and new waste management sites as part of the new waste management policy.
12. **Improve drainage and wastewater management standards:** this will involve setting up a capacity building program to make an inventory and reduce methane emissions from domestic wastewater.

Agriculture

13. **Extend intermittent aeration of rice fields in irrigated rice cultivation:** this concerns support for the implementation of the Alternate, Wetting and Drying (AWD) system as part of the national rice development strategy.

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14. **Extend the control of emissions from livestock:** this will involve setting up a programme to build technical capacity through the dissemination of improved and sustainable livestock techniques.

Oil & Gas

15. **Promote gas recovery and use in the oil and gas sector:** this will include a programme to strengthen regulatory frameworks and technical capacity on fugitive emissions from venting, as well as improved control of unintentional leakage.
16. **Reduce network leakage in gas transmission and distribution:** this will also include a programme to strengthen regulatory frameworks and technical capacities to control unintentional leaks.



Table ES I : Black carbon measures (BC)

MEASURES	DESCRIPTION	AMBITION	PRIORITY/ STATUS	ACTORS	RESPONSIBLE
Residential, Commercial and Public Services					
<i>M1- Promote improved biomass stoves</i>	Support for the development and deployment of improved stoves and ovens through new or ongoing programmes for the development and extension of improved stoves.	# 35% of cooking energy needs are met by improved stoves by 2025 and 20% by 2030.	High Additional	Ministry of Environment Ministry of Energy CIACC Civil Society Private Sector	Ministry of Energy (DGE)
<i>M2 - Replace biomass with clean cooking fuels (bio-gas and natural gas)</i>	Implementation of a programme to support the adoption of cleaner fuels, including butane gas and biogas. Targets based on those included in the Renewable Energy Action Plan and the National Action Plan for Clean Cooking and involve increasing butane gas storage capacity and removing barriers to adoption by poor people through "subsidies".	# 67% of households use butane gas by 2030 # 30% of the needs of businesses and services are met by electricity by 2040; # 35% of the needs of businesses and services are met by butane gas by 2040.	Very high Ongoing	Ministry of Environment Ministry of Energy Civil Society Private Sector CIACC	Ministry of Energy (DGE)
<i>M3- Promote clean lighting</i>	Support for the energy services access programme and the rural electrification programme by increasing clean lighting technologies (solar PV, low-energy lamp).	# Universal access to electricity for lighting needs by 2030	Average Ongoing	Ministry of Energy Ministry of Environment Civil Society Private Sector AIENR	Ministry of Energy (DGE)
Transport					
<i>M4- Renew gradually the vehicle fleet</i>	Facilitate the adoption of regulatory and incentive measures to promote the use of newer and less polluting technology vehicles (emission control, labelling, bonus-malus, age limit on imports).	# Euro VI by 2030 for passenger cars, taxis and commercial vehicles; # Euro VI by 2040 for buses and minibuses; # Euro VI by 2050 for heavy goods vehicles;	High Ongoing	Ministry of Transport Ministry of the Environment Civil Society Private Sector GIAPAME	Ministry of Transport (DGTT)

Summary for decision makers

MEASURES	DESCRIPTION	AMBITION	PRIORITY/ STATUS	ACTORS	RESPONSIBLE
Transport					
M5 - Promote cleaner diesel (10 ppm of sulphur)	Support for the updating and implementation of the project to install a desulphurisation unit at the level of the Société Ivoirienne de Raffinage (SIR)	# 10 ppm of Sulphur in Diesel by 2025	Very high Additional	Government Ministry of Environment Ministry of Energy SIR, CEDEAO, ARA UN Environment Diesel Initiative CCAC	Government of Côte d'Ivoire Ivorian Refining Company (SIR)
M6 - Facilitate the transition to cleaner fuels for transport (gas and electricity)	Implementation of the institutional and technical capacity building programme to facilitate the national adoption of electric and gas vehicles for public and private transport	# 10% of mobility needs are met by gas and electricity powered transport by 2030	Average Additional	Ministry of Energy Ministry of Transport Ministry of Environment SIR, CEDEAO, ARA, CCI UN Environment CCAC Diesel Initiative	Ministry of Energy (DGH) Ministry of Transport (DGTTC)
Waste					
M7- Suppress open burning of waste	Strengthen the regulatory framework and implement measures to ban outdoor waste in line with the Environmental Code, by improving waste collection and management.	# Reduce waste burning by 80% by 2030, and by 90% by 2040;	High Additional	Ministry of Salubrity Ministry of Environment ANAGED Civil Society Private Sector	Ministry de la Salubrity (ANAGED)
Agriculture					
M8- Reduce open burning of agricultural residues	Strengthen the regulatory framework and implement measures to prohibit uncontrolled fires in line with the Environmental Code, by promoting good agricultural practices.	# Reduce residue burning to 15% by 2030, and 10% by 2040	High Additional	Ministry of Agriculture Ministry of Environment Ministry of Salubrity ANADER, CNRA ANAGED Cooperatives	Ministry of Agriculture

Table ES II: Methane measures (CH₄)

MEASURES	DESCRIPTION	AMBITION	PRIORITY/ STATUS	ACTORS	RESPONSIBLE
Waste					
<i>M9- Suppress uncontrolled landfills and create modern landfills</i>	Support for the dissemination at national level of the experiences of the pilot project for waste sorting and recycling in Yamoussoukro	# Adoption of «tri-valorization» of waste in large urban areas by 2030;	High Additional	Ministry of Salubrity Ministry of Environment ANAGED Civil Society Private Sector	Ministry of Salubrity (ANAGED)
<i>M10- Improve the collection and treatment of biodegradable municipal solid waste</i>	Implement methane recovery at old and new waste management sites as part of the new waste management policy	# Recover between 20% and 40% of the methane from municipal solid waste annually	Average Additional	Ministry of Salubrity Ministry of Environment ANAGED Civil Society Private Sector	Ministry of Salubrity (ANAGED)
<i>M11- Recover methane from landfills</i>	Implement methane recovery at old and new waste management sites as part of the new waste management policy	# Recover between 20% and 40% of the methane from municipal solid waste annually	Average Additional	Ministry of Salubrity Ministry of Environment ANAGED Civil Society Private Sector	Ministry of Salubrity (ANAGED)
<i>M12- Improve drainage and wastewater management standards</i>	Implementation of a capacity building program to reduce methane emissions from domestic wastewater	#Reduce methane emissions from domestic wastewater by 10% by 2030; #Reduce methane emissions from domestic wastewater by 15% by 2040	High Additional	Ministry of Salubrity Ministry of Environment ONAD ANAGED Civil Society Private Sector	Ministry of Salubrity (ONAD)

Summary for decision makers

MEASURES	DESCRIPTION	AMBITION	PRIORITY/ STATUS	ACTORS	RESPONSIBLE
Agriculture					
<i>M13- Extend intermittent aeration of rice fields in irrigated rice cultivation</i>	Support for the implementation of the Alternate Wetting and Drying system (AWD) as part of the national rice development strategy.	# 90% of the rice cultivation practiced by the AWD by 2030	High Additional	Ministry of Agriculture Ministry of Environment ANADER, CNRA, FAO ANAGED, ADERIZ Cooperative	Ministry of Agriculture (ANADER)
<i>M14- Extend the control of emissions from livestock</i>	Implementation of a technical capacity building programme through the dissemination of improved and sustainable livestock techniques	#Reduce emissions from livestock and poultry by 30% by 2030	High Additional	Ministry of Animal Res. Ministry of Environment ANADER, CNRA ANAGED Cooperative GMI (Global Methane initiative)	Ministry of Animal Resources
Oil & Gas					
<i>M15 - Promote gas recovery and use in the oil and gas sector</i>	Establishment of a programme to strengthen regulatory frameworks and technical capacities on fugitive emissions from ventilation, as well as improved control of unintentional leakage	# Reduce 50% of avoidable fugitive emissions by 2030 # Reduce 70% of avoidable fugitive emissions by 2040	Average Additional	Ministry of Energy Ministry of Environment Oil Producer CCAC (Oil and Gas Methane Partnership & Global Methane Alliance) GMI (Global Methane Initiative)	Ministry of Energy (DGH)
<i>M16- Reduce network leakage in gas transmission and distribution</i>	Establishment of a programme to strengthen regulatory frameworks and technical capacities on unintentional leakage control	# Reduce 50% of avoidable fugitive emissions by 2030 # Reduce 70% of avoidable fugitive emissions by 2040	Average Additional	Ministry of Energy Ministry of the Environment Oil Producer CCAC (Oil and Gas Methane Partnership & Global Methane Alliance) GMI (Global Methane initiative)	Ministry of Energy (PETROCI) (GESTOCI) Private Sector Civil Society

Summary for decision makers

The analysis of the 16 measures in the National Action Plan for the reduction of SLCP allow to distinguish between measures and policies being implemented (ongoing) and additional measures that would further reduce SLCP emissions. The measures and policies being implemented are those for which the government of Côte d'Ivoire has already committed itself and for which implementing decrees and executive orders are being implemented. For additional SLCP measures, they represent measures with high potential for which no

tangible action has yet been taken at the institutional, legal and regulatory level.

The joint implementation of the 16 SLCP reduction measures identified in the National SLCP Action Plan would further reduce Black Carbon (BC) and Methane (CH₄) emissions and stabilize the reduction of these emissions by 2050 (Figure ES 4 and ES 5).

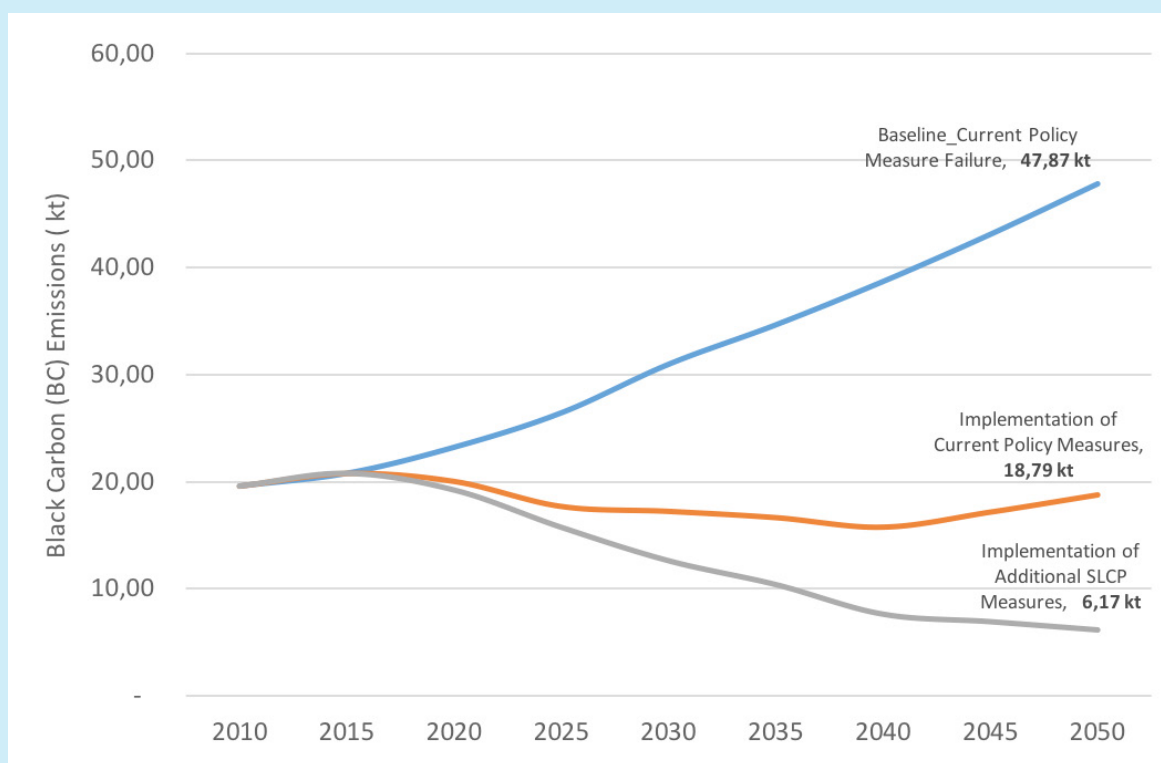


Figure ES 4: Evolution of Black carbon (BC) emissions according to baseline trajectories (failure of current policies), implementation of current policies and implementation of additional SLCP measures

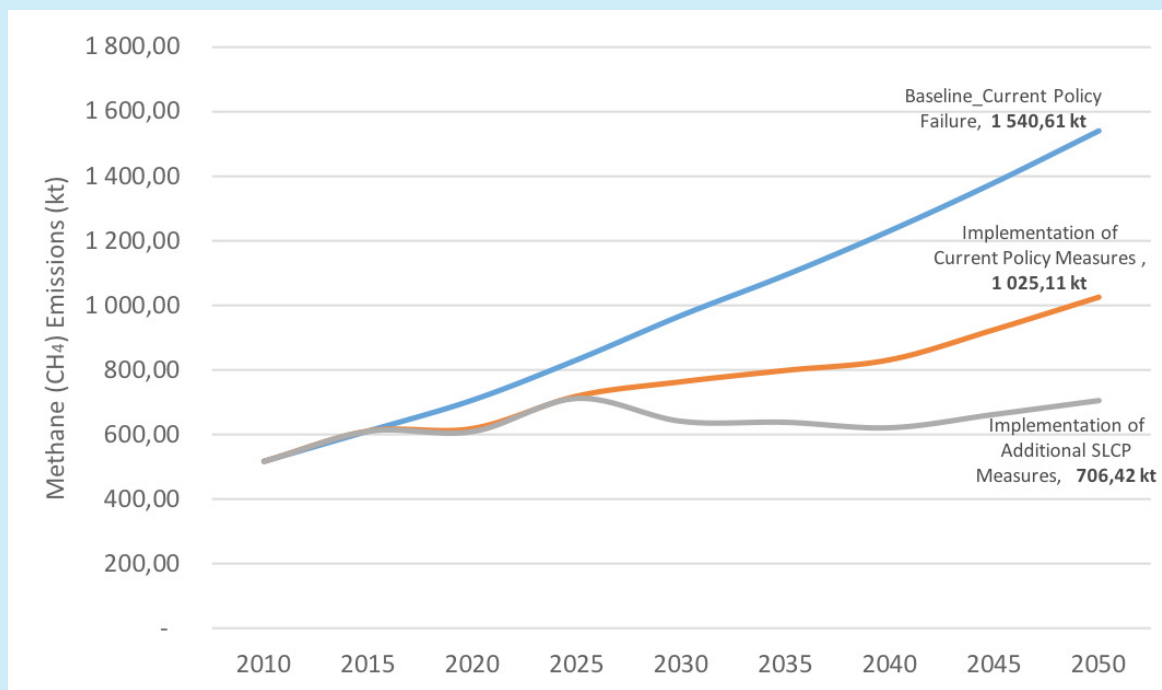


Figure ES 5: Evolution of methane (CH₄) emissions according to baseline trajectories (failure of current policies), implementation of current policies and implementation of additional SLCP measures.

The full implementation of the 16 SLCP reduction measures identified in Côte d'Ivoire would allow to implement them:

- Up to 59% reduction in soot carbon (BC) emissions by 2030 and more than 80% by 2040, mainly in the Residential, Waste and Wood Coal Production sectors (Figure RE 6);
- Up to 34% reduction in methane (CH₄) emissions by 2030 and more than 50% by 2040, mainly achieved in the Waste and Production of Wood and Residential Coal sectors (Figure ES 7);
- A significant reduction in emissions of other air pollutants such as:
 - particulate matters (PM_{2,5}), up to 59% reduction

- by 2030 and 82% by 2040;
- nitrogen oxides (NO_x), up to 43% reduction by 2030 and 56% by 2040;
- organic carbon (OC), up to 59% reduction by 2030 and 83% by 2040.

Thus, by targeting major sources of SLCP emissions, emissions of other pollutants such as fine particulate matter (PM_{2.5}), nitrogen oxides (NO_x) and organic carbon (OC) are also substantially reduced.

Summary for decision makers

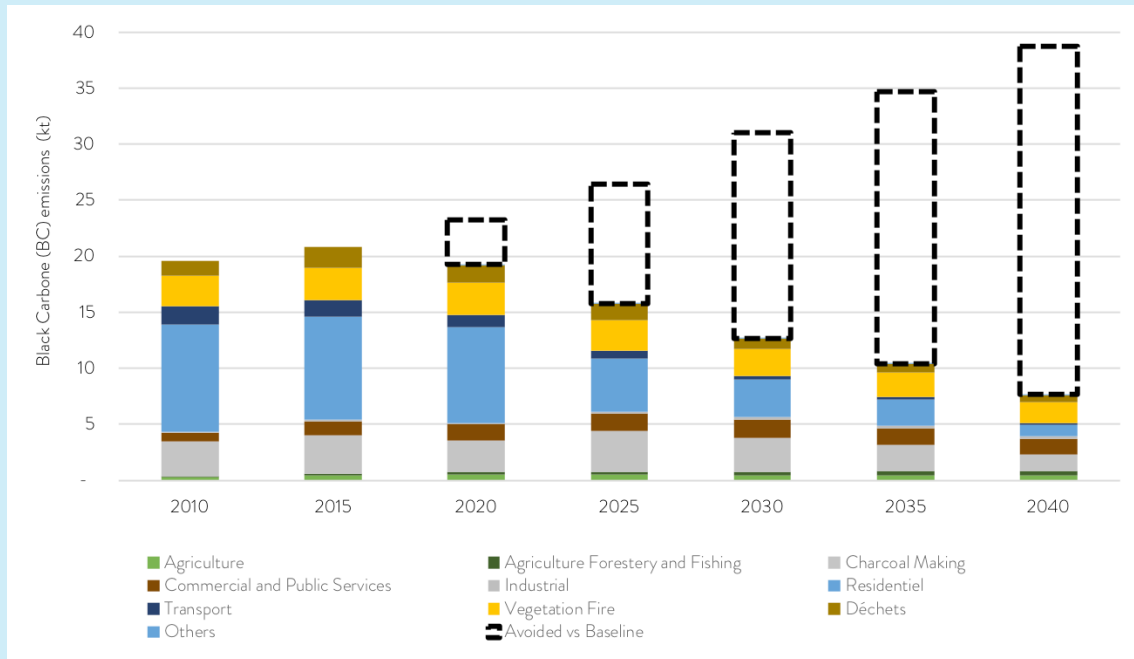


Figure ES 6: Reduction in Black carbon (BC) emissions resulting from the implementation of the eight (8) measures of the National Action Plan on SLCP for Black carbon (BC)



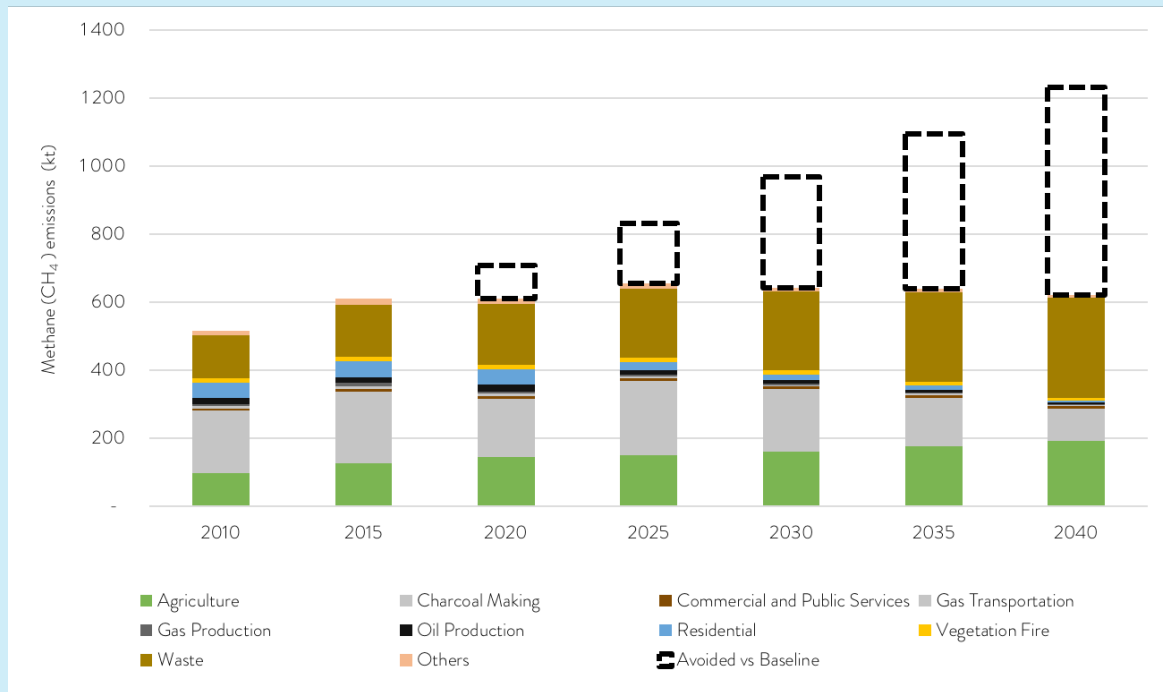


Figure ES 7: Methane (CH₄) Emissions Reduction Resulting from the Implementation of the Eight (8) Actions of the National Action Plan on the SLCP for Methane (CH₄)

This would also allow, in addition:

- Up to 52% reduction in PM 2.5 concentration related to national emissions by 2030 and 71% by 2040 (Figure ES 8);
- Up to 11% reduction (1,100 people) in premature deaths associated with PM2.5 exposure by 2030 and more than 17% (2,200 people) by 2040 (Figure ES 9).



Summary for decision makers

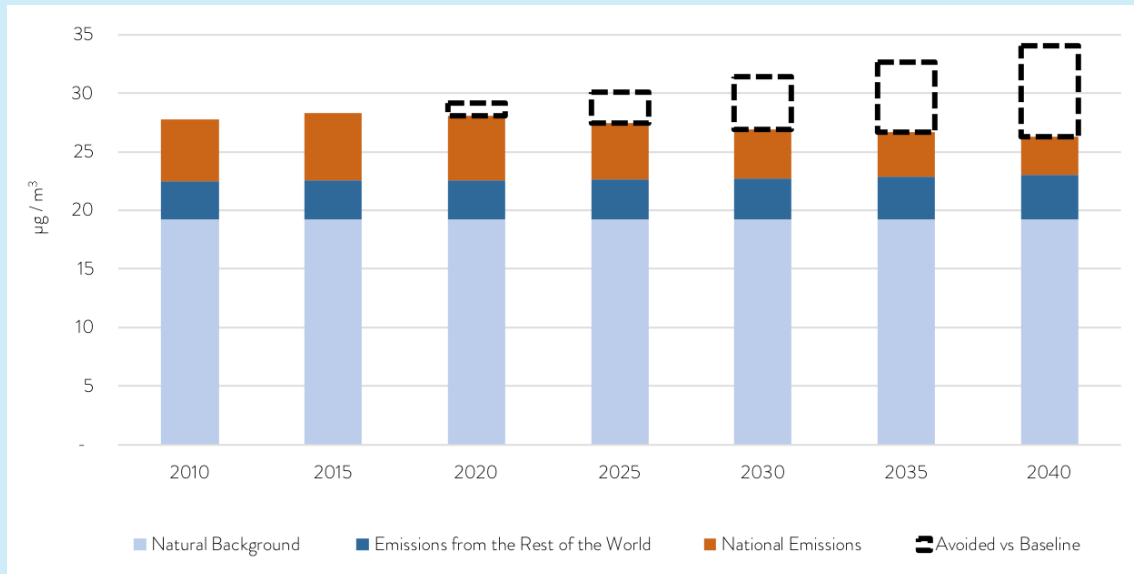


Figure ES 8: Reduction in weighted concentrations of PM_{2.5} relative to different emission sources



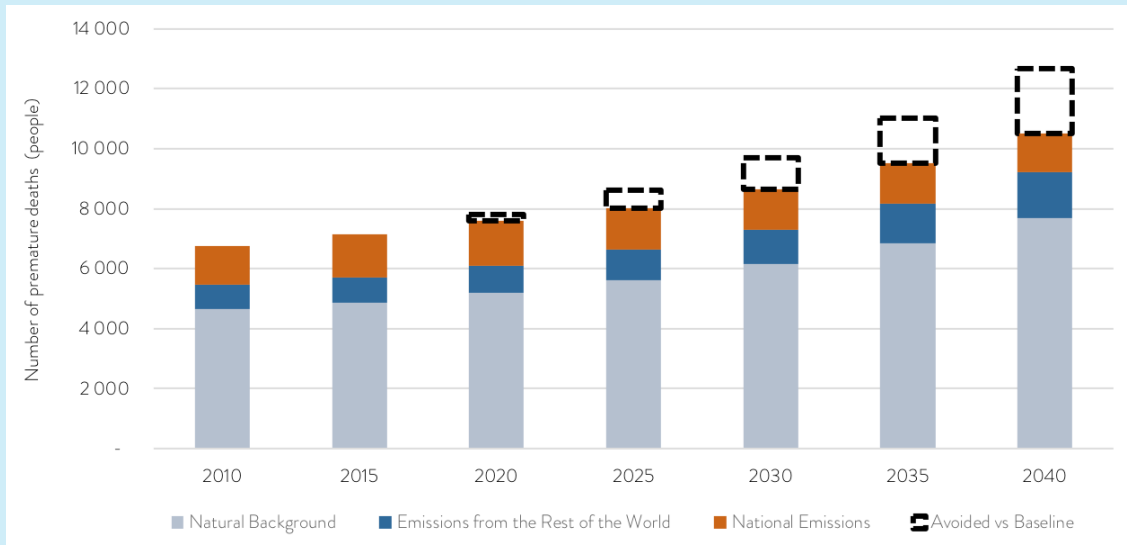
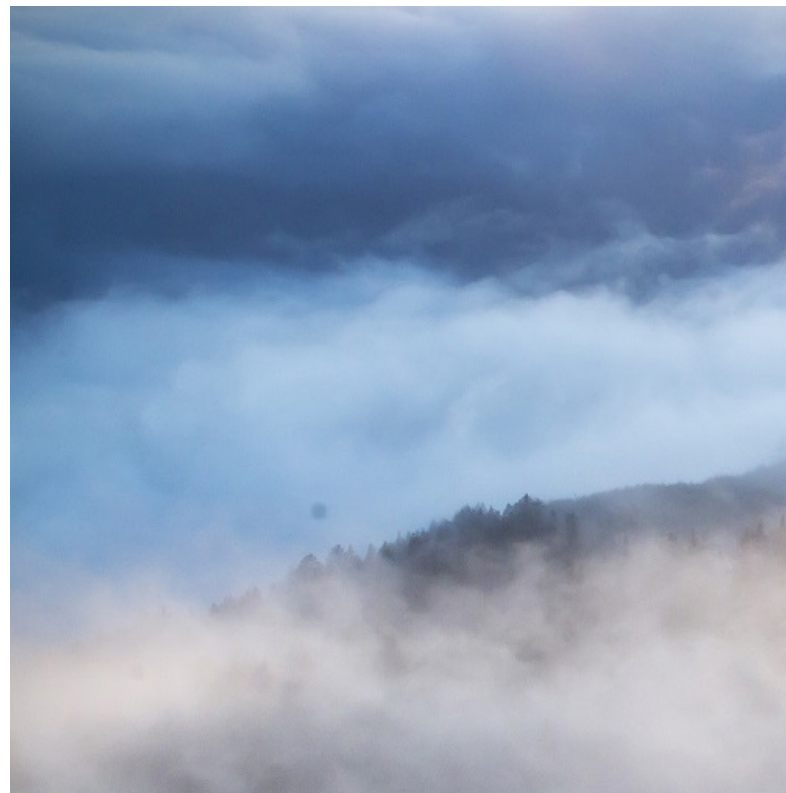


Figure ES 9: Number of premature deaths due to exposure to fine particulate matter (PM 2.5), avoided as a result of the implementation of the 16 SLCP reduction measures

The national SLCP reduction plan also provides a basis for the analysis of «low-carbon» trajectories with a view to strengthening Côte d'Ivoire's Nationally Determined Contribution (NDC). This integrated approach provides a new analytical framework to better understand the development benefits of reducing climate pollutants. It identifies policies, measures and their effects on emissions and other benefits, such as those on health. The 16 measures contained in this plan thus allow a reduction of about 20% in GHG emissions by 2030, which represents more than half of Côte d'Ivoire's efforts to achieve the ambition of its first NDC (Figure ES 10). This therefore underlines the need to take into account all climate gases and pollutants, whether short- or long-term in the atmosphere, in order to achieve the climate objectives.



Summary for decision makers

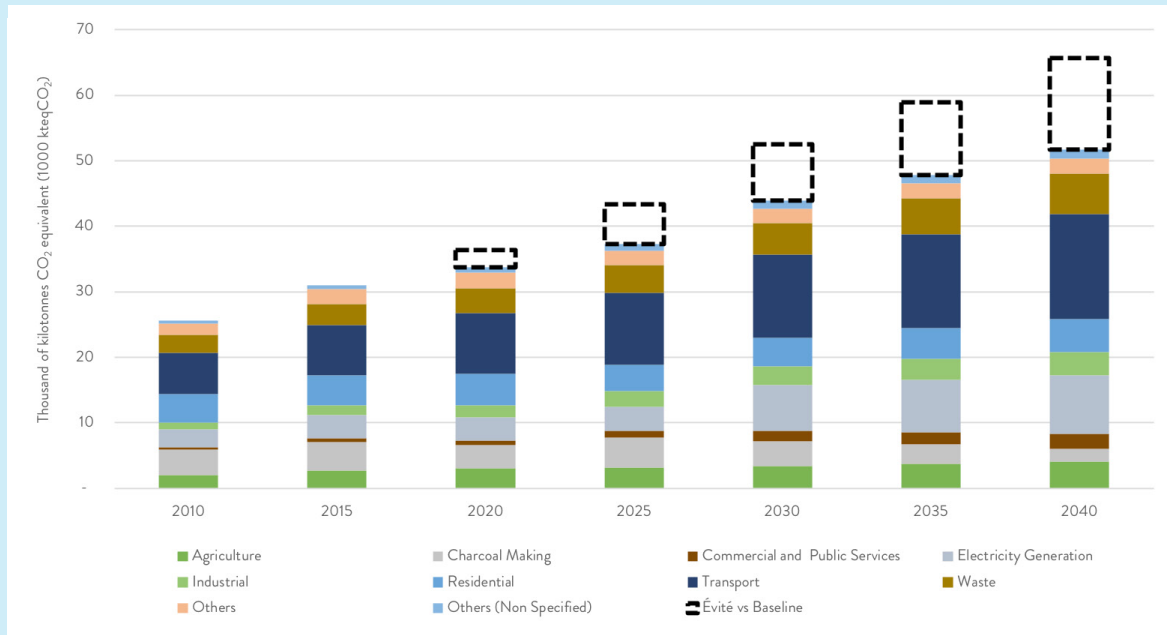


Figure ES 10: Greenhouse gas reduction resulting from the implementation of the 16 mitigation measures identified in this plan, compared to the baseline scenario (does not include GHG emissions from the land use and land-use change sector)



Implementation of the SLCP Action Plan

The coordination of the plan's actions at the national level will be done at three operational levels: (i) cross-cutting through climate and air quality integration; (ii) coordination of the strategic workstreams climate, air quality and health; and (iii) coordination of the implementation of measures by the implementing actors.

Cross-cutting coordination will be carried out by the CCAC National Coordination housed within the Ivorian Anti-Pollution Centre (CIAPOL). It should continue to benefit from CIAPOL's institutional anchoring and its roles will be to promote the integration and implementation of the plan, facilitate technical support for those responsible for implementing the measures and ensure that progress in the implementation of the plan is monitored and reported at the national level. To this end, CIAPOL in its role of facilitating the cross-cutting coordination of the implementation of the plan will support the CCAC national coordination in order to promote and implement a common Measurement, Reporting and Verification (MRV) framework for climate and air quality actions at the national level.

The coordination of the strategic workstreams, air quality and health will be ensured respectively by the Climate Change Directorate (DLCC), the Environmental Quality and Risk Prevention Directorate (DQEPR) and the Public Hygiene and Health Environment Directorate (DHPSE). Activities related to the strategic workstreams essentially include: integrating SLCP reduction measures into the strengthening and implementation of NDCs, developing national inventories and communications, developing and implementing air pollution reduction strategies, and strengthening advocacy and awareness at all levels.

The implementation of measures will be coordinated by the line ministries and project leaders, who will bring together the key actors involved in the implementation of the measures targeted by their various projects. The main activities of these project leaders will be the integration of SLCP reduction measures into sectoral plans and the preparation and submission of funding requests to the various windows (national and international).

In order to implement the measures and actions of the national planning document on SLCPs, it will be essential to strengthen the interaction capacities of the implementing actors through an institutional arrangement that promotes close collaboration between the different stakeholders at all levels (Figure ES 11). Institutional strengthening will be based on the following points:

- i) **high-level political coordination** by a National Committee for the Implementation of the SLCP plan co-chaired by the Ministries of Environment and Health, which will include senior representatives of the sectoral ministries concerned with the reduction of SLCP.
- ii) **technical coordination** (cross-cutting and strategic workstreams) ensured by a Joint Coordination Committee which will be composed of the CCAC National Coordination (hosted by CIAPOL), the DQEPR, the DLCC and the DHPSE.
- iii) **project and action level coordination** ensured by those responsible for implementing the measures and actions of the plan that will gather around their projects and initiatives as well as the relevant actors to be involved in the implementation of SLCP reduction actions.



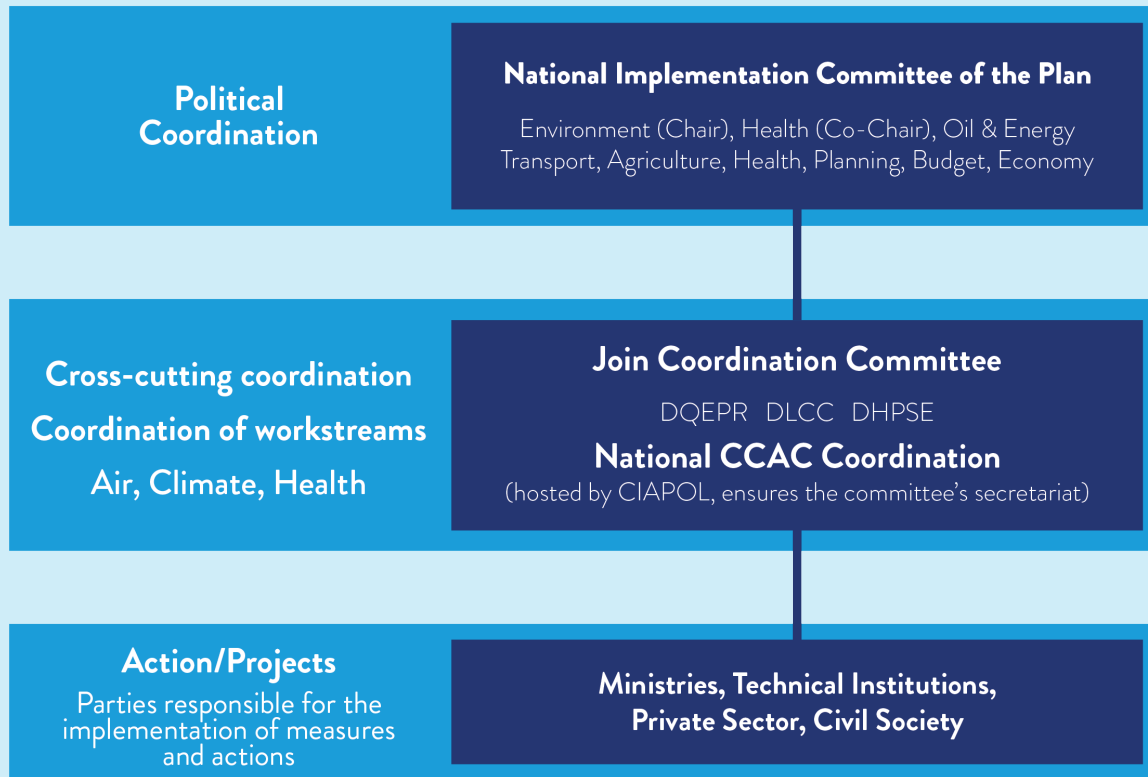


Figure ES 11: Institutional arrangement for the implementation of the national action plan on SLCP

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JOIN THE COALITION





The Coalition is opened to countries, private sector networks and companies, development banks, financial institutions, cities and non-governmental organizations who are working to reduce SLCP emissions. For more information on how to contribute to this global effort, please contact the Secretary.



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