

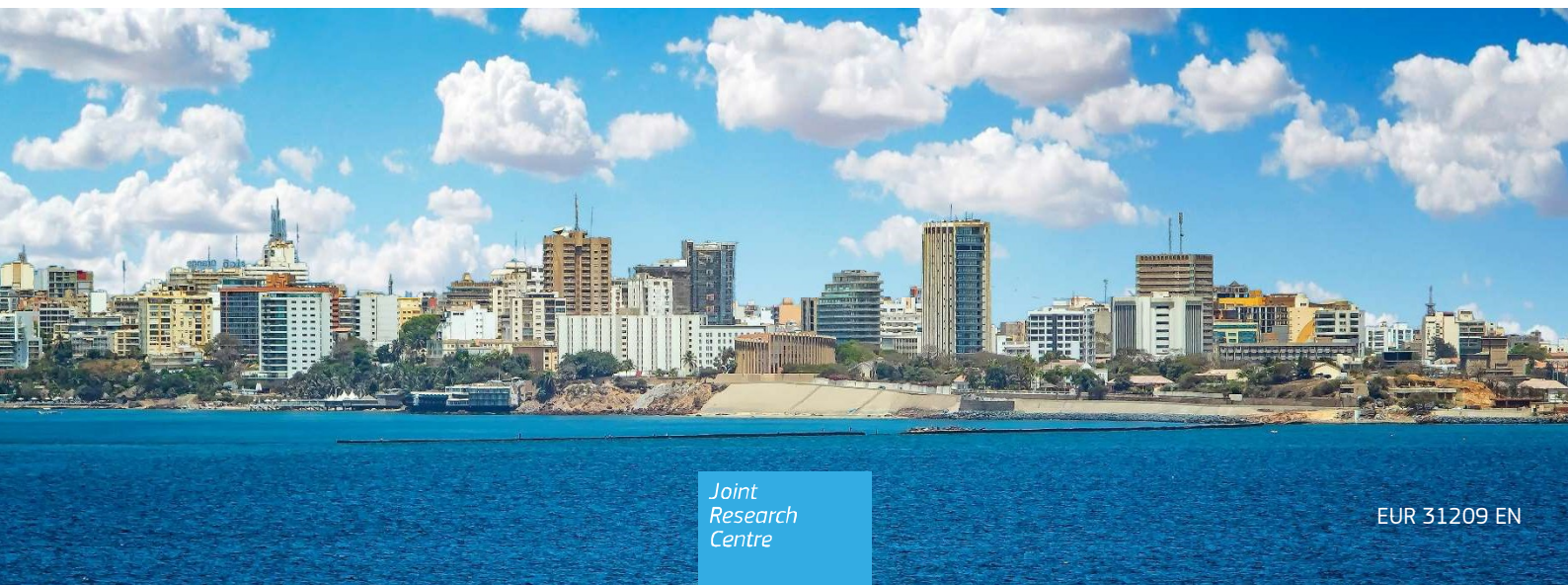


# JRC SCIENCE FOR POLICY REPORT

## The Covenant of Mayors in Sub-saharan Africa: In Depth Analysis of Sustainable Energy Access and Climate Action Plans

Palermo V., Pittalis M., Bertoldi P.

2022



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## **Abstract**

The Covenant of Mayors for Climate and Energy in Sub-Saharan Africa (CoM SSA) is one of the regional chapters of the Global Covenant of Mayors (GCoM). Under the CoM SSA local authorities are invited to make a voluntary political commitment to implement climate and energy actions in their communities and agree on a long-term vision to tackle 3 pillars: Mitigation and Adaptation to climate change and Access to energy. Given the priority of clean and sustainable energy access for local authorities in CoM SSA, signatories in this region have been the first assessing their status and planning actions to improve their electricity access and clean cooking availability.

This study provides a scientific assessment of the CoM SSA initiative, based on data covering mitigation, adaptation and energy access submitted by signatories through the offline reporting tool. The Sustainable Energy Access and Climate Action Plans submitted by signatories have been in-depth evaluated through a specific framework of key performance indicators. Finally, this report is the first of its kind delivering insights into the Energy Access pillar.

## **Acknowledgements**

This work has been developed by the Joint Research Centre in the context of an Administrative Arrangement with the European Commission's Directorate-General for International Partnerships (DG INTPA). We would like to thank the colleagues from the EC engaged in the Global Covenant of Mayors (GCoM) activities.

We would like to thank the Covenant of Mayors Office SSA and all involved partners and agencies for their valuable work with and support to CoM SSA signatories.

We are grateful to the Joint Research Centre's Editorial Review Board for its useful and constructive comments on the report. Special thanks to the European Commission's Joint Research Centre's colleagues contributing and supporting the activities within CoM SSA.

## ***Authors***

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## **Executive summary**

### ***Policy context***

Initiated in Europe in 2008, the Covenant of Mayors (CoM) initiative has been among the first to recognise the role of sub-national levels in delivering energy and climate action with multiple cross-sectoral synergies. In 2015 at COP 21, the CoM in Sub-Saharan Africa (CoM SSA) was launched and in 2016 the CoM and the Compact of Mayors merged, initiating the Global Covenant of Mayors for Climate and Energy (GCoM), a global alliance of local governments committed to take voluntary action to combat climate change. Under CoM SSA local authorities are invited to make a voluntary political commitment to tackle 3 pillars (Mitigation of carbon emissions, Adaptation to climate change and Access to energy) by developing and implementing a Sustainable Energy Access and Climate Action Plan (SEACAP).

### ***Key conclusions***

The number of CoM SSA signatories is increasing and the initiative is growing. Even though a limited number of signatories has successfully completed the submission of their SEACAPs, it is already possible to identify some preliminary recommendations and insights. The analysis reported in this study shows that the plans are overall of good quality and are a key instrument for municipalities to move towards a sustainable development of their urban areas. Despite the challenges associated to the context of action, municipalities demonstrated their capacity to carry out analysis of their local context, to identify and design specific actions and to structure them into a plan. Further support to cities will allow to increase the number of successful Climate action plans, monitor the implementation progresses of those already submitted, as well as addressing the barriers identified in the SEACAP design and implementation process.

### ***Main findings***

This study assesses the overall CoM SSA initiative since its launch and provides an evaluation of a limited number of SEACAPs by using a number of Result oriented and Process oriented indicators. Moreover, as CoM SSA has been the first region where signatories reported their data and actions on Energy Access, this study includes insights and information on this pillar of the initiative. Signatories show to be very ambitious in all the steps of the SEACAP process, with ambitious targets for mitigation and energy access and the identification of various adaptation goals. The analysis identifies the “stationary energy” and transport as the most energy intensive sectors. In terms of actions, there is a well-balanced distribution among the three pillars, showing that all priorities are taken into account and that the message of integrated sustainable and climate change planning has been received by municipalities. In particular, mitigation actions play a key role also in this region. Moreover, signatories give clear structure and details of their planned actions, also confirming the key role of participatory approaches in SEACAPs development. Data collection as well as developing and implementing financing modalities for SEACAPs operationalization are some of the most pressing challenges faced by municipalities.

### ***Related and future JRC work***

The JRC is providing scientific and technical support to the CoM SSA initiative and to DG INTPA ensuring the coherence of the initiative with policies as well as its scientific robustness. JRC supports the implementation of CoM SSA with adapted methodologies and reporting tools in collaboration with city networks, practitioners from local and regional authorities, energy agencies and academia, maintaining the approach for CoM as “an initiative for cities by cities”. This report is the first assessing the CoM SSA initiative since its launch and it builds upon the JRC work within the CoM SSA framework, namely the development of the Energy Access pillar framework, the SEACAP process and related guidance materials, the offline reporting tool, the second-level evaluation of Climate Action Plans. Therefore, this study provides insights into the signatories’ approaches and characteristics as well as an in-depth analysis of the plans and the measures planned by CoM SSA signatories.

### ***Quick guide***

This study provides a scientific assessment of the CoM SSA initiative. Based on data submitted by signatories through the offline reporting tool, the report describes and analyses the signatories’ approaches, characteristics, their plans and the measures planned. The report provides an overview of the CoM initiative, its requirements, the methodological approach undertaken. An overview of signatories and commitments is

given, their assessments evaluated and some initial results are reported. Finally detailed evaluation of SEACAPs submitted is provided, together with spotlights on best practices.



# 1 Introduction

The Sixth Assessment Report of IPCC (WG3- IPCC, 2022) highlights how despite the increase of greenhouse gases (GHG) emissions, globally Africa is the continent that has contributed among the least. Regionally, the urban share of GHG emissions increased from 28% to 38% between 2000 and 2015. However, impacts attributable to anthropogenic climate change have been experienced, i.e. biodiversity loss, water shortages, reduced food production, etc. (Trisos et al. 2022). Damages to economies, agriculture, human health, and ecosystems could be limited if keeping global warming below 1.5°C. Implementing adaptation would bring multiple benefits, in particular adopting cross-sectoral ‘nexus’ approaches. People and assets exposed to climate hazards are increasing, given the high socio-economic dependency on climate-prone sectors and the rapid urbanisation and the growth of informal settlements, lacking infrastructures and basic services. Moreover, it is expected an expansion of urban areas, with high rates in Africa, taking place on agricultural lands and forests, with implications for adaptation and mitigation.

This shows how the Paris agreement commitments and climate policies are linked with the seventeen Sustainable Development Goals and Agenda 2063’ inspirations and goals, highlighting the urgency to deliver climate action and the capacity to build synergies for addressing climate change and building sustainable futures. AGENDA 2063 (2015) is Africa’s blueprint and master plan for transforming Africa into the global powerhouse of the future. The agenda sets the vision for “an integrated, prosperous and peaceful Africa, driven by its own citizens and representing a dynamic force in the international arena”. A link to the Sustainable Development Goals has been identified for each aspiration and goal of the African Agenda. All Sub-Saharan African countries have ratified the Paris Agreement and submitted a Nationally Determined Contribution (NDC)<sup>1</sup>. Almost all the countries included energy (renewables, energy access, clean cooking) as a sector where developing and implementing measures and specified adaptation sectorial measures<sup>2</sup>. The Paris Agreement has also the merit of having recognised the role of sub-national governments and non-state actors, providing an official framework for local government to act.

The Covenant of Mayors (CoM) has been among the first to recognise the role of sub-national levels in delivering energy and climate action with multiple cross-sectoral synergies. Initiated in Europe in 2008, this initiative has evolved and broadened its territorial coverage. In 2015 at COP 21, the CoM in Sub-Saharan Africa (CoM SSA) was launched and in 2016 the CoM and the Compact of Mayors merged, initiating the Global Covenant of Mayors for Climate and Energy (GCoM), a global alliance of local governments committed to take voluntary action to combat climate change. The GCoM merges under a single umbrella all the commitments of local governments who previously joined through the Compact of Mayors, or pre-existing Regional and national covenants and the new Regional and National covenants. As cities’ contribution is crucial in tackling climate change impacts and meet the Paris Agreement’s goal, CoM signatories benefit from flexible frameworks where regional circumstances are taken into consideration and local strategies can be developed in alignment with specific needs. CoM SSA is one of the regional chapters of the GCoM. Under the CoM SSA local authorities are invited to make a voluntary political commitment to implement climate and energy actions in their communities and agree on a long-term vision to tackle 3 pillars (Mitigation of carbon emissions, Adaptation to climate change and Access to energy). Clean and sustainable energy access is a crucial component for cities to move towards a more equal and sustainable future and has been a key priority for local government in this region. To highlight the relevance of the energy access pillar in the CoM SSA process and in its key document, the Climate Action Plan has taken the name of Sustainable Energy Access and Climate Action Plan – SEACAP. Moreover, Sub-Saharan Africa is the first GCoM region where the Energy Access Pillar has been activated and signatories have started to assess their status and to plan actions to improve their electricity access and clean cooking availability. This report is, therefore, the first of its kind delivering insights into this pillar.

This study provides a scientific assessment of the CoM SSA initiative. Based on data submitted by signatories through the offline reporting tool, the report describes and analyses the signatories’ approaches, characteristics, their plans and the measures planned. Sections 2 and 3 provide an overview of the CoM initiative, its requirements, and describe the role of the Joint Research Centre. In section 4 the methodological approach for this assessment is explained, an overview of signatories and commitments is given, their assessments evaluated and some initial results are reported. In section 5, a detailed evaluation of SEACAPs submitted is provided, together with spotlights on best practices. Section 6 gives a set of takeaways and general conclusions. Subject specific and detailed tables are included in the annexes.

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<sup>1</sup> Except for Eritrea who submitted the NDC but nor ratified the agreement

<sup>2</sup> Data retrieved at <https://www.climatewatchdata.org/>

## 2 The CoM SSA initiative

### 1.1. Origin, description, evolution, phases

The Covenant of Mayors in Sub-Saharan Africa (CoM SSA) initiative supports Sub-Saharan cities in their fight against climate change and in their efforts in ensuring access to clean energy. The initiative was launched in 2015 by the European Commission following and supporting the extension of the Covenant of Mayors in the EU neighbourhood to the East, to the South and to the Sub-Saharan African countries. CoM SSA is part of the Global Covenant of Mayors for Climate and Energy (GCoM), a global alliance of local governments committed to taking voluntary action to combat climate change. The GCoM has been established in 2016 with the aim of integrating under a single umbrella all the efforts put in place to achieve the same results in combatting climate change globally and it formally merges the Covenant of Mayors developed in EU and the Compact of Mayors developed in U.S. GCoM counts more than 10.000 signatories all over the world and it is organised in 10 regions with 13 regional covenant offices. A Common Reporting Framework has been developed to operate under a common and shared approach while allowing for regional flexibility.

CoM SSA is one of the chapters of the GCoM and it is a bottom-up and voluntary initiative that invites cities to define and meet ambitious and realistic energy and climate targets, in line with GCoM requirements. Under the CoM SSA local authorities are invited to make a voluntary political commitment to implement climate and energy actions in their communities and agree on a long-term vision to tackle three pillars (Mitigation of carbon emissions, Adaptation to climate change and Access to energy). To translate the political commitment into practical measures, signatories commit to producing and implementing a Sustainable Energy Access & Climate Action Plan (SEACAP). Cities are key actors in the fight of climate change. Therefore, their contribution is crucial to reach the climate targets. For this reason, there is the need for a flexible framework, in which local authorities can develop and build their strategy according to their peculiarities and potentials.

In the first phase from 2015 to 2019, Directorate General for International Partnerships - INTPA (formerly DG DEVCO) granted a consortium of eleven partners, led by the Council of European Municipalities and Regions (CEMR), for supporting the implementation of the Covenant of Mayors initiative in Sub-Saharan Africa, setting up the framework and the structure and focusing on 13 pilot cases. Since 2019, the initiative is co-funded by the European Union (EU), the German Ministry for Economic Development and Cooperation (BMZ) and the Spanish Agency for International Development Cooperation (AECID) and implemented by AECID, the Agence Française de Développement (AFD), the Agence Française d'Expertise Technique Internationale (Expertise France) and the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) in partnership with ICLEI continuing in the involvement of local authorities and supporting bridging the financing gap and fostering cooperation.

The EC Joint Research Centre is providing scientific and technical support to the CoM SSA initiative and to DG INTPA within the framework of an Administrative Arrangement since 2017. The JRC develops several tasks to support the consortium and the CoM SSA signatories (see next section).

### 1.2. Pillars and requirements

As mentioned before, under the Global Covenant of Mayors, local authorities are invited to make a voluntary political commitment to implement climate and energy actions in their communities and agree on a long-term vision to tackle 3 pillars:

- **Climate change mitigation:** to reduce the emission of energy and non-energy related greenhouse gas emissions and their concentrations in the atmosphere;
- **Climate change adaptation:** to anticipate the adverse effects of climate change, prevent and minimize the damage they can cause;
- **Access to energy:** to support and enhance reliable energy services to meet basic human needs at affordable costs.

To ensure a standardized approach as well as the necessary flexibility to encompass regional specificities and characteristics, a Common Reporting Framework (CRF) has been published, to guide the Regional Covenants and signatories in their data collection and reporting and in their plan formulation <sup>(3)</sup>.

CoM SSA is compliant with the Common Reporting Framework and it has been the first regional Covenant to develop and implement the Energy Access pillar. Clean and sustainable energy access is a crucial component

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<sup>3</sup> <https://www.globalcovenantofmayors.org/our-initiatives/data4cities/common-global-reporting-framework/>

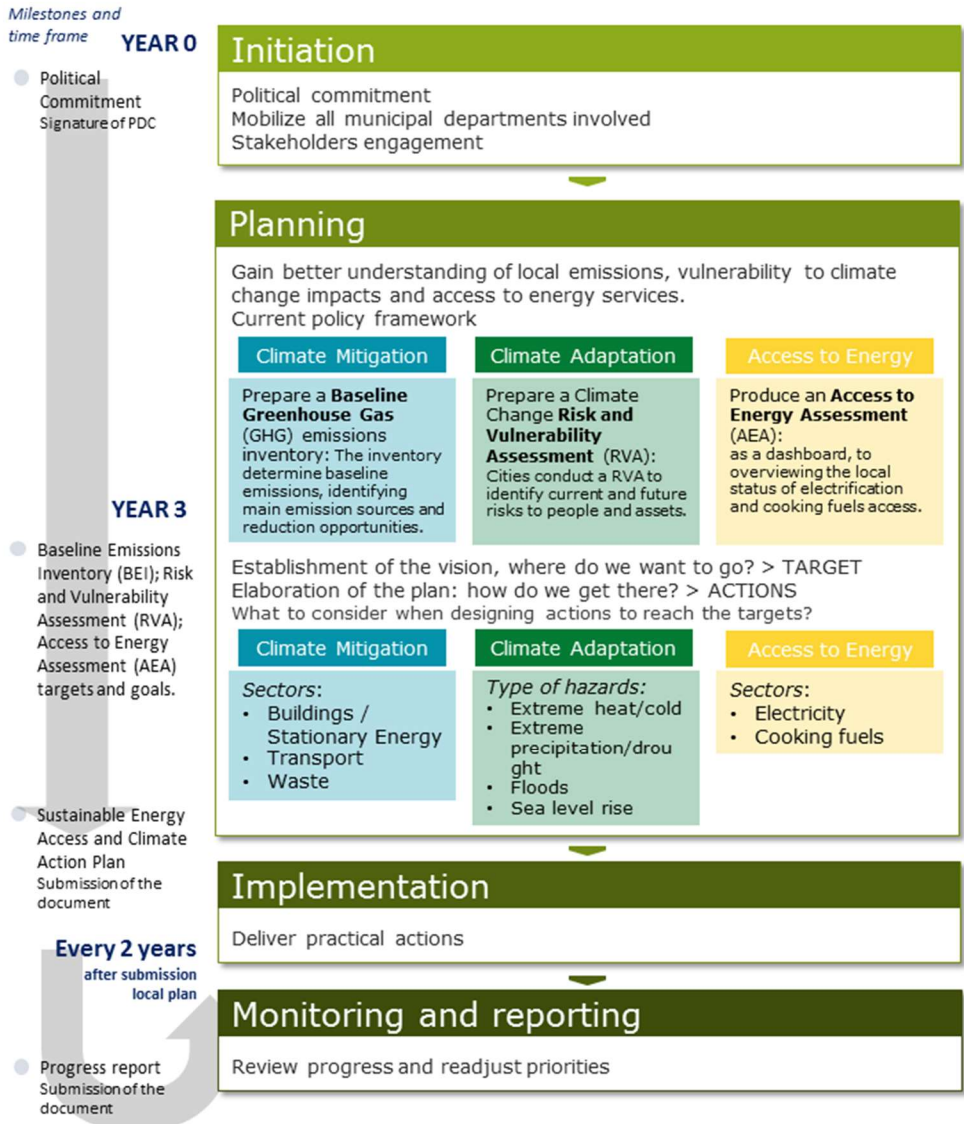
for cities to move towards a more equal and sustainable future. Therefore, to highlight the weight of the energy access pillar in the CoM SSA process and in its key document, the action plan has taken the name of Sustainable Energy Access and Climate Action Plan – SEACAP.

CoM SSA signatories in compliance with GCoM requirement, provide an assessment of their current conditions in terms of climate change mitigation (GHG emission inventory), climate change adaptation (risk and vulnerability assessment) and access to energy (Access to Energy Assessment). Based on the outcomes of the assessments, local authorities can develop their strategies and plan the actions necessary to achieve their targets. The SEACAP includes all these elements (assessments, targets and actions) as well as an overview of stakeholders involved and financing mechanisms in place for plan’s implementation. The targets are aligned with the Nationally Determined Contribution of the country the signatory belongs to, while for energy access pillar, signatories based on their assessment, need and will, can set their own target, in the framework of the Sustainable Development Goal number 7.

Signatories can report their assessments and their SEACAPs through one of the GCoM official platforms, which for CoM SSA are: MyCovenant, CDP/ICLEI unified platform and the offline reporting tool, developed by the JRC.

The figure reported below provides an overview of the SEACAP process and the related timeline, further details can be found in the CoM SSA guidebook documents.

**Figure 1.** The SEACAP process: main phases, milestones and timeframe.



Source: Palermo et al. 2018, (JRC113786)

Within the GCoM framework, all the SEACAPs undergo a two-level evaluation, the first-level validation developed earlier by JRC and currently by the Helpdesk, or directly by the platform depending on the chosen one for reporting, based on the contents reported in the reporting platform, and a second-level validation, performed by JRC, aligned to the full plan evaluation developed in CoM EU, CoM East and CoM South. This includes a full evaluation of the climate action plan based on a set of criteria related to the coherence of the assessments, their relation to the targets, the objectives and the actions formulated in the SEACAP for all the three key pillars. The analysis also focuses on the completeness and consistency of the data inserted in the SEACAP template. The outcome of this evaluation is a feedback report sent to the signatory. The report serves the purpose of informing the signatory on whether its SEACAP fulfils the evaluation criteria and it also provides observations and suggestions for improvement.

### 1.3. The Offline reporting tool

GCoM signatories report to the regional offices the contents of their climate action plans (SEACAP for CoM SSA) through official reporting platforms. In addition to the two official reporting platforms available to GCoM signatories (MyCovenant and CDP/ICLEI unified platform), an offline reporting tool is also available in CoM SSA. The offline reporting tool (Bertoldi et al., 2020) has been developed by the JRC in response to the request and need arose during the first phase of the initiative, for working and reporting data for the validation offline, due to poor access to the network and connection instability. The offline Excel-based template aims at guiding local governments on submitting the main contents of their Sustainable Energy Access and Climate Action Plan (the Baseline Emission Inventory; the Risk and Vulnerability Assessment; the Access to Energy Assessment and the actions), allowing the SEACAP's evaluation by JRC, or future designed body. The template is designed to ease data compilation. Currently the reporting template covers the first two phases of the SEACAP process: initiation and planning (pre-assessment and elaboration of the plan). An update of the template is in progress to use it for the monitoring phase as well. The reporting template is fully compliant with GCOM Common Reporting framework, and it has been, since its official launch, the only GCoM platform to include the Access to Energy pillar. The tool is available in the three most spoken languages of Sub-Saharan Africa: French, Portuguese and English and can be downloaded from the JRC Science hub website: <https://publications.jrc.ec.europa.eu/repository/>.

Through this document, the data evaluated comes from the offline reporting tools submitted by CoM SSA signatories. A number of these has been submitted in a complete form while some signatories have decided to report pillar by pillar. Further details are described in the next section.

### **3 The role of the JRC and the aim of the present report (scope of this work)**

The EC's Joint Research Centre (JRC) was entrusted from the beginning of the CoM initiative – first by the Commission DG for Energy, then also by other DGs – with the role of providing methodological and technical support to the initiative, ensuring its coherence with policies as well as its scientific credibility. JRC supports the implementation of the Covenant of Mayors in Sub-Saharan Africa (CoM SSA) with adapted methodologies and reporting tools in collaboration with city networks, practitioners from local and regional authorities, energy agencies and academia, maintaining the approach for CoM as “an initiative for cities by cities”. The numerous tasks of the JRC include: assisting signatories with the preparation and implementation of their Sustainable Energy Access and Climate Action Plans (SEACAPs) through the creation of guidance material (guidebook) adapted to regional environmental, economic and political conditions. Three versions of the guidebook fully compliant with the GCoM Common Reporting Framework <sup>(1)</sup> have been developed and are available for signatories: the Extended version (JRC113786), the Summary version (JRC113788) and the Short starting guide (JRC 115962). The JRC has developed the access to energy pillar methodology in collaboration with the CoM SSA partners and has been working with the CoM SSA and GCoM offices to ensure the feasibility of the methodologies as well as on the reporting framework to monitor the implementation of local strategies. The JRC has been responsible for preparing and giving trainings and capacity building activities on the CoM SSA methodology and SEACAP development and oversees data analysis and evaluation of the initiative.

This report is the first assessing the CoM SSA initiative since its launch. This report provides insights into the signatories' approaches and characteristics as well as an in-depth analysis of the plans and the measures planned by CoM SSA signatories. Two types of assessment indicators: *i) Result oriented indicators*, *ii) Process oriented indicators* are employed to perform an in-depth evaluation of the plans and approaches adopted by signatories as well as their potential. Through the indicators, further comparative and transversal analysis are developed highlighting how signatories are dealing with climate change action from both a procedural and outcomes perspective, as well as potential barriers and gaps.

This report may support the European Commission and other stakeholders to better understand the status of the initiative, the strategies used by local authorities and climate action pathways planned in the SSA region, as well as in drawing lessons and conclusions for the future of the initiative.

-More info on the initiative: <http://comssa.org/> and <https://www.globalcovenantofmayors.org/>.

## 4 Assessment of CoM in SSA

### 4.1 Background and methodological notes

The flexible and specific approach of GCoM framework allows to differentiate commitments and requirements worldwide in alignment to the local necessities and specificities of the region. Within GCoM the mitigation requirements consist in reducing the GHG emissions produced within the local government's boundary consistently with the Nationally Determined Contributions. Consequently, the targets are different across the world regions. For example, for Europe the target corresponds to a 40% reduction (55% nowadays) by 2030 in comparison to the 1990 levels, in the Eastern partnership the Business As Usual (BAU) approach is allowed as well as in the MENA Region. In Sub-Saharan Africa, local authorities can define a target that is equal or beyond the unconditional component of the NDC of their countries. Therefore, as all cities have their geographic, social and economic characteristics these are taken into consideration in this overall assessment including signatories' baseline emission inventories, risk and vulnerabilities assessments, access to energy assessment, as well as the specific actions included in their plans.

### 4.2 Signatories and commitments

Since its beginning in 2015, the Covenant of Mayors in Sub-Saharan Africa has been growing both in terms of activities and adhesion. After the initial phase, where **13** pilot cities have been selected, the initiative counts today more than 200 local governments who have joined the initiative (267 by November 2021).

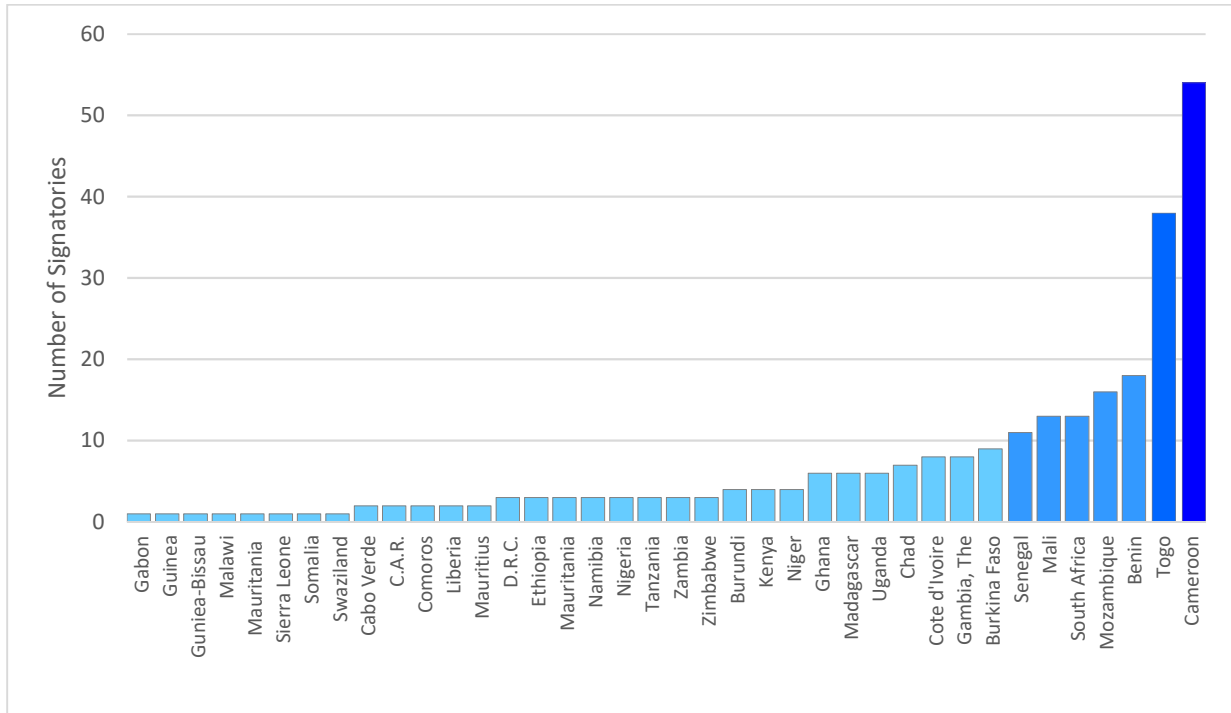
The distribution of signatories in SSA countries is reported in the table and figure below.

**Table 1.** CoM SSA signatories per country (November 2021)

Country	N. of signatories	Country	N. of signatories
Benin	18	Malawi	1
Burkina Faso	9	Mali	13
Burundi	4	Mauritania	3
Cabo Verde	2	Mauritania	1
Cameroon	54	Mauritius	2
Central African Republic	2	Mozambique	16
Chad	7	Namibia	3
Comoros	2	Niger	4
Cote d'Ivoire	8	Nigeria	3
Democratic Republic of Congo	3	Senegal	11
Ethiopia	3	Sierra Leone	1
Gabon	1	Somalia	1
Gambia, The	8	South Africa	13
Ghana	6	Swaziland	1
Guinea	1	Tanzania	3
Guinea-Bissau	1	Togo	38
Kenya	4	Uganda	6
Liberia	2	Zambia	3
Madagascar	6	Zimbabwe	3
<b>Total</b>			<b>267</b>

Source: JRC analysis

**Figure 2.** Distribution of CoM SSA signatories per country



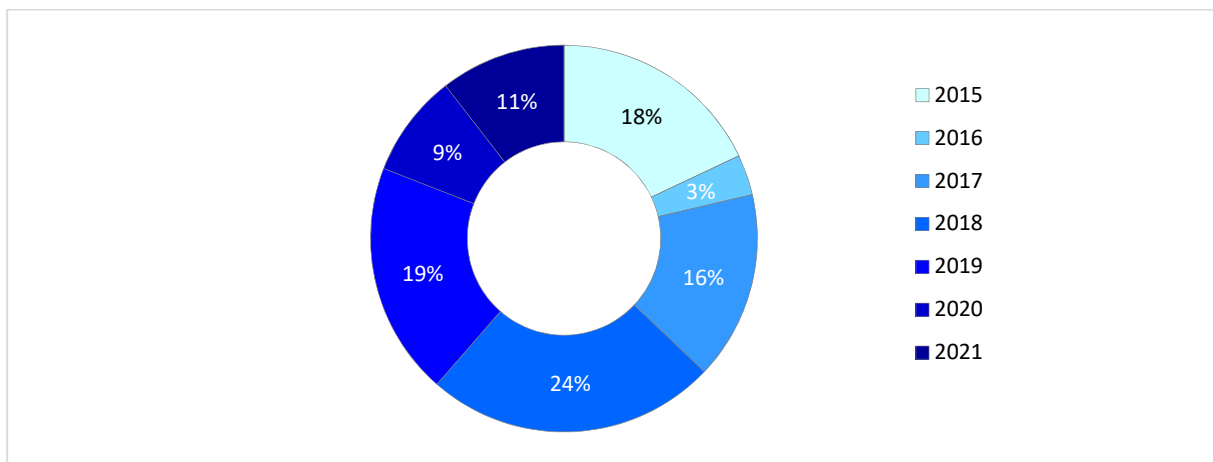
Source: JRC analysis

Out of the 267 signatories, 55 (20.6 %) joined the initiative through the Compact of Mayors.

Cameroon is the country with the higher number of signatories, followed by Togo, where an intensive work has been conducted by the implementing partners in the recent years. Out of Togo's 39 signatories, 25 joined the initiative between 2020 and 2021. In general terms, except for 2016, the percentage of adhesion of signatories had a constant pace, around the 20% (merging the years 2020 and 2021) as shown in n.

**Figure 3.** Percentage of signatories per year of adhesion.

**Figure 3.** Percentage of signatories per year of adhesion



Source: JRC analysis

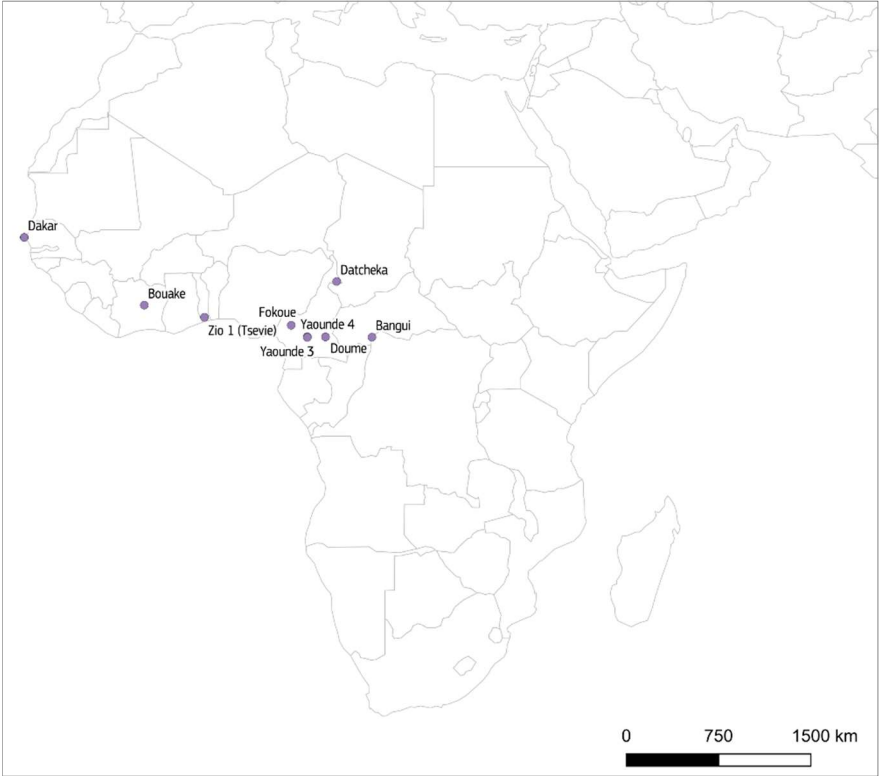
Signatories have a total population of 139.3 million inhabitants<sup>4</sup>, representing around the 12%<sup>5</sup> of all sub-Saharan region’s inhabitants.

The first phase of the initiative focused on setting the methodological framework and process, the Guidebook versions have been released in 2018, the Offline reporting tool through the 2019 and officially published beginning 2020. Therefore, signatories have been sending their assessments and plans through the last two years (2020 and 2021). At the cut-off date of the present analysis of November 2021, nine signatories have submitted their assessments through the offline reporting tools, and six out of these have also submitted their SEACAP for the JRC “second-level validation”. Moreover, through the years 47 SSA signatories have reported their data through CDP platform at least once. This group of nine signatories is the subject of the present study which includes the analysis and reviews performed. The following table (**Source:** JRC analysis

<b>Box 1. Signatories and Climate Action Plans in the CoM regions</b>		
CoM SSA - Number of signatories: 267.	SEACAP and Template submissions: 9.	SEACAPs percentage: 3.3%
CoM East - Number of signatories: 481.	CAP and Template submissions: 231.	CAPs percentage: 48%
Com Med - Number of signatories: 123.	CAP and Template submissions: 22.	CAPs percentage: 18%
CoM EU - Number of signatories: 9755.	CAP and Template submissions: 6752.	CAPs percentage: 69%

**Table 2)** shows the type of these submissions and **Figure 4** presents an overview of the geographical distribution of the nine CoM-SSA signatories considered in this assessment.

**Figure 4.** CoM SSA signatories that have officially reported their data and/or submitted their SEACAP



Source: JRC analysis

<sup>4</sup> GCoM Global Aggregation Report, 2021

<sup>5</sup> Based on population estimates for Sub-Saharan Africa in 2020 from <https://data.worldbank.org>



**Box 1. Signatories and Climate Action Plans in the CoM regions**

CoM SSA - Number of signatories: 267.	SEACAP and Template submissions: 9. SEACAPs percentage: 3.3%
CoM East - Number of signatories: 481.	CAP and Template submissions: 231. CAPs percentage: 48%
Com Med - Number of signatories: 123.	CAP and Template submissions: 22. CAPs percentage: 18%
CoM EU - Number of signatories: 9755.	CAP and Template submissions: 6752. CAPs percentage: 69%

**Table 2.** Type of submissions of CoM SSA signatories (November 2021)

Signatory	Type of submission	Pillars submitted		
		Mitigation	Adaptation	Access to Energy
Bangui	Full SEACAP	√	√	√
Yaoundé IV	Full SEACAP	√	√	√
Bouaké	Full SEACAP	√	√	√
Fokoué	Full SEACAP	√	√	√
Doumé	Full SEACAP	√	√	√
Dakar	Full SEACAP	√	√	x
Yaoundé III	Offline template	√	√	√
Tsévié	Offline template	√	√	x
Datcheka	Offline template	√	√	√

Source: JRC analysis

### 4.3 Specific Methodological remarks

Out of the nine signatories reported in **Table 2**, six have submitted their Sustainable Energy Access and Climate Action Plan (SEACAPs), of which two received a full positive second level evaluation from JRC for all the three pillars. For the remaining four, some issues were found in one of the pillars, preventing the full evaluation by JRC and making necessary some amendments in the offline reporting tool by the signatory. The main outcomes of the analysis of the assessments for each pillar submitted through the templates by the group of signatories are summarised in the table below (Table 5). The most recurrent issues at stake regarded the inconsistency between the data in the SEACAP document and in the reporting template submitted for revision in particular in the action section.

**Table 3.** Outcomes of the second level evaluation of CoM SSA signatories having submitted their data through the offline reporting tool and received the first level validation

	Mitigation			Adaptation			Access to energy		
	BEI	Target	Plan	RVA	Goal	Plan	AEA	Target	Plan
N. Signatories	5	5	2	5	5	4	4	5	4

Source: JRC analysis

The table shows that only two SEACAPs have successfully passed the full analysis for all the three pillars (Yaoundé IV and Fokoué). For the others, as previously mentioned, some issues were detected that prevented the JRC from performing the SEACAP evaluation, thereby the city was contacted with regards to the pillar where the issues were spotted to address them. Within the framework of the present study, for submissions that required an action by signatories, the reported data through the template and the document, for the BEI, RVA and AEA has been compared and checked. The aim of this exercise is to understand the order of magnitude of the discrepancies spotted during the evaluation and to select plausibly correct values between the SEACAP document and the Offline template to be used for the present assessment. Therefore, for Yaoundé IV and Fokoué no further analysis was necessary, as their SEACAP was successfully evaluated in its three pillars. On the contrary, the mitigation data was double checked for Doumé, Bangui and Bouaké, and for Dakar also adaptation data was checked. In the table below the results of this exercise are shown (**Table 4**). As shown in the table, the inconsistencies are mainly related to inaccuracy in reporting or updating the data either in the SEACAP document or in the offline reporting template. Therefore, the data reported by signatories are included in the present study as reported in the column “outcome” of **Table 4**.

**Table 4.** Issues spotted and decision on data to be used for the present assessment

Signatory	Mitigation Comment	Outcome	Adaptation comment	Outcome
<b>Doumé</b>	BEI - Correct Data in the Offline reporting tool, inaccuracy in the aggregated value in the SEACAP	Data from the offline reporting tool is considered	x	x
<b>Bangui</b>	Inconsistencies in BEI and BAU data. Between SEACAP and offline reporting template.	Data from the last offline reporting tool is considered	x	x
<b>Bouaké</b>	BEI consistent. CO <sub>2</sub> emission reduction: negligible inconsistency.	Data from the offline reporting tool is considered	x	x
<b>Dakar</b>	CO <sub>2</sub> emission reduction: mistake in reporting the figure in offline reporting tool	Data from the SEACAP document is considered	RVA is partially completed in the offline reporting tool	Data from the SEACAP document is considered

Source: JRC analysis

For the city of Bangui the inconsistency between the data reported through the offline reporting tool and the data included in their SEACAP document is related to the Baseline Emission Inventory and the Business As Usual Scenario. As the inconsistencies are not negligible and there have been some direct exchanges with the local government's staff to correct the issue, in the present study the data reported in the last version of the offline reporting tool has been considered. However, as the evaluation process has not yet been finalised, the figures from Bangui may go through changes in the future.

In addition, for Yaoundé III, Datcheka and Tsévié data was reported through the offline reporting tool only as the SEACAP document has not been submitted yet. For this study, although the second level evaluation has not been performed, this data has been fully considered and included in the analysis presented in the first part of the report.

The issue of data consistency and data cleaning is common among CoM signatories in all Regional Covenants. This is because local governments voluntarily report their own data which naturally contains different sources of uncertainty (i.e. biased estimations, missing information or lack of coherence) (Melica et al. 2022). The JRC has established a methodology for data extraction and data cleaning. This has been applied to the submissions through MyCovenant. Given the different approach in the SSA region and the low number of current submissions, there is a higher control in the submission phase of the templates and plans and that methodology has not been used in this context.

#### **4.4 Pillars assessments**

The process to develop a SEACAP is structured in four sub-sequential phases as described before. The planning phase includes a pre-assessment stage that allows getting a sound knowledge of the status of the local authority in terms of mitigation, adaptation and energy access. By building on the results of the Baseline Emission Inventory (BEI), Climate Change Risk and Vulnerability Assessment (RVA) and Access to Energy Assessment (AEA), signatories will be able to identify the best fields of action and opportunities for reaching the local authority's GHG emissions target, develop a suitable adaptation strategy and improve the access to secure, sustainable, and affordable energy.

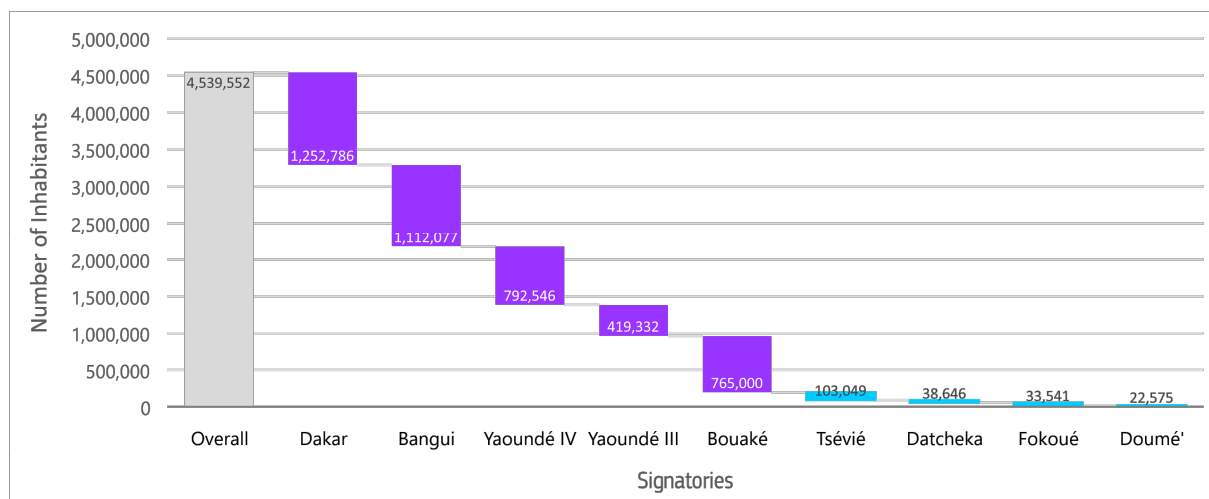
The BEI determines baseline emissions identifying main emission sources and reduction opportunities, the RVA identifies current and future risks for people and assets in the territory, the AEA overviews the local status of electrification and clean cooking in the local authority.

This section analyses the BEIs, RVAs and AEAs of the active CoM SSA local authorities who submitted their SEACAP and/or template, thereby highlighting the main outcomes in terms of overall GHG emissions and key emitting sectors, specific hazards and vulnerabilities as well the status of energy access. Moreover, this section focuses also on the targets and goals set for the three pillars by signatories.

The last step of the SEACAP process is the Monitoring and Reporting phase in which it is possible to review progresses and readjust strategies and priorities. Signatories are requested to regularly submit their progress reports for all pillars, which gives the opportunity to update their assessments and hence, assess their trends against the targets. Given the recent submissions of SEACAPs by signatories, at present they have not reached the time for the progress report requirement, therefore, this study does not cover the monitoring phase and does not analyse monitoring data.

The group of analysed signatories account for a population of 4,539,552 inhabitants, representing around the 4.7% of the total population of CoM SSA committed local governments (the population figure is based on data provided by signatories). The population widely varies across the 9 active signatories. Five signatories have a population over 750,000 inhabitants, one signatory has a population of around 100,000 inhabitants, and three signatories have a population below 40,000 inhabitants, which is a comparable value with most European signatories to the initiative. Despite the small sample, this seems to imply that the number of inhabitants is not a determinant for developing their plans and being an active signatory. This outcome is strictly related and can be read in alignment with the approach adopted through the whole initiative that did not focus only on "strong" high populated and capital cities, but aimed at a full engagement of local governments from the region with inception visits and a high involvement of local representatives.

**Figure 5. Population Overview of Analysed Signatories**



Source: JRC analysis

As briefly described in the previous section, signatories have reported their data through the offline reporting tool. **Table 5** summarises the reported data in the assessments per pillar. For Mitigation, the mandatory and most emitting sectors have been considered, namely Buildings and Stationary energy, Transport and Waste. For Adaptation, the table shows only the three hazards with highest probability and expected impacts and the related vulnerable sectors, while for energy access only the overall indicators for energy access and clean cooking are shown. The full description of the sectors and the related sub-sector for GHG emission inventories, the hazards and vulnerabilities considered in the development of the RVA as well as the full set of indicators for building the AEA within the GCoM context is available in the Guidebook and the CRF <sup>(6)</sup>.

<sup>6</sup> At the moment of the preparation of this study the Common Reporting Framework (CRF) covers the pillars of mitigation and adaptation. [https://www.globalcovenantofmayors.org/wp-content/uploads/2019/04/FINAL\\_Data-TWG\\_Reporting-Framework\\_website\\_FINAL-13-Sept-2018\\_for-translation.pdf](https://www.globalcovenantofmayors.org/wp-content/uploads/2019/04/FINAL_Data-TWG_Reporting-Framework_website_FINAL-13-Sept-2018_for-translation.pdf)

**Table 5.** Summary of reported data in the assessments per pillar

Signatories		Yaoundé IV	Bangui	Bouaké	Doumé	Fokoué	Dakar	Yaoundé III *	Tsévié *	Datcheka *
<b>Indicator/comments on the SEACAPs and pillars</b>		Fully positively evaluated	Mitigation pillar to be resubmitted	All pillars to be resubmitted	Mitigation & energy access pillars to be resubmitted	Fully positively evaluated	Mitigation & adaptation pillars to be resubmitted	Template only	Template only	Template only
<b>BEI</b>	tCO2(eq)/y emissions stationary energy sector	644,294.34 (32%)	599,809 (64%)	1,021,623 (81%) *afolu	17,156 (33%)	17,208.29 (74%)	1,300,000	429,114 (67%)	180 (3%)	32,871 (72%)
	tCO2(eq)/y emissions transport sector	1,148,883.97 (58%)	150,893 (16%)	86,414 (7%)	20,785 (40%)	783.27 (3.4%)	1,058,716	196,041 (30%)	6 029 (94%)	515 (1%) <sup>7</sup>
	tCO2(eq)/y emissions Waste sector	197,972.98 (10%)	187,730 (20%)	145,836.5 (12%)	8,413 (16%)	2,199.35 (9.5%)	315,000	20,895 (3%)	168 (3%)	3,564 (8%)
	Local Energy generation (MWh)	0	0	0	0	0	0	0	1,147	0
<b>RVA</b>	Key hazard 1	Extreme heat	Extreme heat	Drought & water scarcity	Heavy precipitations	Heavy precipitation	Extreme heat	Floods (river floods)	Extreme heat	Extreme heat
	Key hazard 2	Drought & water scarcity	Drought & water scarcity	Chemical change	Wildfires	Severe wind	Floods	Heavy precipitations (rains)	Extreme precipitations and floods	Floods and sea level rise
	Key hazard 3	River floods	Wildfires	Wildfires	Storms	River floods	Drought & water scarcity	Landslide	Drought & water scarcity	Drought & water scarcity
	Vulnerable sector 1	Agriculture & Forest	Health	Agriculture & Forest x2	Water	Agriculture & Forest	Energy	Health Informal settlements	Land use development	Health
	Vulnerable sector 2	Health	Water Agriculture & Forest	Water	Agriculture & Forest	Agriculture & Forest	Land use	Civil protection	Agriculture & Forest Transport Land use dev.	Agriculture & Forest
	Vulnerable sector 3	Informal settlements	Environment & Biodiversity	Buildings	Buildings	Buildings	Water	Land use development	Agriculture & Forest	Water
<b>AEA</b>	Overall indicator Electricity	35.95% 59.05% illegal conn.	24%	82%	24%	30%	NR	98.8% (legal & illegal connections)	NR	NR
	Overall indicator Clean Cooking	5.4%	7%	85%	10%	11% (2018)	NR	85.6%	NR	NR

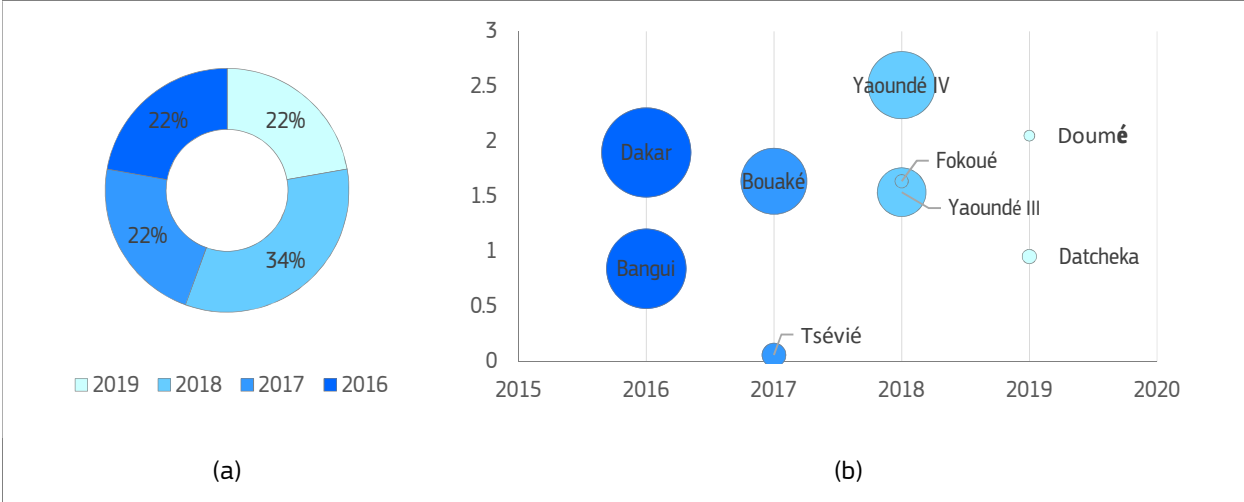
Source: JRC analysis

<sup>7</sup> The SEACAP of Datcheka reports a limited amount of emissions associated to the transport sector. A relevant source of emissions for the municipality is the AFOULU sector, accounting for around 8,436 tCO<sub>2</sub>e. This sector is not reported above as the table aims to provide a snapshot of the commonly most emitting sectors.

**4.4.1 Mitigation. Baseline Emission Inventories and target settings**

As per the CoM SSA and GCoM framework, signatories are free to choose the base year against which their performance can be measured. Thus, different BEI years are selected, as shown in the figure below. The baseline years within this CoM region are very recent in alignment with the recent implementation of the initiative. No specific patterns have been identified in the selection of the year by signatories, with a uniform distribution.

**Figure 6.** Baseline year distribution across signatories (a) and per population and emissions per capita (b)



Source: JRC analysis

On the mitigation pillar, signatories have reported in their BEI that the majority of GHG emissions derives from the *Stationary energy* and *Transport* sectors, whose contribution varies within the cities. On the contrary, *Waste* is the less contributing sector, representing in five cases less than 15% of the overall GHG emissions of the local governments. Moreover, from table 5 is evident the high variety of the amount of GHG emissions reported by signatories.

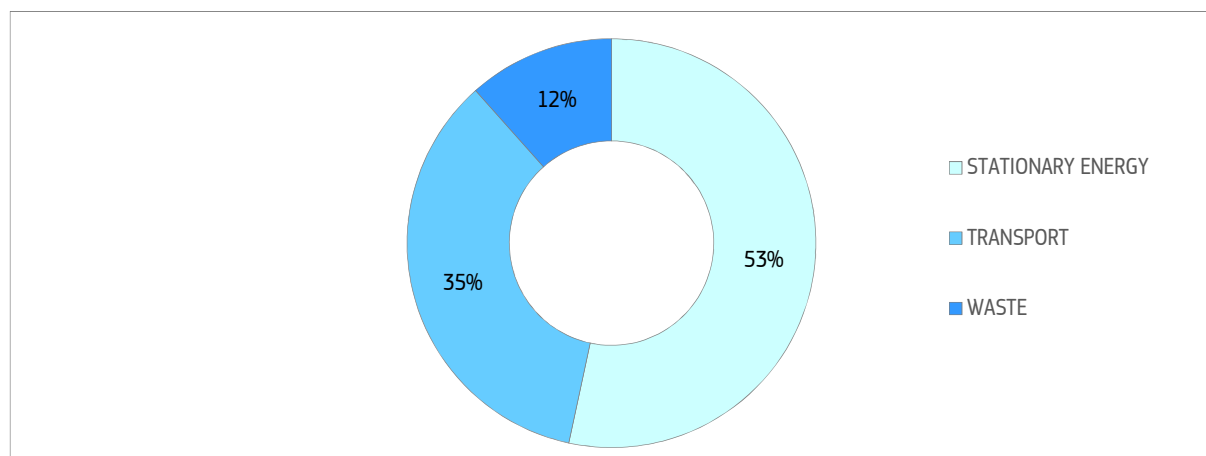
By aggregating the emissions per sector, the GHG emissions due to waste sector in the seven signatories represent the 11.4 % of the total, the emissions due to *Stationary energy* sector the 55.9% and due to *transport* the 32.7%. The CO<sub>2</sub> eq emissions reported by the nine signatories per sector in absolute and relative terms are reported in the table and figure below. The contribution from *Energy generation* has only been reported by the city of Tsévié with regards to *Municipal buildings*.

**Table 6.** Emissions reported by the seven signatories per sector in absolute and relative terms

Sectors	Total emissions [tCO <sub>2</sub> eq]	Relative contribution
Stationary energy	4,062,255.34	53.36%
Transport	2,669,060.24	35.06%
Waste	881,778.83	11.58%
TOTAL REPORTED	7,613,094.41	100%

Source: JRC analysis

**Figure 7.** Distribution of emissions in BEIs by macro-sectors



Source: JRC analysis

Table 7 shows the per capita contribution per each identified macro sector

**Table 7.** Total and per capita CO<sub>2</sub> eq emissions per sector per signatory

Signatory	Population	Stationary	Transport	Waste	Total	CO <sub>2</sub> eq (st)/cap	CO <sub>2</sub> eq (t)/cap	CO <sub>2</sub> eq (w)/cap	CO <sub>2</sub> eq /cap
Bangui	1,112,077	599,809	150,893	187,730	938,432	0.539	0.135	0.168	0.845
Yaoundé IV	79,2546	644,294	1,148,883	197,972	1,991,151	0.813	1.449	0.245	2.512
Doumé'	2,2575	17,156	20,785	8,413	46,354	0.756	0.921	0.372	2.053
Datcheka	38,646	32,871	515	3,564	36,950	0.850	0.013	0.092	0.956
Tsévié	103,049	180	6,029	168	6,377	0.0017	0.0585	0.0017	0.061
Yaoundé III	419,332	429,114	196,041	2,0895	646,050	1.023	0.467	0.049	1.540
Bouaké	765,000	1,021,623	86,414	145,836.5	1,253,874	1.335	0.113	0.190	1.639
Dakar	125,2786	1,300,000	1,058,716	315,000	2,673,716	0.928	0.756	0.225	1.908
Fokoué	33,541	17,208	783	2,199	20,190	0.513	0.023	0.065	0.602

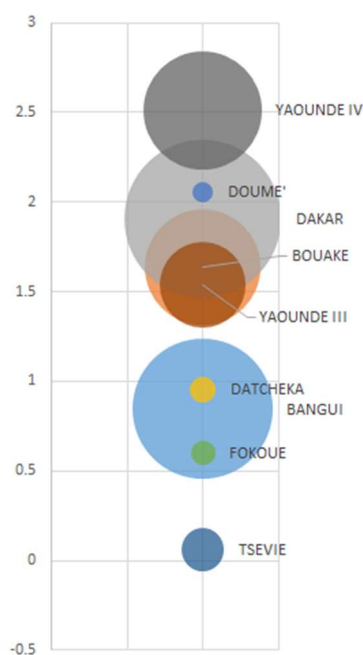
Source: JRC analysis

The analysis of emissions per capita at BEI shows that emissions per capita range between 0.06 to 2.51 with an average of 1.35 tCO<sub>2</sub>eq/per cap. For the city of Tsévié, the per capita value is very low. However, this value is of the same order of magnitude of the one derived from other studies conducted in the context of CoM SSA (SEA 2019), highlighting that Tsévié produced approximately 0.135 tCO<sub>2</sub>e per capita in 2017, which is lower than Togo's national average and than the Sub-Saharan Africa's average. The data of Tsévié will undergo further evaluation once the SEACAP document is officially submitted. **Figure 8** shows carbon emissions per capita for signatories according to the population declared in their BEIs.

Except for Yaoundé IV the highest share of emissions is in the stationary energy sector, followed by transport.

In EU, per capita values average the range 5 to 7 tCO<sub>2</sub>eq/per cap (Bertoldi et al. 2020). As shown in the figure, although signatories diverge significantly in terms of population, Doumé has the lowest number of inhabitants but high emissions per capita (2.05 tCO<sub>2</sub>eq/per cap). Yaoundé IV has the highest emissions' figure per capita and has been the first signatory to submit its SEACAP (see the following sections).

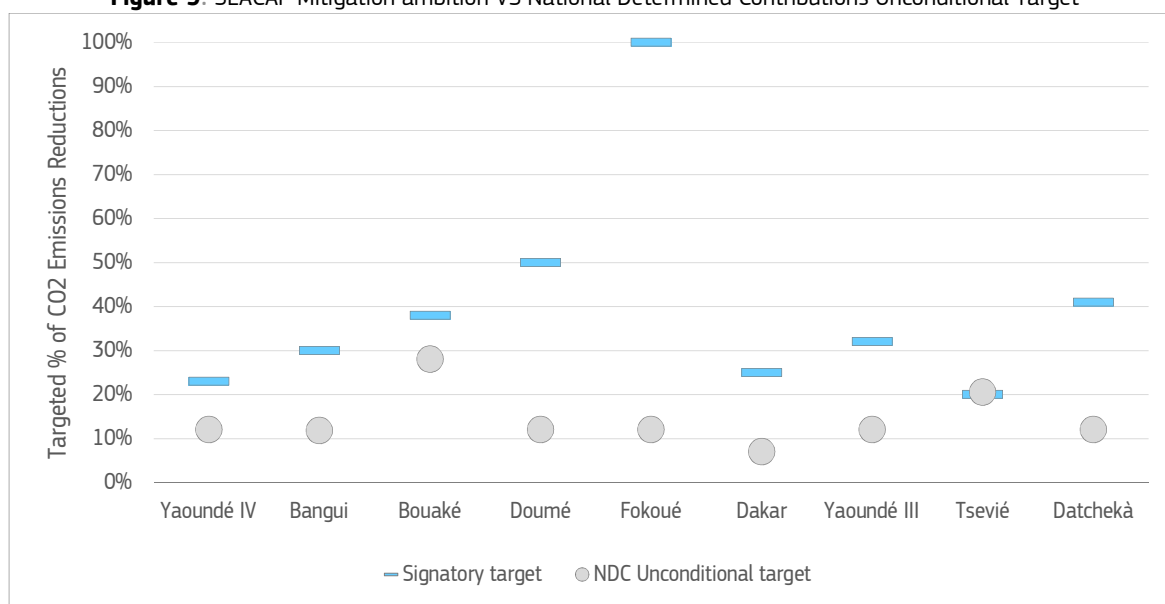
**Figure 8.** Per capita emissions according to the population in BEIs.



Source: JRC analysis

CoM SSA signatories can choose among the targets established in the CRF (Base year emissions target, Base year intensity target, Baseline scenario target and Fixed-level target) and select the type suitable to the local specificities. In particular, the type and the ambition should be in line with or more ambitious than the NDCs. As shown in the table below, most signatories adopted a Baseline scenario target. **Table 8** provides an overview of the amount of GHG emissions in the baseline year, the projected emissions in the scenario and the ambitions and **Figure 9** compares the SEACAP ambitions to the NDCs. The figure highlights how all local authorities have set equal or more ambitious targets than NDC, in particular, the cities of Fokoué and Doumé have set ambitious mitigation targets.

**Figure 9.** SEACAP Mitigation ambition VS National Determined Contributions Unconditional Target



Source: JRC analysis



**Table 8** GHG emissions in the baseline year

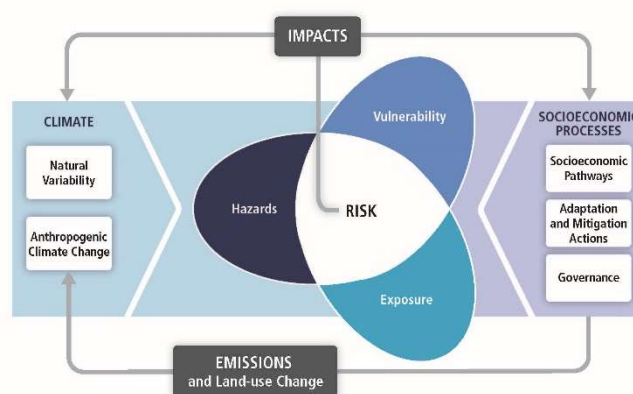
Signatory	BEI year	TOTAL GHG Emissions in BEI	TOTAL GHG Emissions in BAU	Target set estimation 2030	TOTAL GHG Emissions in 2030
Yaoundé IV	2018	1,991,151	3,136,780	-23% on BAU	2,415,320
Bangui	2016	938,432	2,458,629	-30% on BAU	1,721,040
Bouaké	2017	1,253,874	2,803,165	-38% on BAU	1,737,962
Fokoué	2018	23,118	41,799	-100% on BAU	0
Dakar	2016	2,626,843	4,400,000	-25% on BAU	3,300,000
Yaoundé III	2018	646,050	749,876	-32% on BAU	509,915
Tsévié	2017	6,377	n.a.	-20% on BAU	n.a. <sup>8</sup>
Datcheka	2019	45,387	//	-41% on BEI	26,778
Doumé	2019	51,348	//	-50% on BEI	25,853

Source: JRC analysis

#### 4.4.2 Risks and vulnerabilities assessment and adaptation goals

The approach used for conducting a Risk and Vulnerability Assessment (RVA) follows the framework and core concepts of the IPCC ARF (IPCC 2014) (**Figure 10**). Risk of climate-related impacts results from the interaction of climate-related hazards (including hazardous events and trends) with the vulnerability and exposure of human and natural systems. Changes in both the climate system (left side in **Figure 10**) and socioeconomic processes including adaptation and mitigation (right side) are drivers of hazards, exposure, and vulnerability.

**Figure 10.** Illustration of the core concepts of the WGII AR5



Source: IPCC 2014

Within the IPCC framework, climate hazards are defined as “the potential occurrence of a natural or human-induced physical event or trend or physical impact that may cause loss of life, injury, or other health impacts, as well as damage and loss to property, infrastructure, livelihoods, service provision, ecosystems and environmental resources”.

<sup>8</sup> The total amount of GHG for 2030 for the Business as Usual Scenario is not indicated in the documentation provided by the municipality of Tsévié.

Across the CoM SSA signatories the most reported climate hazards with highest probability and impact are “Droughts & Water scarcity” (22 %), “Extreme heat” (19 %), “Floods & Sea level rise” (15 %) and “Heavy precipitation” (15 %). While, the most reported vulnerable sectors are: Agriculture & Forestry” (23%) “Water” (16%), “Land use development“(13%), and “Environment & Biodiversity” and “Health” (10%), which are strongly related to the hazards highlighted.

#### **4.4.2.1 Adaptation goal**

Adaptation goals should provide overarching and measurable objectives for the community to increase its overall resilience to climate change. The identified vulnerabilities should be the basis for the adaptation goals.

In general, adaptation goals can be classified based on two main characteristics:

- Qualitative or quantitative nature of the goal
- Level of specificity of the goal with regards to sectors and hazards identified in the municipality’s risks and vulnerability assessment

The analysis of received SEACAPs highlights that five out of six municipalities set an adaptation goal. These goals have different peculiarities based on a combination of the above mentioned characteristics.

Among the analysed SEACAPs, four types of adaptation goals can be identified:

- **Broad qualitative adaptation goal**

Usually, no reference to specific vulnerable sectors and hazards is made and target metrics are not reported. In some cases, target metrics might be reported, however the broad nature of the goal makes difficult to have clarity on what should be monitored to achieve the stated target.

- **Qualitative adaptation goal with reference to vulnerable sectors and hazards, but without target metrics.**

This type of goal is more tailored to the specific context of the municipality as it considers elements of the risks and vulnerability assessment. However, lack of target metrics limits its role in steering municipality work and defining the level of action required to achieve the goal.

- **Quantitative adaptation goal with reference to vulnerable sectors and main hazard**

This typology fits the characteristics of the local context and in general is the recommended type of goal as it allows a clear reference to vulnerabilities and desired level of improvement.

- **Quantitative adaptation goal with reference to broad sectors**

In some cases, goals might refer to sectors and levels of improvement indirectly related to sectors and hazards identified in the risks and vulnerability assessment. However, they might be misleading in terms of the real nature of the final goal.

The following table (**Table 9**) summarises the adaptation goals reported by each municipality and provides a comparison with the adaptation goal set at country level under the NDC.

In general, alignment between country and local adaptation goal is not as straightforward as in the mitigation sector. A general alignment across sectors and hazards both at country and local level can be identified, however the way an adaptation goal is set at national level and at local level varies. Municipalities tend to have goals specific to their context, while NDCs usually set adaptation goals that have a more ample nature and target.

**Table 9.** Adaptation goals at country and local level

Country and National adaptation goal as reported in the NDC	Municipality and adaptation goal	Characteristics of the municipality adaptation goal
<p><b>Senegal</b></p> <p>“Based on trends of increasing temperature and decreasing rainfall, the specific objectives of adaptation could be structured around three points:</p> <ul style="list-style-type: none"> <li>- Strengthening of observation and data collection systems related to climate</li> <li>- Strengthen the resilience of ecosystems and production activities</li> <li>- Ensure the health, well-being and protection of populations against risks and disasters related to extreme events and climate change”</li> </ul>	<p><b>Dakar</b></p> <p>Reduce the vulnerability of Dakar’s citizens by 20%</p>	<p>Broad qualitative goal with some reference to quantitative metrics</p>
<p><b>Togo</b></p> <p>“Vision: to firmly establish an optimal adaptive capacity of communities in the face of the adverse impacts of climate change and variability”</p>	<p><b>Tsévié</b></p> <p>n.a.</p>	<p>No adaptation goal reported</p>
<p><b>Cameroon</b></p> <p>“Cameroon’s objective and vision for adaptation is that by 2035, “climate change in Cameroon’s five agro-ecological zones will be fully integrated into the country’s sustainable development, thus reducing its vulnerability, and even transforming climate change problem into a development solution/opportunity. Thus Cameroonians particularly women, children and vulnerable people and the economic sectors of the country will acquire a greater resilience and greater ability to adapt to the negative impacts of climate change”</p>	<p><b>Yaoundé IV</b></p> <p>Resilient and low carbon community</p> <p>Yaoundé III</p> <p>Number of people affected by floods</p>	<ul style="list-style-type: none"> <li>- Broad qualitative goal</li> <li>- Quantitative goal tailored to vulnerable sectors and main risks</li> </ul>
	<p><b>Fokoué</b></p> <p>Buildings (Reduced number of buildings damaged by floods)</p>	<ul style="list-style-type: none"> <li>- Quantitative goal tailored to vulnerable sectors and main risks</li> <li>- More than one goal present</li> </ul>
	<p><b>Doumé</b></p> <p>Move from extreme to low level for risks related to bushfires and high winds</p>	<ul style="list-style-type: none"> <li>- Qualitative goal associated to main risks</li> </ul>
	<p><b>Datcheka</b></p> <p>Reduce the level of risks for the main hazards (droughts, floods, storms)</p>	<ul style="list-style-type: none"> <li>- Quantitative goal tailored to vulnerable sectors and main risks</li> </ul>
<p><b>Central African Republic</b></p> <p>“Agriculture and food security, health, basic infrastructure and sustainable management of natural resources, with the aim of maintaining an annual rate of growth of agricultural activities of 6% and stabilisation of the rate of food insecurity at 15%.”</p>	<p><b>Bangui</b></p> <p>Reduce financial losses due to climate change by 75%</p>	<ul style="list-style-type: none"> <li>- Main goal, quantitative but not related to vulnerable sectors and main risks</li> <li>- More than one goal present</li> <li>- Other goals of qualitative nature with reference to vulnerable sectors</li> </ul>
<p><b>Cote d’Ivoire</b></p> <p>Overarching goal not present Multiple sectorial objectives</p>	<p><b>Bouaké</b></p> <p>Reduce vulnerability and increase resilience</p>	<p>Broad qualitative goal</p>

Source: JRC analysis

#### 4.4.2.2 Risk and Vulnerability Assessment

All analysed templates report a complete risks and vulnerability assessment where hazards and sectors are clearly identified.

In terms of hazards, on average the number of hazards with high impact and probability identified by municipalities' ranges between one and four, with drought and extreme rainfall being the most cited. Expanding the analysis toward hazards with low and medium probability and impact, the most frequent hazard becomes flooding, followed by drought, extreme winds and extreme heat.

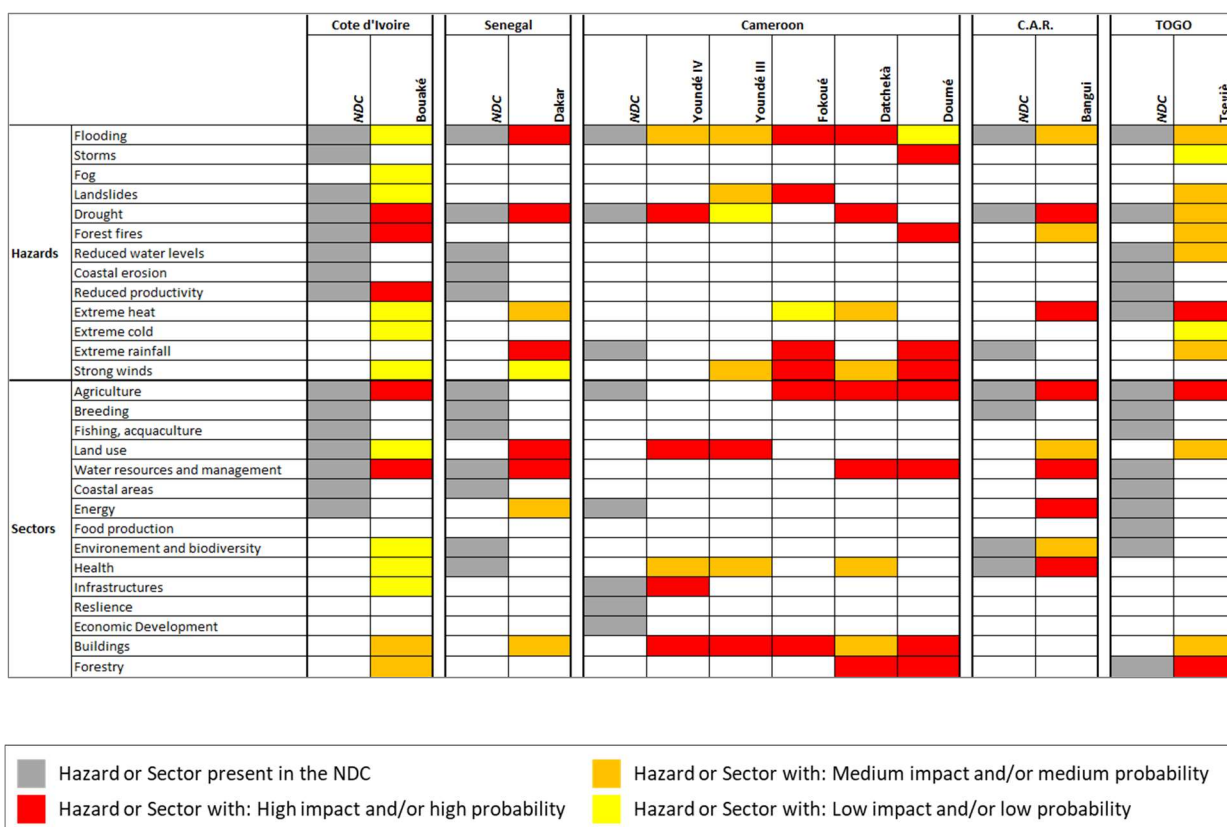
In general, there is a consistent alignment between hazards reported in the reporting template and hazards identified in the country's NDC. On average, at least one of hazards identified by the municipalities find a match with the hazards reported in the NDC.

When looking at the type of sectors that are most vulnerable, on average the number of sectors with high vulnerability ranges between two and four sectors, with agriculture and water resources and management being the most cited. When also sectors with low and medium level of vulnerability are considered, the most reported sectors become *building* reported in eight municipalities out of nine, followed by agriculture, land use, water resources and management.

Also, in this case a certain degree of alignment among sectors reported in the reporting template and sectors identified in the country NDC is present. Typically, at least one sector with high vulnerability identified by the municipality matches one vulnerable sector listed in the NDC.

The following figure provides an overview of the type of hazards and sectors identified by municipalities in their risks and vulnerability assessment and makes a parallel with hazards and vulnerable sectors reported in each country NDC.

**Figure 11.** Hazards and sectors identified in the RVAs and reported in NDC



Source: JRC analysis

### 4.4.3 Access to Energy Assessment

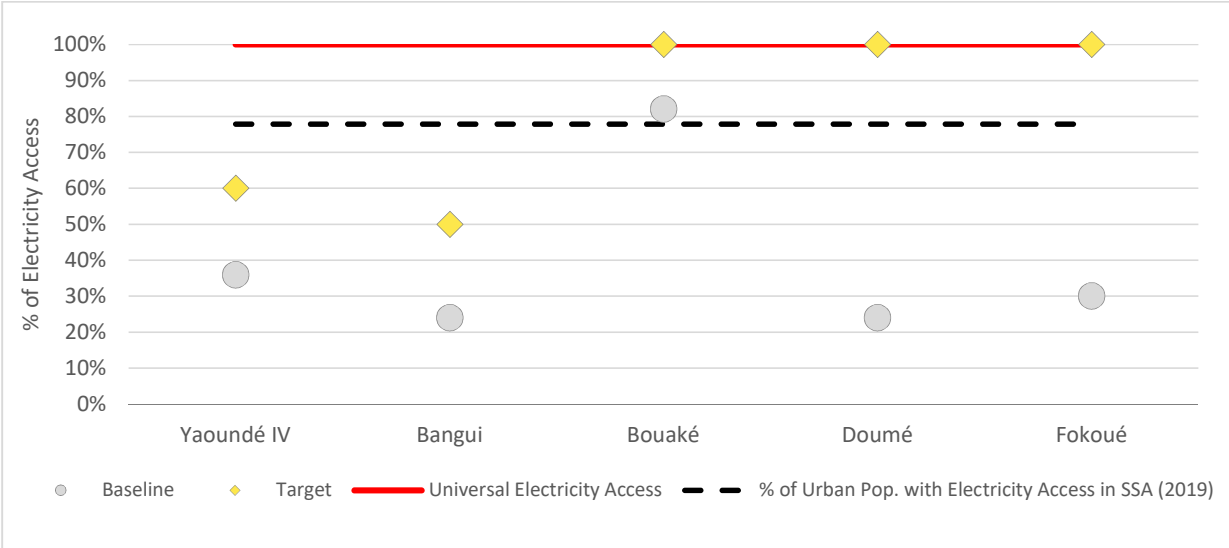
Local authorities in CoM SSA have been the first ones to develop an Assessment on Energy Access (AEA). This is based on a dashboard of indicators related to two main sectors: electricity and clean cooking (see the CoM SSA Guidebook).

The figures below present the level of ambition in the energy access pillar, outlining baseline levels and 2030 targets for electricity access and for clean cooking. The baseline and the target are then compared to the universal energy access threshold, which in line with SDG n. 7 should be the overarching ambition.

**Figure 12** on Electricity Access Ambition presents a varied landscape. Baseline levels for electricity access tend to be low, with most of the cities reporting electricity access lower than 40%. Only the municipality of Bouaké, with 82% reports an important level of electricity access. To put baseline figures into a more comprehensive context, it should be considered that on average in 2019 electricity access in Sub-Saharan Africa attested at overall at 46.75%, and at 77.86% when considering only urban population. Except for the municipality of Bouaké, most municipalities analysed appear have baseline levels that are less than half the regional electricity access average.

When considering the electricity access target, three signatories out of five aim to achieve universal electricity access by 2030, with the municipalities of Doumé and Fokoué aiming to drastically increase electricity access levels, in fact their plan aims for an improvement of 70 percentage points or more. The municipality of Yaoundé IV and Bangui aim to double the electricity access level in their municipality, however the target set for 2030 will be lower than the average electricity access in urban areas in 2019.

**Figure 12** Electricity Access Ambition

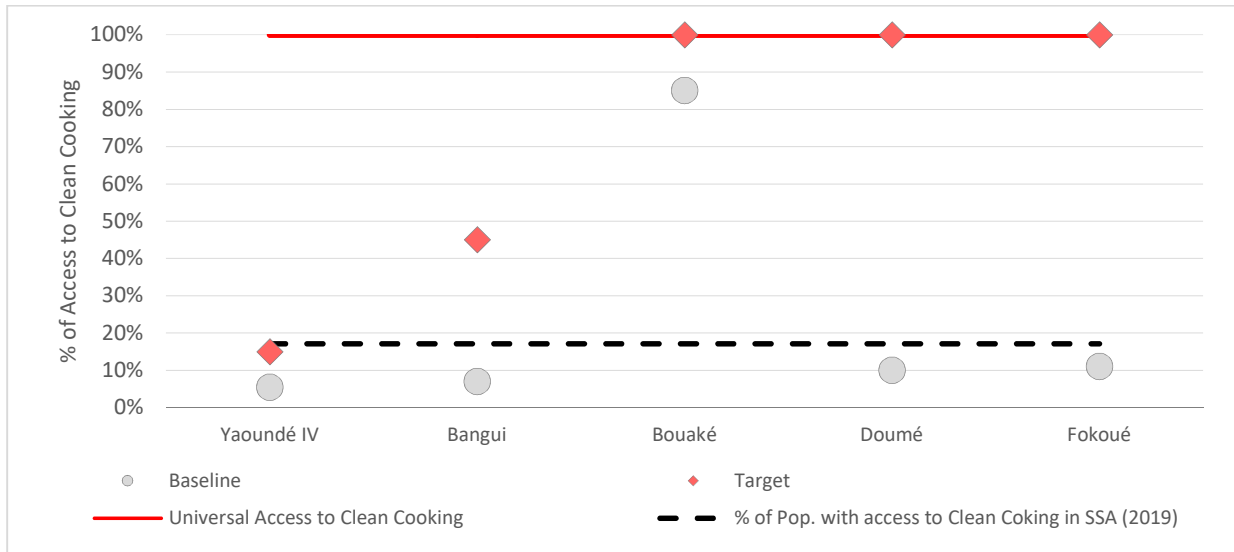


Source: JRC analysis

**Figure 13** present signatories' ambition for clean cooking. Baseline levels for access to clean cooking fuels and technologies are in most cases lower than the regional values. In 2019 the average access for clean cooking fuels and technologies in Sub-Saharan Africa was recorded at 17.11%. Only the municipality of Bouaké reports a substantial penetration of clean cooking solutions, with a baseline access at 85%.

In terms of 2030 targets, as seen for electricity access, three signatories out of five aim to achieve universal access to clean cooking by 2030. In absolute terms, this goal will be particularly challenging for the municipalities of Doumé and Fokoué as they aim to increase clean cooking access levels by tenfold in a decade. The municipalities of Yaoundé IV and Bangui, as for electricity access, are setting milder targets for 2030. Clean cooking access levels are expected to increase respectively by three and five times by 2030, however these targets remain distant from the achievement of universal access to clean cooking by 2030.

**Figure 13.** Access to Clean Cooking Ambition



Source: JRC analysis

## 5 Sustainable Energy Access and Climate Action Plans evaluation

This section presents a more detailed evaluation of the six received SEACAPs. The analysis is based on a set of indicators developed by the authors, with to provide insights into the SEACAP process and outcomes, highlighting potential gaps to be addressed and specific features characterising the plans. The indicators provide also a framework for inter-comparison of the plans within the SSA region and with other regions.

Indicators are recognised for the role they can play in supporting the making of informed decisions (already highlighted at the Earth Summit in 1992). Urban sustainability indicators allow for the analysis of problems and the identification of the areas where it is worth investing through good governance and science-based responses, as well as for monitor the success and impact of sustainability interventions (EC 2018, Lombardi, 1998). Indicators are also employed in spatial planning as a means for measuring and evaluating plans and understanding their outcomes, successful elements and pitfalls (Mascarenhas et al. 2015). As indicators represent only partial isolated aspects, to gather a more comprehensive overview it is necessary to use more indicators and make extra efforts to integrate and synthesise their outcomes. In this study, the set of indicators has been developed with the aim of evaluating different elements of the SEACAPs and linking these to the characteristics of the signatories.

Indicators have been classified into three broad groups with the aim to assess not only the potential outcomes of the plans' implementation, but also the overall SEACAPs' preparation process and its impacts on the community:

- **General characteristics of signatories that have reached the SEACAP submission phase,**
- **Result oriented indicators,**
- **Process oriented indicators.**

The following section provides the list of indicators and relative description per each of these groups.

### General characteristics of signatories

The first group of indicators provides a background summary of what type of municipalities have completed their SEACAP and which one were pilot cities, hence receiving early project and financing support. In addition, this part of the analysis looks specifically at the time required for signatories to reach the finalisation and submission of their SEACAP.

The following table (**Table 10**) presents the list of "Local Authority" key performance indicators (KPI) considered to carry out the analysis.

**Table 10.** Local Authority key performance indicators

LOCAL AUTHORITY INDICATORS	
KPI	Description
Size/population	
Pilot city (Y/N)	
Time to SEACAP	Time needed from joining the Covenant to finalizing the SEACAP

Source: JRC analysis

### Results oriented indicators

The second group of indicators focuses on SEACAP results in terms of overall ambition, outcomes of the assessment phase and type of actions designed and planned. This part of the analysis looks also at the financing domain, in terms of mechanisms envisaged by the municipality to mobilize resources for actions implementations as well as defining an average cost of action for implementing chosen measures. The analysis also considers what are typical factors limiting the SEACAP development, and what type of approaches are usually identified by signatories to implement their actions. Finally, the indicator "Balance among the pillars" aims at providing indication of the level of integration among the different pillars within the plan. This is a measure of the capacity of the local authority to mainstreaming climate action in a holistic and integrated strategy.

The following table (**Table 11**) presents the full list of “Results Oriented” key performance indicators considered to carry out the analysis.

**Table 11.** Result-oriented indicators

<b>RESULTS ORIENTED INDICATORS</b>	
<b>KPI</b>	<b>Description</b>
General Vision & Ambition	Describes the level of vision and ambition set by signatories toward 2030 and 2050 targets, and whether this is aligned or more ambitious than Nationally Determined Contribution (NDC).
Assessment	Provides a qualitative description of the assessment analysis carried out by signatories looking at elements such as level of disaggregation, identification of most emitting sources, most vulnerable sectors and population groups.
Actions	Assesses whether actions planned have one or more characteristics such as clear description and rationale, sufficient for reaching the target, feasible, innovative.
Financing	Provides a description of the viability level of actions chosen and of identified external financing sources.
Expected cost of action	Provides an average indication of the cost per CO <sub>2</sub> eq avoided based on mitigation actions set into the plan and their related estimated budget requirements.
Limiting factors	Identifies potential contextual barriers to SEACAP development such as unstable political context, no pre-existing plans/projects, and SEACAP related barriers such as limited data availability.
Action approaches	Assesses whether actions in the plan use a soft or hard approach, distinguishing whether they aim to use nature-based solutions, or old/new technologies or infrastructure.
Balance among the pillars	Estimates the level of interrelation among the SEACAP pillars based on how actions reported as integrated and affecting other pillars. <sup>9</sup>

*Source:* JRC analysis

### **Process oriented indicators**

In addition to the evaluation of the outcomes of the plans, the third group of indicators centres on the type of processes followed by the municipality along the SEACAP development path. These indicators serve as a basis for assessing the development phases of the plans, thereby providing an indication of tools and methodologies used by municipalities to develop their SEACAP, considering the level of engagement with the local population and stakeholders, investigating the support from external experts or consultants, and the type of interactions carried out with financing institutions.

The following table (**Table 12**) presents the full list of “Process Oriented” key performance indicators considered to carry out the analysis.

<sup>9</sup> Similarly and more in-depth the “Urban Climate Change Integration Index” assesses the level of integration between adaptation and mitigation policy objectives in urban areas and identifies their synergies and co-benefits (Grafakos et al. 2020).



**Table 12.** Process oriented indicators

PROCESS ORIENTED INDICATORS	
KPI	Description
Assessment	Highlights the type of tools or methodologies used from the municipality to carry out the assessment phase in the domains of mitigation, adaptation and access to energy.
Planning	Clarifies if the SEACAP planning, or some of the SEACAP actions, were already receiving some form of financing and if they were part of other or larger projects.
Planning	Describes how the municipality has framed its own SEACAP within the broader set of sectorial plans and policies present at regional, national and continental level, and related level of awareness.
Engagement	Gives evidence of engagement and participation processes executed while joining the initiative, carrying out the assessment phase and during plan implementation and monitoring.
Financing	Assesses if and how financing institutions have been engaged and in which phase of the plan development. Additional elements include evidence of use of financing incentives or financing programs.
Support	Considers the implementation of if intermediate support or other measures such as workshop with local authorities before the SEACAP submission.
Governance	Evaluates if the SEACAP presents sectors that are out of local authority control and describes examples of collaboration established with other administrative levels for collecting data and developing the plan.
Organisation	Assess the level of involvement of staff from the municipality in developing the plan, and evaluates the role of external consultants in developing the SEACAP.

Source: JRC analysis

### 5.1.1 General characteristics of signatories

The evaluation regards the SEACAPs submitted by the following signatories as shown in the table below (**Table 13**).

**Table 13.** SEACAP included in the analysis

Signatory	Country	Type of Municipality	Pilot municipality	Mitigation Pillar	Adaptation Pillar	Energy Access Pillar
<b>Dakar</b>	Senegal	Capital or main city	No	Completed	Completed	Not completed
<b>Bouaké</b>	Ivory Coast	Capital or main city	No	Completed	Completed	Completed
<b>Bangui</b>	Central African Rep.	Capital or main city	Yes	Completed	Completed	Completed
<b>Yaoundé IV</b>	Cameroon	Capital or main city	Yes	Completed	Completed	Completed
<b>Fokoué</b>	Cameroon	Secondary city	No	Completed	Completed	Completed
<b>Doumé</b>	Cameroon	Secondary city	No	Completed	Completed	Completed

Source: JRC analysis

As reported in the table above and introduced in the initial part of the report, municipalities that have completed their SEACAP range from capital cities, to main cities and secondary cities. In some cases SEACAPs have been validated, while in some others the municipality is now engaged to improve some of the SEACAP components or to develop any pillar that was missing from the plan.

### 5.1.2 Time to SEACAP and timeline

Signatories covered by the analysis initiated their SEACAP development process in different moments in time. For example, the municipality of Dakar begun its process in early 2015, while the pilot municipalities of Bangui and Yaoundé IV started their activities at the end of 2017. The last municipality to initiate its SEACAP development activities has been Fokoué in late 2018.

**Figure 14** provides a graphical representation of the time committed for SEACAP development. The chart considers the signature of the Covenant of Mayors SSA as starting point and the submission of the SEACAP as end of the process.

**Figure 14.** Time to SEACAP (a)

	2015	2016	2017	2018	2019	2020	2021
Dakar	█	█	█	█	█	█	█
Bouaké		█	█	█	█	█	█
Bangui			█	█	█		
Yaoundé IV			█	█	█		
Fokoué				█	█	█	█
Doumé				█	█	█	█

Source: JRC analysis

The time elapsed since a signatory commits to the Covenant and when the SEACAP is submitted is defined for the purpose of the report as Time to SEACAP. This indicator provides an average estimation of how many months are typically needed to complete the SEACAP development process.

Considering the statistics available from signatories analysed in this assessment, it appears that municipalities committing early to CoM SSA required more time to complete their SEACAP then signatories joining subsequently. For example, the main cities of Dakar and Bouaké report a *Time to SEACAP* that is at least two times what occurred to Bangui and Yaoundé IV. This difference could be associated to aspects such as:

- **Learning rate**, where municipalities joining late benefit from lessons learnt from previous signatories and receive guidance from SEACAP development support structures that has been already tested,
- **Pilot city scheme**, receiving support through a pilot project scheme might be key to complete a SEACAP faster (the cases of Bangui and Yaoundé).
- **Access to methodological guidance**, in particular the availability of dedicated guides providing an indication of how to approach the SEACAP development. The CoM SSA Guidebook was published in 2018, hence Fokoué and DouMé could benefit from it since the moment they joined the Covenant, while this opportunity was not initially available for early joiners such as Dakar and Bouaké.

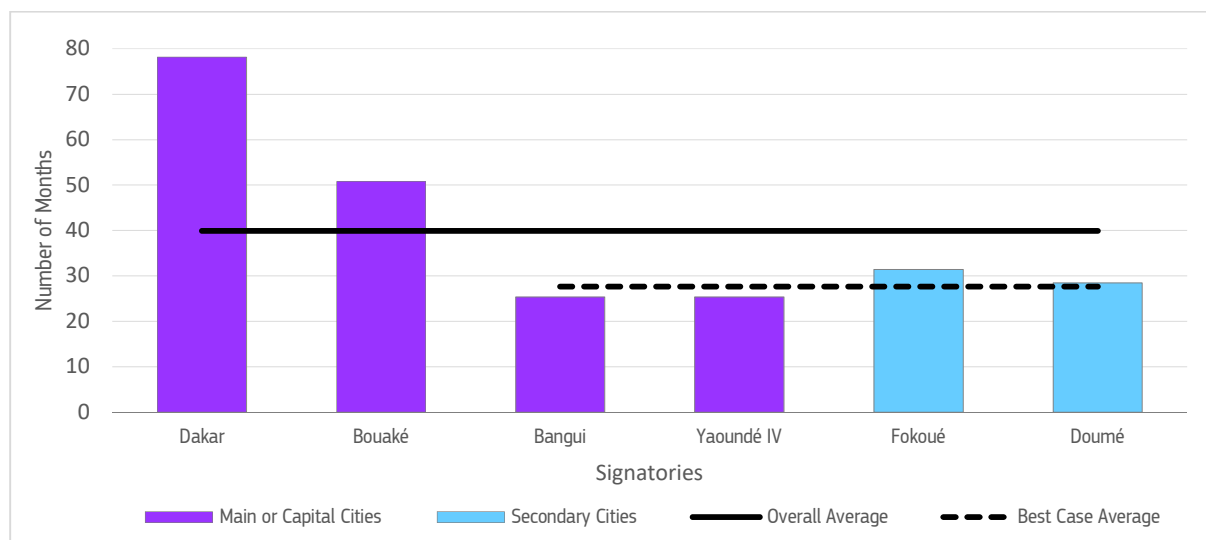
The following **Figure 15** provides a comparison of the Time to SEACAP of different signatories. Early joiners report an higher Time to SEACAP, while signatories that have joined more recently present a comparable Time to SEACAP independently by them being a main or secondary city or being a pilot city or not. For early

The Time to SEACAP comparison allows to identify two main references:

- **Overall average Time to SEACAP** can be estimated at around 40 months,
- **Best case Time to SEACAP** can be estimated at around 28 months.

While the sample of signatories is still small to define a statistically relevant estimation of time required for signatories to complete their SEACAP, the analysis helps to identify an initial estimation of this measure.

**Figure 15.** Time to SEACAP (b)



Source: JRC analysis

## 5.2 RESULT ORIENTED INDICATORS

### 5.2.1 Ambition

#### 5.2.1.1 Mitigation

Signatories that submitted the SEACAP and completed the mitigation pillar, report a general ambition that is typically higher than their country mitigation ambition as reported in the national determined contributions.

The following table provides an overview of the mitigation target set by each signatory and compares it to the country specific NDC's mitigation target. In all cases signatories set a mitigation target that is more ambitious than the NDC. The difference between the SEACAP mitigation target and the NDC mitigation target varies from 10 percentage points for the municipality of Bouaké, up to 88 percentage points for the municipality of Fokoué.

**Table 14.** Mitigation targets

Targets Signatory	SEACAP mitigation target	NDC mitigation target	SEACAP target higher than NDC target [Y/N]	Delta ambition mitigation
Dakar	25%	7%	Yes	+18%
Bangui	30%	12%	Yes	+28%
Bouaké	38%	28%	Yes	+10%
Yaoundé IV	23%	12%	Yes	+11%
Doumé	50%	12%	Yes	+38%
Fokoué	100%	12%	Yes	+88%

■ Main or capital city
 ■ Secondary city

Source: JRC analysis

The analysis of SEACAPs allows to identify some of the main areas where mitigation efforts are planned and highlights some of the actions that signatories plan to do to reach their target. The following cases can be considered as representative example for the mitigation ambition of signatories.

- **The municipality of Bangui** plans actions aimed at increasing the sequestration capacity of its forestry ecosystem in urban and peri-urban areas. In addition to this, the signatory plans to develop an atmospheric pollution monitoring system that will help to have a better understanding of the air quality in the municipality area.
- **The municipality of Dakar** has set mitigation targets articulated in short, medium and long term goals. In addition to the 2030 target, the municipality aims to achieve a short term target for 2025 (with emissions reductions of -12%) and longer term goals for 2040 and 2050, with emission reduction targets respectively of -36% and -54%. This approach allows the municipality to put its actions into a longer term perspective and plan and prioritize accordingly.
- **The municipality of Fokoué** can be considered as an example of very ambitious signatory as it aims to reach carbon neutrality by 2030. The main action associated to emissions reductions refers to REDD+ measures. While on one side this approach puts a clear priority on reforestation measures, on the other side the signatory becomes aware of potential risks related to not diversifying its intervention on other high emitting sectors that could help contribute to achieve its target.

**5.2.1.2 Adaptation**

Among the SEACAPs analysed, the large majority of municipalities have included an adaptation goal, which can vary from being a qualitative or quantitative goal as explained in the previous section “RVA and Adaptation goal”.

The following **Table 15** provides a summary of the main adaptation goal characteristics and shows the different approaches used by municipalities:

**Table 15.** Adaptation goals

	Adaptation goal reported [Y/N]	Qualitative goal	Quantitative goal	Main risks and vulnerable sectors identified	More than one goal present
Dakar	Yes	Yes			
Bangui	Yes		Yes		Yes
Bouaké	Yes	Yes			
Yaoundé IV	Yes	Yes			
Doumé	Yes	Yes		Yes	
Fokoué	Yes		Yes	Yes	Yes

Main or capital city
  Secondary city

Source: JRC analysis

When considering the adaptation pillar and how the ambition of the municipality is presented, the SEACAP from the municipality of Fokoué could be considered as a reference example for how its adaptation goal is framed. The adaptation goal includes the following key elements that make it a sound reference to guide the work of the municipality over the adaptation pillar:

- **The main adaptation goal is quantitative.** The municipality of Fokoué quantifies its ambition for 2030 in reducing by 75% the number of buildings at risk.
- **The goal makes clear reference to vulnerable sectors and main risks identified in the RVA.** The RVA of Fokoué reports as domains of high probability and high impact the areas of landslide, regarding

hazards, and building, regarding sectors. In accordance with this analysis the municipality identifies the reduction in the overall number of buildings at risk from landslide as one of its adaptation goals.

- **The municipality identifies more than one adaptation goal.** Building on further critical areas identified in the RVA, such as flooding and extreme rainfall, the municipality decided to set additional adaptation goals. These include for example the protection of buildings at risk from flooding, or the reduction of the agriculture loss due to climate change and the degradation of roads viability due to extreme climate events.

### 5.2.1.3 Energy Access

Among the SEACAPs analysed in this report, only Dakar has not completed the energy access pillar. For this reason the municipality does not appear in this section.

The other five local governments have a goal for electricity access and a goal for clean cooking, which typically aim to improve current access levels, and in some cases also to achieve universal access.

The analysis of the goals set by signatories highlights a level of ambition that varies significantly among signatories:

- **For electricity access**, the ambition ranges from an increase of current access levels by 18 percentage points for the municipality of Bouaké, to an increase by 70 percentage points for the municipality of Fokoué.
- **For access to clean cooking**, the ambition ranges from an increase of current access levels by 10 percentage points for the municipality of Yaoundé IV, to an increase by 90 percentage points for the municipality of Fokoué.

The following table summarizes the baseline access levels and 2030 target levels both for electricity access and for clean cooking. In addition, the table compares the targets set for 2030 with the achievement of universal access to electricity and to clean cooking, providing an indication on whether the municipality aims to achieve universal access or not.

**Table 16.** Energy Access at baseline and target levels

	Electricity Access				Access to Clean Cooking			
	Baseline	2030 Target	Delta	Universal Access	Baseline	2030 target	Delta	Universal Access
<b>Dakar</b>	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
<b>Bangui</b>	24%	50%	26 p.p.	No	7%	45%	38 p.p.	No
<b>Bouaké</b>	82%	100%	18 p.p.	Yes	85%	100%	15 p.p.	Yes
<b>Yaoundé IV</b>	36%	60%	24 p.p.	No	5%	15%	10 p.p.	No
<b>Doumé</b>	24%	100%	76 p.p.	Yes	10%	100%	90 p.p.	Yes
<b>Fokoué</b>	30%	100%	70 p.p.	Yes	11%	100%	89 p.p.	Yes

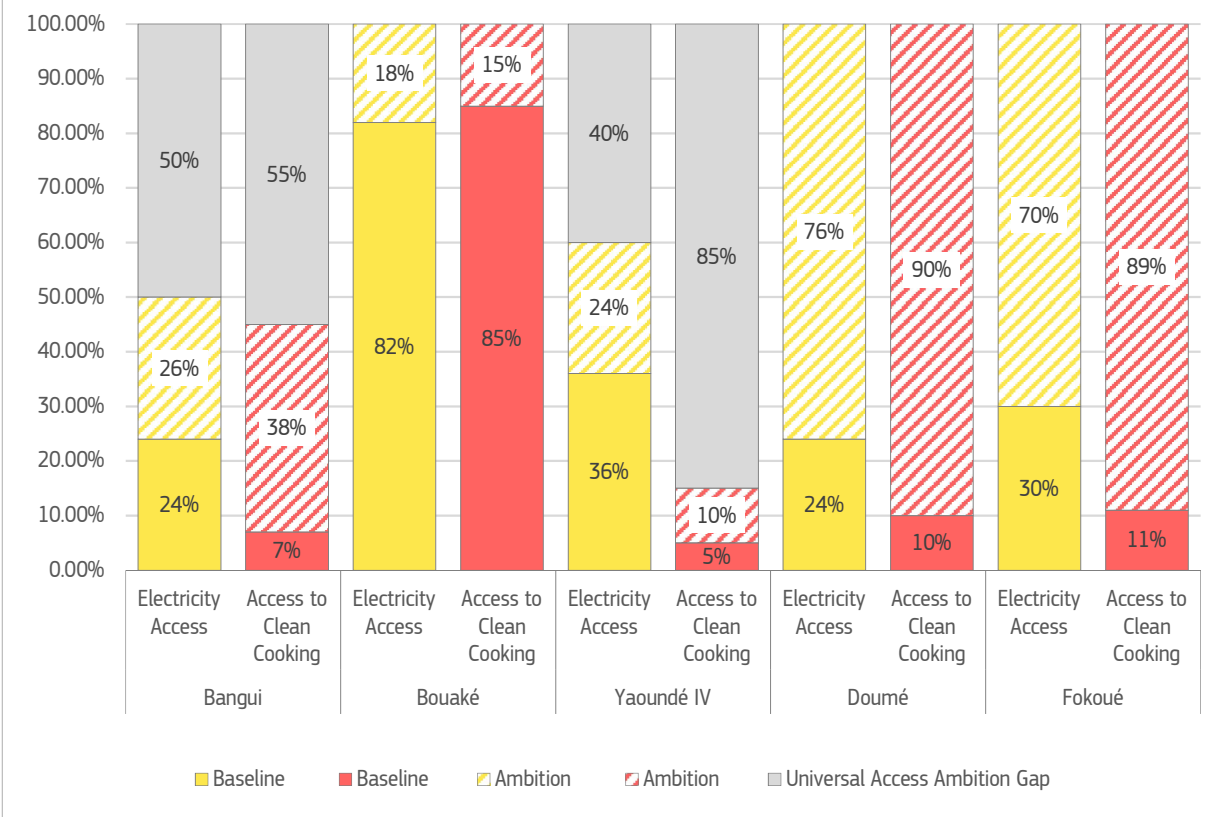
Main or capital city
  Secondary city

Source: JRC analysis

Figure 16 provides an analysis of signatories' ambition for access to electricity and access to clean cooking. The chart indicates the baselines access levels, the ambition in access improvement set by the municipality in its plan, and eventually the ambition gap to achieve universal electricity or clean cooking access. The chart sets at 100% the level of access required to achieve universal access in each domain.

The analysis shows that for Bangui and for Yaoundé IV an ambition gap is present. While both municipalities aim to improve substantially their original condition, with at least almost doubling its baseline levels in energy access and at least almost tripling its baseline levels in clean cooking, further effort would be required to achieve universal access.

**Figure 16.** Ambition toward combined universal access in electricity and clean cooking



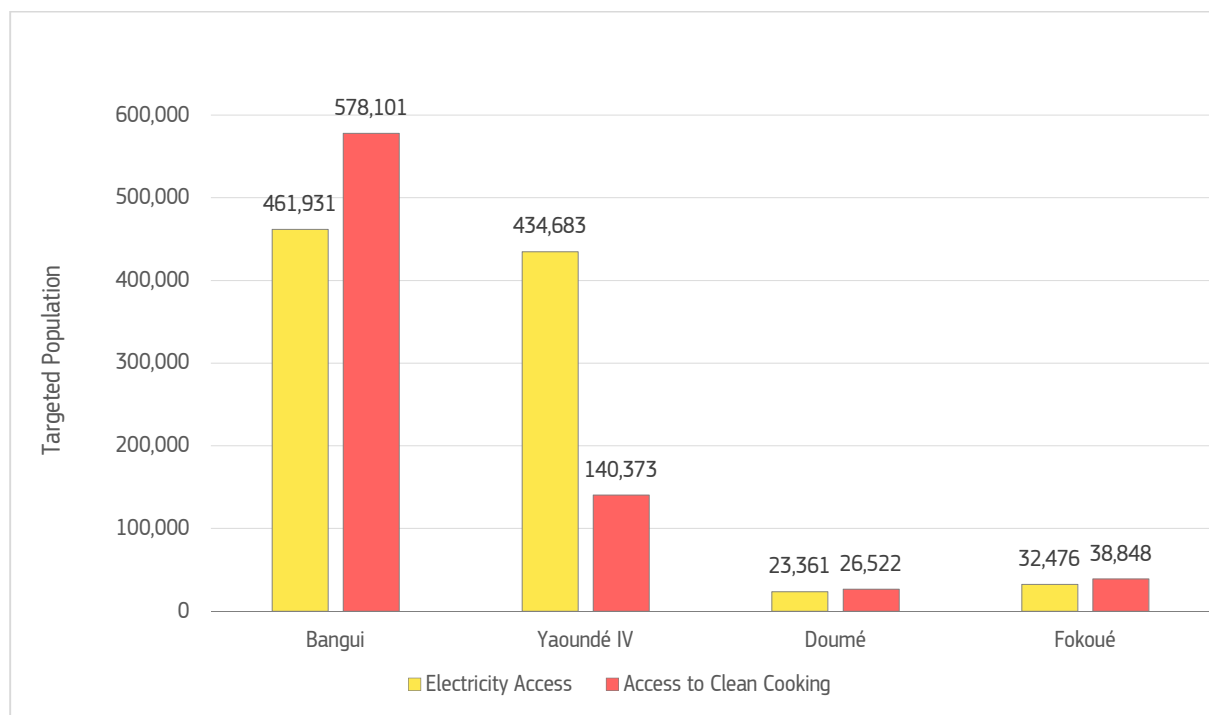
Source: JRC analysis

The analysed SECAPs report an initial indication of the budget estimated by cities as necessary to implement electricity access and clean cooking action. The analysis of these figures allow to have a more complete view of signatories’ intended effort. For this specific analysis the municipality of Bouaké is not considered as the estimated budget provided in its SEACAP refers only to priority actions planned for the first few years of SEACAP implementation. Hence, the data available doesn’t provide a full picture of estimated costs to be sustained for achieving energy access and clean cooking targets. For this reason the following charts present information only for the municipalities of Bangui, Yaoundé IV, Doumé and Fokoué.

**Figure 17** presents an overview of the population targeted by actions included in the SEACAPs. For the purpose of the analysis, targeted population is intended as the amount of population that should be reached by actions to achieve the final level of access set by the municipality. The targeted population for electricity and for clean cooking have different values as the access baseline levels and target levels for the two sectors are different in each of the analysed municipalities.

Due to the intrinsic difference in size, main cities target a larger population in the order of hundred thousand inhabitants, with substantial variations between targeted population for access to electricity and for access to clean cooking. Secondary cities have a targeted population of a lower size, in the order of ten thousand inhabitants.

**Figure 17.** Targeted population by 2030 per sector per each signatory



Source: JRC analysis

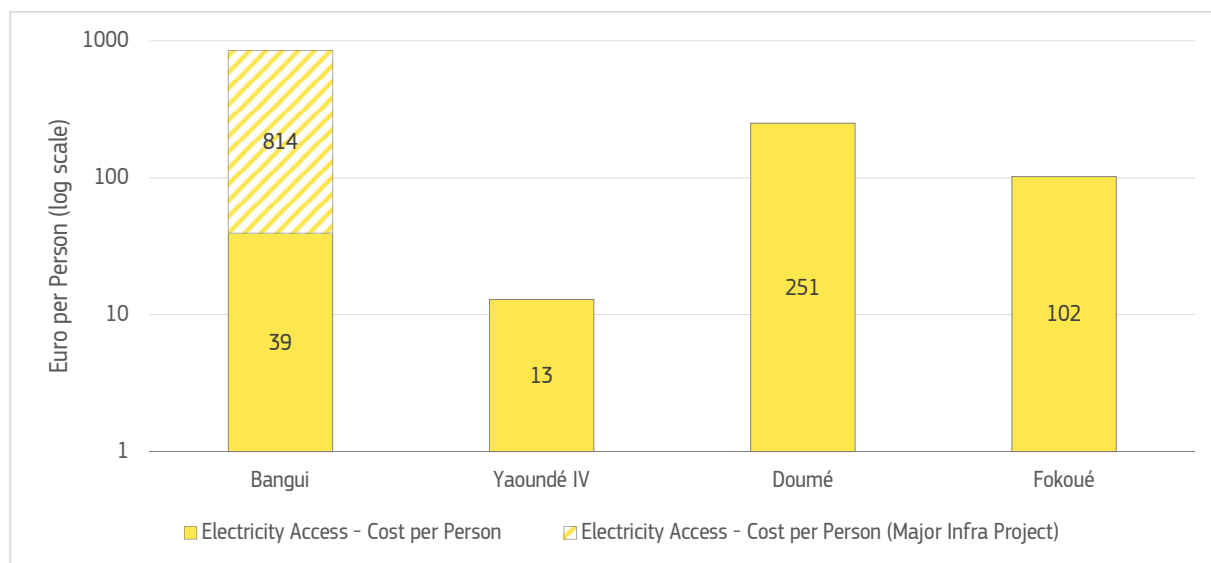
Analysing the estimated budget for energy access actions reported in the SEACAPs and matching it with the targeted population can provide an initial benchmark of the estimated cost required to reach the underserved population. The following charts consider SEACAPs actions that impact the energy access pillar, either directly (when actions are reported as energy access actions), or indirectly (when actions are reported as mitigation actions with relevance also for energy access).

Regarding electricity access, the analysis highlights the following classes of cost for action.

- **Main cities.** The municipalities of Bangui and Yaoundé IV present costs ranging between 13 and 39 Euro per person of targeted population. However, to achieve its electricity access target the municipality of Bangui also plans to build a major energy infrastructure project consisting in a power plant. When considering also this action the associated costs increase substantially, reaching a total of over 853 Euro per person of targeted population.
- **Secondary cities.** The municipalities of Fokoué and Doumé report slightly higher costs, respectively of 102 and 251 Euro per person of targeted population.

A closer look at the type of actions proposed by municipalities' shows that, without considering the main infrastructure project planned by the municipality of Bangui, main cities are mainly focusing their activity on sensitization and training activities. On the other hand, the actions proposed by secondary cities are centred on small scale infrastructure projects or the delivery and installation of hardware systems. The different nature of actions can provide an explanation of the different range of cost per targeted population.

**Figure 18.** Access to Electricity - Cost of Action per Targeted Population



Source: JRC analysis

Concerning clean cooking, the analysis of estimated action budgets reports a similar classification (see **Figure 19**).

- **Main cities.** On the higher end, main cities present costs ranging between 12 and 39 Euro per person in the targeted population group. Also in the case of clean cooking actions the impact of major infrastructure projects play an important role in defining the relevant cost per person. In this case the municipality of Yaoundé IV is planning the construction of a methane production and gas distribution plant, and once this project is taken into account the cumulative cost per person for the municipality of Yaoundé IV would reach around 355 Euro per person in the targeted population group.
- **Secondary cities.** On the lower end of the spectrum, secondary cities report lower costs, accounting for 1 and 3 Euro per person in the targeted population group of respectively Doumé and Fokoué. The cost in this case tend to be comparable as both cities have actions centred on the production and distribution of cook stoves of higher efficiency and quality.

The analysis highlights that local authorities should carefully assess and eventually review how they plan to achieve their clean cooking access goal. In some cases the level of commitment in terms of actions and related estimated budget do not seem proportionate to the target set. For example, the municipality of Doumé has a targeted population of around 26,522 inhabitants and the action planned for clean cooking consists in the distribution of 1.500 improved cook stoves. This would reflect in each cook stove serving a group of around 20 people. However, this analysis suggests that considering a household composed to typically five persons the municipality should consider scaling up the action outreach increasing the number of clean cooking devices distributed, or consider design and planning new actions to reach the same targeted population.



**Figure 19.** Clean Cooking – Cost of Action per Targeted Population



Source: JRC analysis

More in general, it has to be noted that multiple factors can influence how costs of actions per targeted population are estimated. The small sample of municipalities analysed also limits the depth of insights possible at this stage. Nevertheless, this analysis can provide an initial benchmark to better understand drivers such as type of actions, estimated budget and targeted population and help identify possible inconsistencies (e.g. actions focused of soft measures that report estimated budgets higher than infrastructure oriented measures) or eventually best cases (e.g. actions that with a lower budget can lead to a higher number of beneficiaries reached).

## 5.2.2 Assessment

### 5.2.2.1 Mitigation

Overall, the received SEACAPs present a complete mitigation assessment. In all plans, the assessment considers the main emitting sectors such as *buildings*, *waste* and *transport*, including a sufficient level of analysis of the different emitting sources' categories contributing to the overall emissions in the sector.

It is possible to categorize the type of mitigation assessment received in three main classes: Basic, standard and expanded mitigation assessment (see the figure below).

**Figure 20.** Mitigation assessments

	Basic Assessment	Standard Assessment	Expanded Assessment
Offline reporting tool			
SECAP document			
Separate BEI diagnostic			
Separate Scenario document			

Source: JRC analysis

- **Basic mitigation assessment.** In this case SEACAPs include information on the mitigation assessment through the Baseline Emissions Inventory reported in the offline reporting tool. In some cases, the information is also reported in the SEACAP narrative document, however, with limited description of the process followed to develop the assessment. While the information reported in the offline reporting

template presents a rationale, the plan would benefit from a more complete description of the processes followed during the assessment and the assumptions considered when developing the baseline emissions inventory.

- **Standard mitigation assessment.** In this case, the SEACAPs include a separate document that elaborates the process followed to develop the Baseline Emissions Inventory. In this case the document gives an extensive description of the various sectors analysed and of assumptions used. This type of submission highlights also areas where information is lacking and where the signatories had to make further assumptions or where a gap is present due to the limited information available.
- **Expanded mitigation assessment.** In this case, the SEACAPs expand the baseline emissions inventory and present a description of possible future emissions scenarios. The definition of future scenarios requires setting hypothesis for future economic development of the municipality and, due to its complexity, this type of assessment is less frequent among the SEACAPs analysed.

**Table 17** provides an overview of the type of mitigation assessment present in SEACAPs analysed.

**Table 17.** Type of BEI per signatory

Signatory	Basic Assessment	Standard Assessment	Expanded Assessment
Dakar			
Bangui			
Bouaké			
Yaoundé IV			
Doumé			
Fokoué			

Main or capital city
  Secondary city

Source: JRC analysis

Overall all local authorities have provided a sufficiently detailed mitigation assessment and among all SEACAPs the case of the municipality of Bouaké can be considered as example of a well-structured mitigation assessment.

### Box 2. Bouaké (Ivory Coast)

The city of Bouaké developed a detailed Baseline Emission Inventory that was used as a foundation for a further exercise of scenario planning. The local authority used the assessment and sectorial knowledge gathered to define which future development pathways could be considered for the different sectors. Information was then synthesized in specific hypothesis, for example defining different assumptions in the agriculture sectors on how deforestation rate could vary in the future, and how this could lead to different levels of emissions. This was further translated in future actions scenario characterized by different type of actions, including a sensitization scenario, a technology scenario and incentives and legislative scenario.

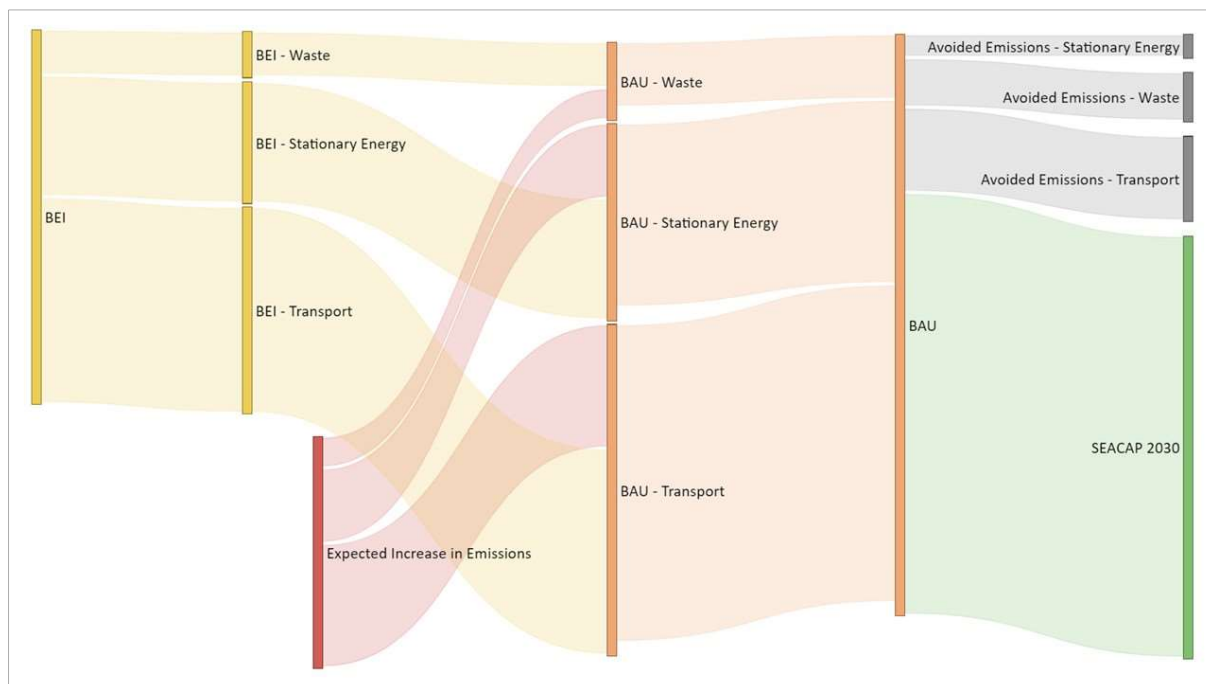
The case of Bouaké is a key example that shows how efforts in data collection and mitigation assessment can be capitalized into a better planning of future scenarios and identification of desired actions. In addition, SEACAPs that present a clear description of the process followed by the municipality have the potential to act as positive example and guide for municipalities that are still planning to carry out their mitigation assessment in the future.

In terms of challenges related to the mitigation assessment, a common problem faced by municipalities regards the availability of local data. When data is not available then the mitigation assessment is less comprehensive and requires the definition of assumptions to close the data gap. A variation of this challenge emerges when data is collected following extra efforts from the municipality in retrieving data for example from other institutions. The extra time and resources required to complete the data collection process might

act as a barrier toward completing the mitigation analysis. At the same time, a comprehensive data collection process can lead to the design of a better plan, with planning and actions backed by contextual data.

Among other positive examples, the municipality of Yaoundé IV can be considered as case where complete mitigation data has been collected during the assessment and coherently reported into the plan. **Figure 21** provides a visual representation of how mitigation data, when complete, can be used to produce analysis that allow to better understand the current situation and future trajectory of a municipality in terms of emissions.

**Figure 21.** Visual representation of emission sources and changes for the municipality of Yaoundé IV



**How to read the Sankey diagram for emissions sources in Yaoundé IV:** The yellow bar represents the baseline emissions inventory, that is the total emissions for the municipality of Yaoundé IV at the moment of the assessment in year 2018 estimated at MtCO<sub>2</sub>eq 1.191.151. The baseline is then disaggregated in the main emitting sectors: waste, stationary energy and transport, accounting respectively for 644.294 MtCO<sub>2</sub>eq, 1148883 MtCO<sub>2</sub>eq and 197972 MtCO<sub>2</sub>eq. In a Business As Usual (BAU) scenario the total amount of emissions for the municipality are expected to grow by an amount estimated at 1.145.529 MtCO<sub>2</sub>eq and represented by the red bar. The expected growth in emissions is then disaggregated per sector, leading to the orange bars representing the business as usual scenario in 2030 per sector. The main orange bar represents the estimated total emissions for Yaoundé IV in a BAU scenario, estimated at 3.136.680 MtCO<sub>2</sub>eq. The design and implementation of the actions listed in the SEACAP of the municipality allows to improve this situation and reduce the emissions. The green bar on the right represents the total amount of emissions in 2030 that could be reached implementing the SEACAP, estimated at 2.424.043 MtCO<sub>2</sub>eq. The grey bars represent the avoid emissions possible thanks to the implementation of SEACAP actions in each sector.

Source: JRC analysis

**The analysis of the received SEACAPs highlights that municipalities could further improve the quality of the mitigation assessment by:**

- **Clearing inconsistencies between data reported in the SEACAP and in the offline reporting template.** The analysis showed frequent inconsistencies between the two documents.
- **Verifying conversion factors in units or the correct calculation of sectorial cumulative emissions.** The analysis reported that in some cases, possibly due to limited familiarity with the offline reporting tool, there are numerical errors that risk leading to misinterpretation of final figures.
- **Further expand the information on mitigation assessment for energy production.** The analysis showed that in the majority of the SEACAPs, the provided documentation lacks information on this section.

### 5.2.2.2 Adaptation

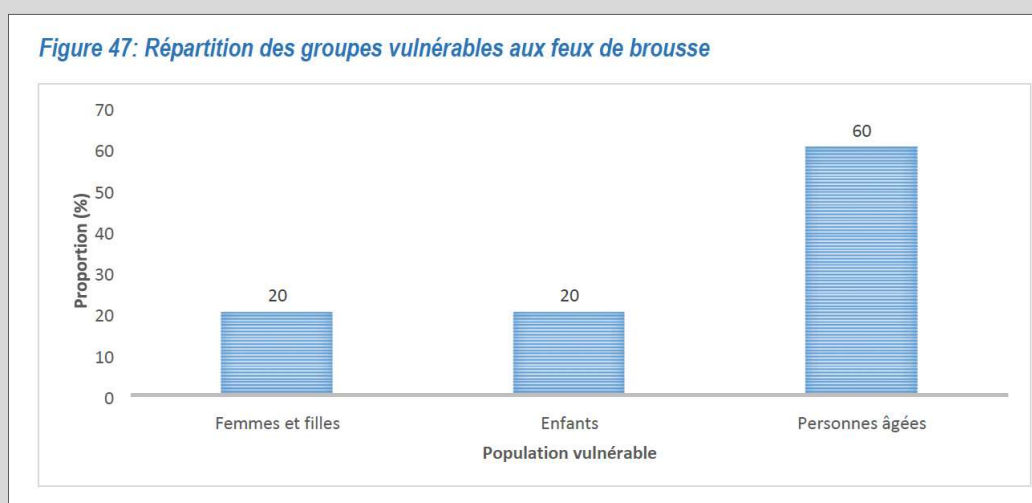
Overall the adaptation assessment included in the SEACAPs present an adequately complete level of analysis. In all SEACAPs the main type of hazards and sectors have been identified, with estimated probability of risk and impact. In some cases, municipalities have developed an additional in depth vulnerability assessment that provides inputs on how different sectors could be impacted by climate change and associated risks.

In terms of identification of vulnerable groups, the SEACAP submitted by the municipality of Doumé could be mentioned as a reference example.

#### Box 3. Doumé (Cameroon)

The SEACAP couples each type of risk with the vulnerable population groups, which are then further described and classified. While the classification uses broad categories, it provides an important element and background information to define which target groups the adaptation actions should focus on. The data collected on this part of the adaptation assessment can be seen as a payoff of the effort carried out by the municipality to carry out field data collection.

Figure 22: Vulnerable groups in Doumé



Source: SEACAP of Doumé

Table 18 provides an overview of the level of information presented in the adaptation assessment.

Table 18. Adaptation assessments

Signatory	Hazards	Sectors	Adaptation capacity	Separate vulnerability assessment	Analysis of vulnerable groups
Dakar					
Bangui					
Boauké					
Yaoundé IV					
Doumé					
Fokoué					

Main or capital city
  Secondary city

Source: JRC analysis

The following boxes report additional examples of adaptation assessment best practices identified during the SEACAPs analysis:

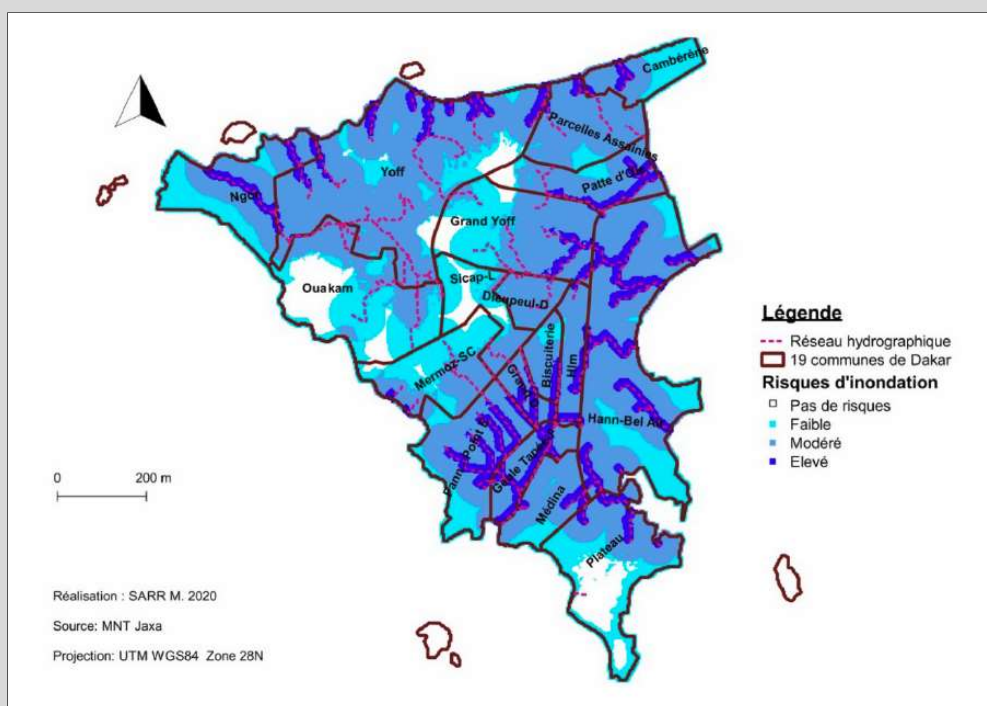
#### Box 4. Dakar (Senegal) - Vulnerability study in Dakar

The municipality of Dakar has developed a comprehensive vulnerability study that provides an overview on the existing status quo in terms of risks and impacts, and an estimation of how they could evolve in the future.

The analysis makes large use of maps and geographic information, giving risks a clear spatial context. Estimates of how key indicators such as temperature, rainfall and sea levels will evolve in the coming decades are used to define key future scenarios and assess how sectors could be impacted.

The adaptation assessment presents a synthetic SWOT analysis for each identified risk, giving a snapshot of the main drivers that should be taken into consideration in future actions. The assessment is completed by a high level description of potential interventions and provides a clear contextual and operational description of the sector, creating a solid foundation for the identification of actions relevant for the SEACAP

Figure 23. Risk of flooding in Dakar



Source: SEACAP of Dakar

#### Box 5. Bouaké (Ivory Coast) - Composite indicators

The municipality of Bouaké created a composite indicator named “Niveau de vulnérabilité” that combines:

- the level of exposition to certain risks,
- the expected impact,
- the frequency of the events.

The composite indicator was used by the municipality to take data driven decisions in terms of which sectors should be prioritized.

The development of the composite indicator is an example of how carrying out a risks and vulnerability assessment can lead to the creation of further instruments that the municipality can use in the future to reassess its condition and eventually modulate its actions.

Overall the SEACAPs analysis highlights that municipalities face challenges in terms of access to data and access to frameworks for prioritizing areas of intervention. At the same time, the analysis shows how through field surveys and field data collection, municipalities collected adequate data to develop an adequately complete adaptation assessment overcoming the data gap challenge.

### 5.2.2.3 Energy Access

Overall the energy access assessments developed by signatories present an adequate level of analysis. In all SEACAPs the main information regarding both access to electricity and access to clean cooking have been provided.

All signatories provided information for each of the energy attributes that characterise the access to electricity and access to clean cooking sectors. It has to be highlighted that, despite the challenges of the context, signatories have completed an extensive energy assessment activity, providing a large set of data points. The cumulative number of indicators provided per each signatory attests at around 14 indicators. In addition to this, for some indicators signatories have set sub-targets associated to the indicator to be achieved 2030. Hence the overall target aimed at increasing the overall rate of access to electricity and clean cooking is coupled with sub-targets that are specific to each energy attribute and sector.

**Table 19** provides an overview of the number of indicators provided by signatories per each access to electricity and access to clean cooking and for each attribute of the two sectors:

**Table 19.** Status of Access to Energy Assessment reporting by signatories

Sector and attributes	Access to Electricity			Access to Clean Cooking		
	Security	Sustainability	Affordability	Security	Sustainability	Affordability
<b>Dakar</b>	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
<b>Bangui</b>	3	3	1	3	3	2
<b>Bouaké</b>	1	3	3	3	3	2
<b>Yaoundé IV</b>	3	3	2	2	3	1
<b>Doumé</b>	3	3	1	3	3	2
<b>Fokoué</b>	3	2	1	3	3	2

Main or capital city
  Secondary city

Source: JRC analysis

Among all analysed SEACAPs, some examples can be mentioned as best practices. These are shown in the boxes below.

#### Box 6. Bouaké (Ivory Coast) – Organisation of workshops

The city of Bouaké has carried out tailored workshops to engage with the local population and relevant stakeholders. The workshops have been used also to run questionnaires for contextual analysis and data collection and analysis of willingness to pay and financial accessibility. Subsequent workshops focused on these aspects allowed to define an estimate of the level of willingness to pay for electricity of the population.

#### Box 7. Fokoué (Cameroon) - Field studies

The city of Fokoué has carried out different field studies and data collection to build a clear picture of the status quo on energy access. The studies included the categorisation of the population in different income brackets, the estimation of average annual expenditures for energy services for a typical household, and the identification of the quality levels of available energy services. A similar analysis was carried out for clean cooking. Combining the different data sources collected allowed the municipality to estimate the capability to pay of the population.

Overall, it has to be highlighted that local governments in Sub-Saharan Africa are the first in the world to respond to the requirements of the GCoM energy access pillar. Taking into consideration the contextual

challenges, the limitation in data availability, and the fact that at GCoM level there is no precedent work on this sector, the work developed by municipalities constitute a positive example of how the SEACAP process can guide municipalities toward action also in new areas of work. After three years of activation, the methodology developed for the region and illustrated in the GB, seems to suit the needs and local conditions of the local authorities. However, this can be further adapted following inputs received by signatories when submitting their SEACAP (i.e. most selected indicators, type of data collection approach) and on the global framework under finalisation.

### 5.2.3 Actions

The analysis highlights that all signatories present a clear approach to identify and articulate the actions selected for their SEACAP. Details of actions are typically provided under dedicated *Fiche de Project* that include information such as:

- Context and rationale of the interventions,
- Goals and indicators to measure action progress,
- List of potential stakeholders
- Estimated budget for actions implementation.

In some cases certain information, for example budget estimate, is not provided through the project fiche. However, it is often possible to retrieve the relevant data from other sections of the SEACAP, for example those focussing on financial resources.

The analysis also shows that signatories usually identify actions relevant for needs and critical areas identified during the assessment. However, in some cases the actions identified are not sufficient to achieve the goal set for a specific pillar. For example, actions covering the mitigation sector are not sufficient to reach the desired level of emissions reductions. In this circumstance signatories should further reflect on whether they should scale up their level of action or review their level of ambition, in order to have alignment between goals and actions.

The following table provides a quick summary of the main key information related to actions provided in the SEACAPs. All signatories have provided the most relevant key information. Only the municipality of Bouaké and Dakar report partial information, the former focused only on priority actions planned for the upcoming two years, the latter has not completed the energy access pillar.

**Table 20.** Key information on actions

Signatory	Mitigation				Adaptation				Energy Access			
	Project fiche	Description	Timeline	Budget	Project fiche	Description	Timeline	Budget	Project fiche	Description	Timeline	Budget
Dakar									n.a.	n.a.	n.a.	n.a.
Bangui												
Bouaké												
Yaoundé IV												
Doumé												
Fokoué												

Main or capital city
  Secondary city

Source: JRC analysis

## 5.2.4 Financing

The analysis reports that all SEACAPs provide a high level identification of potential financing sources to be considered for the implementation of the plan. Based on the description presented in the plans and considering a high level perspective, the financing of actions included in SEACAPs appear generally viable. However, the financing options for each action would require a dedicated assessment and some exceptions should be considered. For example, in some cases the SEACAPs foresee actions constituted by the implementation of major infrastructure projects. These projects are typically capital intensive and require the mobilisation of large volumes of financing resources, with associated benefits and challenges.

In general, the successful financing of each action will depend by the capacity of municipalities to engage with multiple financing sources, and on the ability to build a consistent business case for each action, or set of actions.

Finally, another important aspect of financing concerns the access to sources that can facilitate the SEACAP design and formulation. In some cases these sources can help overcome budget constraints of the municipality. The analysis shows that in two cases, for the municipalities of Bouaké and Fokoué, the SEACAP has been formulated leveraging support from external entities, in this case the European Commission. With the progress of the initiative additional options for providing support for municipalities could be considered. For example, support option could focus on providing advice or technical assistance to municipalities in the domain of access to financing in order to improve their capacities in accessing and mobilizing resources.

The following table provide an overview of some of the main financing aspects presented in the plans.

**Table 21.** Financing key elements in the SEACAPs

Signatory	Potential financing sources identified in the Plan	Financing of actions viable?	Plan development fund by external entities
<b>Bangui</b>	Yes, Public and private sources	Major Infrastructure Projects	
<b>Yaoundé IV</b>	Yes, Public and private sources	Major Infrastructure Projects	
<b>Bouaké</b>	Yes, Public and private sources		Pilot project, plan developed with EU funding support
<b>Fokoué</b>	Yes, Public sources		Pilot project, plan developed with EU funding support
<b>Doumé</b>	Yes, Public sources		
<b>Dakar</b>	Yes, Public and private sources		

Main or capital city
  Secondary city

Source: JRC analysis

## 5.2.5 Cost of action

### 5.2.5.1 Mitigation

Based on data provided by signatories in their SEACAPs, it is possible to calculate an initial estimation of the budget required to implement actions impacting the mitigation pillar. The calculated using only the cost estimates for actions impacting directly the mitigation pillar (e.g. actions directly reported in the mitigation section). The analysis can be completed associating the amount of emissions reductions targeted by signatories to achieve their mitigation target to estimated costs. It is then possible to display an indication of the costs to be encountered by the municipality per each tonne of CO<sub>2</sub> to be eliminated.



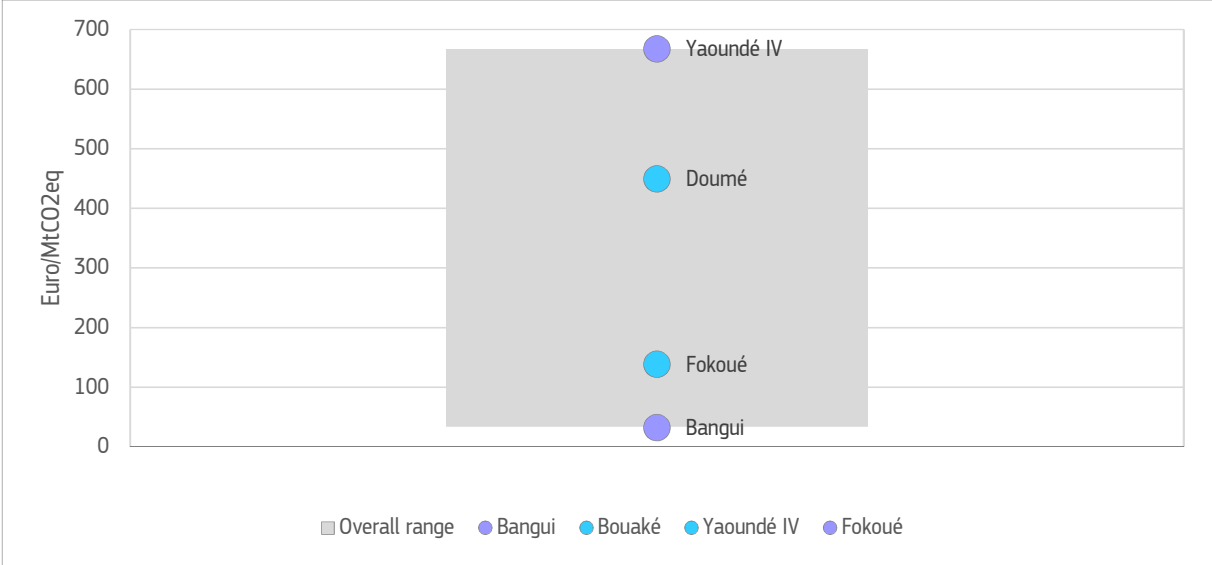
Bangui, Yaoundé IV, Doumé and Fokoué, were the only signatories providing sufficient data for estimated costs of actions listed in the mitigation pillar.

**Figure 24** represents the ration between estimated budget for mitigation actions and amount of targeted emissions reductions, hence providing an indication of how much would it cost to avoid 1 MtCO<sub>2</sub>eq of emissions based on the actions, and related costs, identified by municipalities. This ration can be defined as Mitigation cost of action.

Despite the limited sample of signatories, it is possible to indicate that the overall cost of action range spans from 32 Euro/MtCO<sub>2</sub>eq to 667 Euro/MtCO<sub>2</sub>eq. Main cities appear to cover whole spectrum of the cost of action range, while secondary cities cost of action positions toward the centre and lower part of the overall range. The differences in cost of action can be associated to different type of actions selected by municipalities to achieve their mitigation target. For example, while Yaoundé IV and Bangui aim to reach comparable levels of emissions reductions, they plan to do it with different approaches. Yaoundé IV actions combine soft and hard measures, while Bangui actions are focused on soft measures. Consequently, the two signatories present different budget associated to mitigation actions and a different cost of action despite targeting the same level of emission reductions.

The small sample of signatories available limits the depth of the analysis. However, once more signatories will submit their plan, the analysis could be replicated and expanded to obtain a more generalised indication on the estimated cost of action for mitigation. Regarding the validity of the analysis, it must be highlighted that multiple factors can influence the differences in cost of actions, in particular due to the extremely limited sample, variations in the estimates made by signatories can lead to changes in the cost of action. Finally it has to be mentioned that mitigation measures which budget is not accounted in the action list prepared by signatories (e.g. national mitigation programmes) might also contribute to achieve the final mitigation target, while not influencing the overall estimated mitigation budget.

**Figure 24.** Mitigation cost of Action – range



■ Main or capital city    ■ Secondary city  
 Source: JRC analysis

**5.2.6 Limiting factors**

Through the analysis of the plans it has been possible to identify limiting factors in terms of the process, of local/national context that might have hindered the plan elaboration and may have impacts in its implementation.

Overall, data collection has been indicated as a key issue by the evaluated local authorities. In addition, in some cases the economic, social and political setting has negatively influenced the SEACAP process, in particular:

- Insufficient budget;
- Limited possibilities for exchanges and organising workshops in specific areas;
- Mistrust and scepticism in the local community;
- Administrative barriers

Also the Covid pandemic has been included among the limiting factors in reducing the possibilities of exchanges among all relevant and interested people.

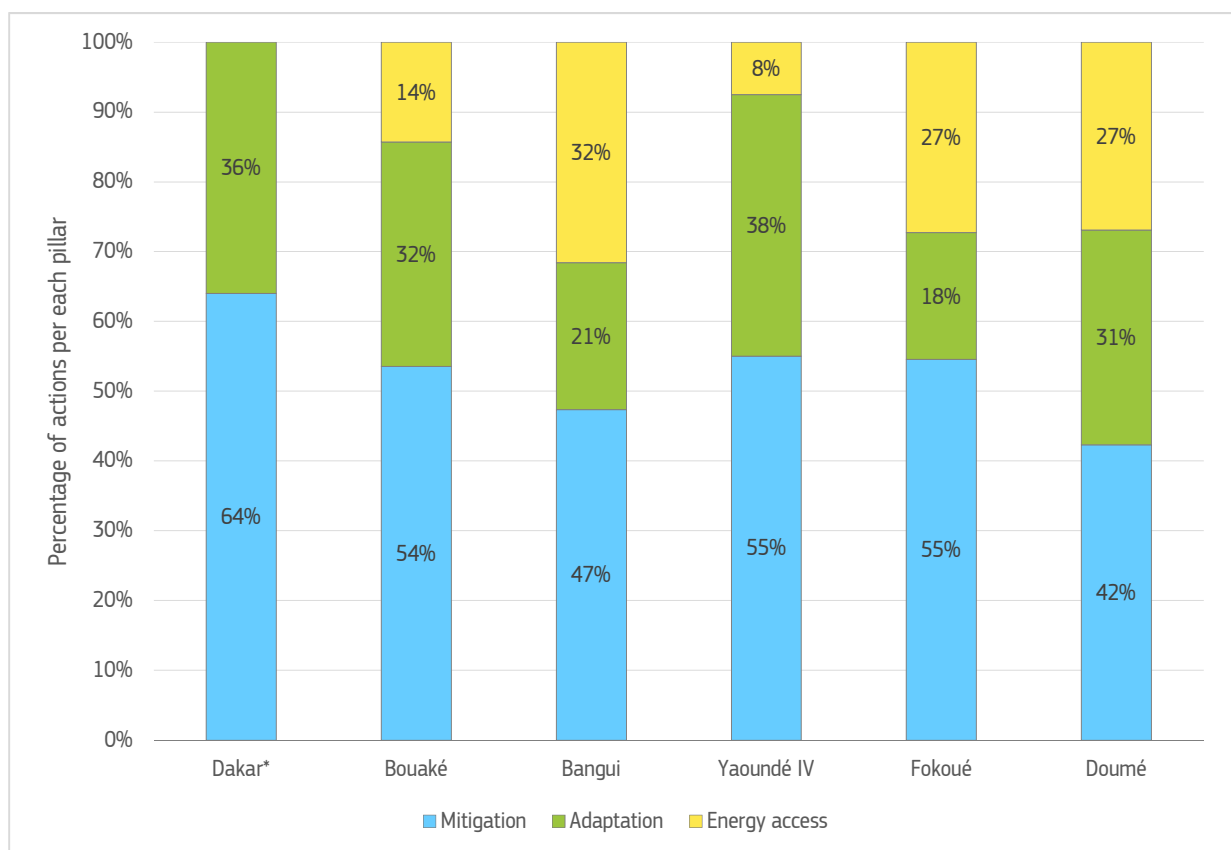
### 5.2.7 Balance among pillars

The analysis of SEACAPs highlights that all signatories have structured their actions in order to cover all pillars, hence, producing a sufficiently balanced plan.

The mitigation pillar constitutes the sector where signatories place the majority of their focus, with around half of their actions, while the adaptation and energy access pillar rank alternatively in second and third position.

**Figure 25** presents the distribution of actions in terms of percentage. Dakar is the only signatory without energy access actions as the municipality has not completed the pillar yet.

**Figure 25.** Distribution of actions among pillars

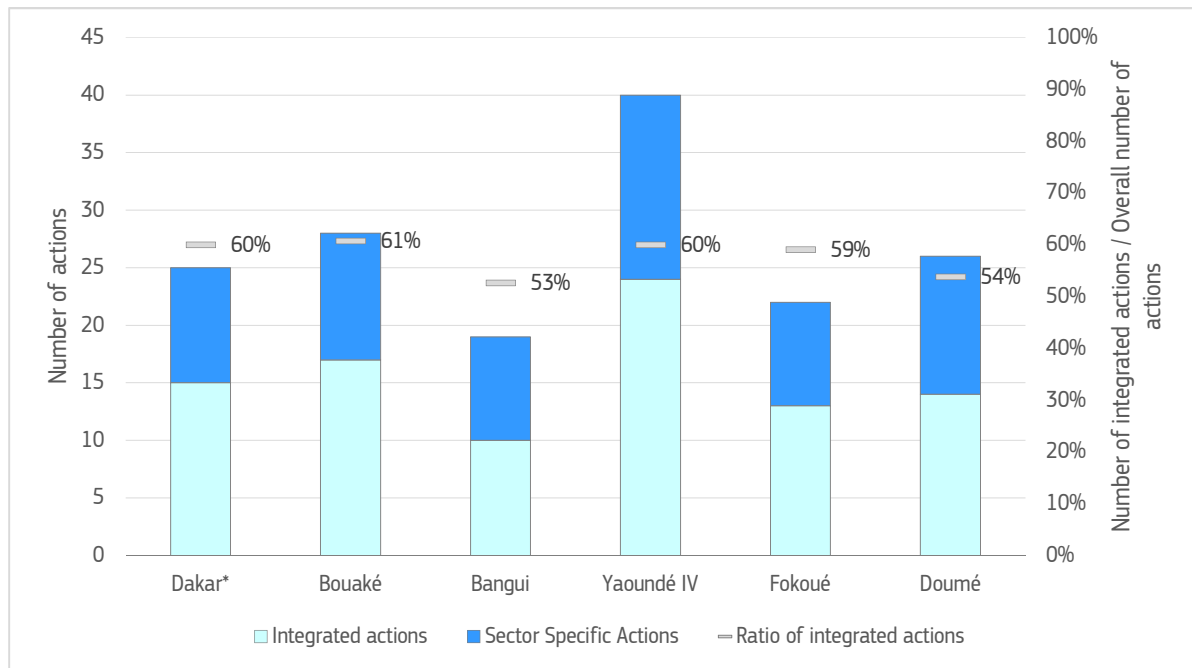


Source: JRC analysis

An additional key element of the actions included in the SEACAPs is their level of integration among the pillars. Signatories can design actions that impact only one specific pillar, or choose to structure them in order to have effects also on other pillars. For example, an energy access action can be designed to be relevant only for the energy pillar, or alternatively to create positive benefits also for the mitigation pillar.

**Figure 26** presents the cumulative number of actions planned by each signatory and distinguishes them among sector specific actions, and integrated actions. The analysis shows that all signatories have chosen to have a relevant number of integrated actions, constituting around 50% of the overall number of actions selected by each signatory. This indications is provided in the **Figure 26** by the Ratio of integrated actions, ranging between 53% and 61%.

**Figure 26.** Cumulative number of actions and level of actions integration



Source: JRC analysis

## 5.2.8 Action approaches

- To implement their SEACAP municipalities selected a broad range of actions. This section analyses the actions chosen by municipalities and provides an overview of the type of approaches used and sectors addressed by the actions. For the purpose of the analysis, actions have been classified in three macro categories by making reference to some available options of measures' clustering (i.e. grey, green and soft adaptation actions (EEA, 2016), hard and soft transport policies (Bonsall, 2005, Dugan et al. 2022), structural/physical, social, and institutional (IPCC, 2014):
- **Actions with a soft approach:** these include typically interventions focused on sensitization, capacity building and the definition of sectors' specific standards or regulations;
- **Actions with a hard approach:** these include interventions aimed at delivering large infrastructure projects (e.g. utility scale power plants) or small infrastructure projects (e.g. small waste management sites, small water management systems, mini-hydro power plants etc.) or the delivery of sectors specific technological equipment (e.g. solar home systems, improved cook stoves, or other sector specific technological equipment etc.)
- **Actions with a green approach:** these typically include actions focused on the AFOULU sectors or agriculture and forestry and nature based solutions.

The following sections present a review of the actions selected by municipalities per each pillar of activity. A detailed list of all activities planned by municipalities is presented in **Annex 1 - List of Actions**

### 5.2.8.1 Mitigation

In the mitigation sector, municipalities appear to prefer a balanced approach that combines soft and hard measures. The review presents a varied set of actions and different sectors. The type of actions less frequently selected appear to be those related to the definition of standards and regulatory frameworks and

the nature based solutions. These are planned only in half of the municipalities, while the other actions are planned in the majority of municipalities.

The following table synthetizes the type of actions planned by municipalities.

**Table 22.** Mitigation actions' approaches

APPROACH	SOFT			GREEN	HARD		
Action	Capacity Building	Sensitization	Standards and Regulatory framework		Large infrastructure	Small infrastructure	Technology
<b>Dakar</b>	Energy	Public and industrial buildings, transport	Households, transport, waste		Transport	Transport, waste, energy	Public buildings
<b>Bangui</b>	AFOULU	Buildings	Households	AFOULU		Waste	Households
<b>Bouaké</b>	Waste	Households, industrial buildings, transport, waste		Agriculture and forestry	Waste	Waster and water	Households
<b>Yaoundé IV</b>		Commercial and industrial buildings			Households, transport, waste	Households, transport, waste	Households, Public buildings
<b>Doumé</b>	Households AFOULU	Households		Agriculture and forestry, AFOULU,	Households	Households, waste, energy	Households
<b>Fokoué</b>	Households, transport, waste, AFOULU	Transport	AFOULU		Public buildings	Public buildings, households	Public buildings, households

Main or capital city
  Secondary city

Source: JRC analysis

When a signatory planned a certain action, the table shows a green cell and the type of sector in which the action is planned is reported in the cell.

### 5.2.8.2 Adaptation

In the adaptation sector, municipalities appear to prefer a balanced approach that combines soft and hard measures. While the review presents a varied set of actions and different sectors of actions in each approach, the analysis reports no record of technology centred actions.

Municipalities plan at least four different type of actions, and in some cases actions of the same type are implemented in multiple sectors. For example sensitization campaigns appear to be realised in multiple sectors and the municipality of Bouaké is planning them in various domains, including: agriculture, forestry, water management and biodiversity.

Actions focused on the delivery of small infrastructure projects appear to be the most frequent, and they appear also to focus more frequently on water, waste and land management sectors.

The following table synthetizes the type of actions planned by municipalities.

**Table 23.** Adaptation actions' approaches

APPROACH	SOFT			GREEN	HARD		
	Action Signatory	Capacity building	Sensitization		Studies	Large infrastructure	Small infrastructure
<b>Dakar</b>	Civil protection and emergency response	Civil protection and emergency response	Land management	Land management, biodiversity	Civil protection and emergency response	Land management, biodiversity	
<b>Bangui</b>			Land management, Civic protection	Agriculture and Forestry	Water and Waste	Water and Waste	
<b>Bouaké</b>	Civil protection and emergency response, buildings,	Agriculture, forestry water management, biodiversity		Forestry, land management		Water management,	
<b>Yaoundé IV</b>	Civil protection and emergency response	Land management, education	Civil protection, emergency response, informal housing	Land management	Water and land management,	Sanitation, waste, water, education	
<b>Doumé</b>	Agriculture, forestry	Buildings		Buildings		Sanitation, land management	
<b>Fokoué</b>	Agriculture, forestry	Buildings, agriculture, forestry			Transport	Buildings, water management	

Main or capital city
  Secondary city

Source: JRC analysis

When a signatory planned a certain action, the table shows a green cell and the type of sector in which the action is planned is reported in the cell.

### 5.2.8.3 Energy Access

In the energy access sector, municipalities appear to be slightly inclined toward hard measures. In particular soft measures such as the definition of standards or regulatory frameworks are planned only for two signatories out of the total of five. Bouaké is the municipality planning the lowest number of type of actions, while the municipality of Bangui is planning to be active in all type of actions. The most common type of actions used include capacity building and technology.

The following table synthetizes the type of actions planned by municipalities.

**Table 24.** Access to Energy actions' approaches

APPROACH	SOFT			HARD		
Action Signatory	Capacity building	Sensitization	Standards and Regulatory framework	Large infrastructure	Small infrastructure	Technology
<b>Dakar</b>	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
<b>Bangui</b>	Electricity and clean cooking	Electricity and clean cooking	Energy sector	Electricity	Clean cooking	Electricity
<b>Bouaké</b>	Electricity	Clean cooking, electricity				Clean cooking
<b>Yaoundé IV</b>	Energy sector		Electricity	Clean cooking	Electricity, clean cooking	Electricity
<b>Doumé</b>	Clean cooking	Clean cooking		Electricity	Electricity	Electricity, Clean cooking
<b>Fokoué</b>	Clean cooking			Electricity	Electricity, clean cooking	Electricity

Main or capital city
  Secondary city  
 Source: JRC analysis

## 5.3 Process oriented

### 5.3.1 Assessment – tools

This indicator aims to investigate the multiple instruments, tools, and methodologies used by municipalities during the SEACAP assessment phase.

The analysis of the received SEACAPs shows that all municipalities made use of various tools to carry out the assessment phase, including among others:

- literature review used to create the sectoral background for the assessment of each pillar,
- specific tools for modelling energy usage or emissions,
- maps and geographical information systems.

All analysed signatories report a varied and flexible approach to execute the assessment. Main cities typically leverage more instruments to carry out the assessment. Out of the set of most relevant tools identified main cities use between three and four instruments. Secondary cities tend to rely mainly on more standardized solutions and in a smaller number. The difference could be associated both to the different type of resources available to carry out the assessment, as well as to challenges in using a large number of instruments to collect the information necessary for the assessment.

The following table provides a summary of the more relevant tools used.

**Table 25.** Summary of relevant tools

Signatory	Tools for Modelling			Composite Indicators	Scenario Planning	GIS	Benchmarking	Literature review
	Emissions	Energy Usage	Economic Development					
Dakar								
Bangui								
Bouaké								
Yaoundé IV								
Doumé								
Fokoué								

Main or capital city
  Secondary city

Source: JRC analysis

### 5.3.2 Planning I

Actions presented in SEACAPs seem to constitute new areas of work for a number of signatories. In several cases the plans make no reference to existing similar activities carried out at local level. A limited number of local authorities, namely Bouaké and Fokoué, provide evidence of how their SEACAPs are building on already ongoing activities.

#### Box 8. Bouaké (Ivory Coast) - BOVIVE-CD

The municipality of Bouaké was already active in the area of mitigation, adaptation and energy access through the project financed by the European Union titled: Bouaké Ville Verte – Coopération Décentralisée (BOVIVE-CD). The project has developed a number of short term pilot actions in these domains. The actions introduced in the SEACAP make use of the knowledge gained by the municipality through these pilot activities, however the actions of the SEACAP are not a continuation of existing activities.

#### Box 9. Fokoué (Cameroon) - Energy access activities

The municipality of Fokoué reports having some activities already ongoing in particular in the area of energy access, with actions covering the installation of solar powered street lighting and the distribution of clean cook stoves. The actions introduced in the SEACAP build on the work already executed by the municipality and aim to scale up their outreach. For example, the installation of solar powered street lighting systems will grow from 40 units in the existing activity to target 450 units by end of 2027 as set in the SEACAP. Concerning clean cooking, the existing activities provided 390 households with an improved and more efficient cook stove. The SEACAP set a target of producing and distributing clean cook stoves to 6,354 households by end of 2023.

The key element emerging from this analysis is that SECAPs can play a critical role exploiting actions already in place and scaling them up to achieve a broader outreach.

### 5.3.3 Planning II

The analysis highlights that signatories designed their SEACAP positioning it within a broader climate, adaptation and energy framework. The plans make reference to different typologies of policies implemented in these domains, ranging from National Determined Contributions, to sectoral national policy legislation, as well as local policies, in this case typically in the area of urban development. The SEACAPs explain how the plan is aligned with policies of a higher remit and in some cases explain how they contribute to it. This reference is particularly clear when SEACAPs explain how achieving their own target will help contribute achieving national goals in terms of mitigation for example. In some cases, the plan does not show a direct

reference to national or regional sectoral plans. However, typically the chapter describing the SEACAP development process makes clear that the aspect of alignment and framing with national and regional policies has been considered.

The following table provides a summary of the main national and regional policies reference in the SEACAPs.

**Table 26.** National and regional policies reference in the SEACAPs

Signatory	National energy policy	National agriculture policy	National economic development policy	National urban development plan	National plan for adaptation to climate change	Local urban planning documents
Dakar	Green	White	Green	White	White	Green
Bangui	Green	Green	Green	White	Green	Green
Bouaké	White	White	White	Green	White	White
Yaoundé IV	White	White	White	White	Green	Green
Doumé	White	White	White	White	Green	White
Fokoué	White	White	White	White	White	White

Main or capital city
  Secondary city  
*Source: JRC analysis*

**5.3.4 Engagement**

Engagement with citizens and local stakeholders is a key element for the successful production of a SEACAP. This indicator aims to highlight the type and degree of participatory processes used by municipalities when developing their plan.

The analysis of SEACAPs received shows that all municipalities have used approaches that involved citizens and stakeholders to develop their SEACAPs. The type of engagement used ranges from workshops with the local population, to interviews and surveys, sensitization campaigns such as school competitions, and co-creation activities for the plan preparation.

A relevant case of engagement with the local population is the approach used by the municipality of Yaoundé IV. Throughout the phases of SEACAP preparation and SEACAP planning, the local authority has used a human centred approach aimed at placing the needs of citizens at the centre of the analysis and of the actions identified. Operationally, this approach translated in the organization of a large number of community led workshops, surveys and creation of local committees. The continuation of this participatory process is also one action of the SEACAP, strengthening the importance of having a solid engagement with the population throughout the SEACAP implementation. In particular the action is focused on running a number of local committees that will have the goal to monitor advancements in the plan implementation.

The following table provides a summary of the type of participatory approaches used by the municipalities



**Table 27.** Participatory approaches in the SEACAPs

Signatory	Surveys	Interviews	Workshops and Focus groups	Sensitization campaigns	Establishment of local committees	Creation of a platform for coordination of activities
Dakar						
Bangui						
Bouaké						
Yaoundé IV						
Doumé						
Fokoué						

Main or capital city
  Secondary city

Source: JRC analysis

Although surveys cannot be fully considered as participatory methods, they have been selected in three cases to investigate and understand the issues and the status of the local authority. The interviews serve similar purposes. Workshops and local committees constitute a more relevant type of approach for engaging citizens and key stakeholders in the SEACAP conversation. Workshops allow for exploring different points of view and developing most suitable solutions and have been employed in the majority of cases (Bangui reported some difficulties in organising workshops despite the willingness to).

### 5.3.5 Financing

The analysis of SEACAPs highlights municipalities' general understanding of the key role of financing for a successful implementation of plans. Most plans include a brief description of the principal types of funding sources that the municipality could aim to tap into. In some cases, such as for the municipality of Yaoundé IV, the actions of the plan are matched with a list of potential funding sources. In general, the main financing options scoped by municipalities can be divided in public sector financing sources and private sector financing

#### - Public sector financing sources

In this case, municipalities tend to identify public budgets from local and national public bodies as potential sources of financing. There is a general awareness of the limited availability of resources at local level compared to the overall financing requirements of the plan. For example, the municipality of Fokoué presents a clear rationale of funding volumes needed compared to its own funding capacity based on the review of the municipality's budget in the period 2016–2019. The review reports an average cumulative annual financing capacity of the municipality accounting for around CFA 91 M, while the overall estimated cost for implementation of the plan accounts for around CFA 13.000 M., leading to a substantial financing gap. Building on this review, the plan presents a strong case for pursuing resources coming from a varied set of financing sources. This type of review is not present in other plans. Municipalities should be encouraged to do this exercise as it provides a clear starting point and perspective of financing resources needed.

Additional options in the public sector category consist of funding from international organizations, international financing institutions and funds for climate financing such as the Green Climate Fund. Other options associated to this category include making use of decentralized international cooperation and creating an investment fund with resources provided by citizens. In the first case, the city of Dakar aims to build on previous experiences of decentralized international cooperation exchanges with cities such as Milan and Paris. Through the development of existing partnerships or the creation of new ones the city of Dakar aims to access resources, either technical or financial, that could help toward the successful

implementation of its plan. In the second case, the city of Doumé plans to establish a dedicated public company that will be in charge of managing a fund financed through contributions coming from citizens.

- **Private sectors financing sources.**

Concerning the role of private sector, municipalities appear to be aware of the role of private sector players to catalyse investments in the domain relevant to their plans. The creation of public private partnerships is often mentioned as a way to engage with the private sector. In other cases a general reference to creating conditions favourable for attracting investments from the private sector into the actions of the plan is presented as an option.

The following table summarizes the main financing options considered by the different municipalities.

**Table 28.** Financing options of CoM SSA signatories

Funding Sources	Public Sector								Private Sector	
	Budget of the municipality	National budget and line ministries	Development and international organizations	International financing institutions	Bilateral and multilateral partnerships	Green climate fund	Cooperation with other municipalities	Contribution from local communities	Public private partnerships	Investments from private sector stakeholders
<b>Signatory</b>										
<b>Dakar</b>										
<b>Bangui</b>										
<b>Bouaké</b>										
<b>Yaoundé IV</b>										
<b>Doumé</b>										
<b>Fokoué</b>										

■ Main or capital city ■ Secondary city

Source: JRC analysis

### 5.3.6 Support

The evaluated signatories received a varied type of assistance to support their SEACAP. The following table summarises the main type of support services received by each city.

**Table 29.** Support to SEACAPs

Signatory	CoM SSA pilot city	EU or other institution funding for SEACAP development	Methodological technical training from the JRC or CoM SSA	SEACAP evaluation	pre
<b>Dakar</b>					
<b>Bangui</b>					
<b>Bouaké</b>					
<b>Yaoundé IV</b>					

<b>Doumé</b>				
<b>Fokoué</b>				

■ Main or capital city    ■ Secondary city  
 Source: JRC analysis

The delivery of support services helped the local authorities achieve a better framing and structuring of their SEACAPs, as well as reduce the timeframe for SEACAP development and finalization. However, it is not possible to draw a clear correlation between the type of support received and the level of the SEACAP produced due to the limited sample. As a general comment, informal interactions with representatives from municipalities highlighted positive feedback and the support received and that it helped to cope more effectively with complexities of the SSA context.

### 5.3.7 Governance and organisation

One important element of the SEACAP preparation consists in developing interactions with entities at national and regional administrative level. This type of engagement helps the municipality in factors such as:

- Reaching a better framing of its own initiative within a broader landscape of policies operating at higher level than the municipal one,
- Tap into networks and knowledge resources that can help shape the SEACAP in an effective way.

These interactions can include for example:

- Coordination between the municipality and other institutions,
- Provision of sectoral inputs from the municipality to high level administrative bodies,
- Request of data owned by organizations operating at a different scale that is relevant for the local authority.

The level of easiness or difficulty by which these interactions are carried out, and the possible presence of institutional blockages can impact the quality and coverage of the SEACAP developed by a local authority.

The review of SEACAPs shows that in general local authorities have a clear and solid knowledge of the key stakeholders that should be engaged with at different levels. However, experiences presented in SEACAPs show how these interactions could lead to different results.

For example, the municipality of Bangui reports that an organisational restructuring process is ongoing at the level of national government. This process and the creation of new institutional entities with a clearer geographical and sectoral remit of action could help in the future to have effective interactions between the local authority and the higher level institutions.

In another case, the municipality of Bouaké reports that the collection of data covering the tertiary sector proved to be challenging as it implied multiple interactions with administrative offices at regional level. However, the outcome of these engagements led to limited results as the regional offices had partial data themselves. This example highlights a friction among data ownership, responsibility to collect data, and level of interest in using the data. On the positive side, the SEACAP development process helped create a committee with the Regional Government and the relevant technical regional directorates to discuss the themes of analysis and action covered by the SEACAP.

To prepare a SECAP the municipality require adequate human and financial resources to carry out the preparatory activities, investigation on the different topics covered by the document, and the finalization of the analysis into the plan. There are typically three approaches that can be used by municipalities:

- **In-house approach.** In some cases the activities can be carried out by the employees of the municipality and its technical staff.
- **Outsourcing approach.** In other cases the municipality can make use of external resources such as consultancies that can close technical knowledge gaps present inside the municipality.

- **Combined approach.** A third option comprise the possibility to have municipality technical staff and external resources working together and combining their knowledge of the local context with expert inputs from an external company contracted to execute specific tasks.

Choosing one of this approaches usually depends on the availability of internal and external human resources and of financial resources to execute activities.

The analysis of SEACAPs highlights that the most frequent approach used foresees a combination of internal and external resources. The following table provides a summary of the stakeholders and supporting organisations involved in the SEACAP production.

**Table 30.** Organisations involved

Signatory	Municipality technical staff	CoM SSA office	NGO	Consultancy or private company	Local experts	Research Centre or Institutions
Dakar				Sustainable Energy Africa		C40
Bangui			HelpAge			
Bouaké			Nitidae			CIDR
Yaoundé IV			OAI-DEMOS			
Doumé			HelpCommunity			
Fokoué				S2 Services		

■ Main or capital city
 ■ Secondary city

Source: JRC analysis

Typically main cities make use of more supporting partners to develop the SEACAP then secondary cities. Main cities partner with up to three stakeholders, while secondary cities only with one, usually an NGO or a research centre or institution.

The possibility to combine local expertise with external assistance appear a key element in the SEACAP production process and close knowledge or capacity gaps present inside the municipality. At the same time, it highlights the need for accessing these resources both in terms of availability and affordability. On one side main cities might find simpler to identify specialised stakeholders to partner with to develop the SEACAP due to broader networks and a larger pool of actors to tap into. Secondary cities might find this partnership process more articulated as technical expertise might not be immediately locally available and might have a higher cost if brought in areas further distant. A final important factor to be considered is the knowledge transfer or knowledge retention within the municipality following the support service received from the partner organisation.

### 5.3.8 Best practices

This section collects a number of best practices selected from the SEACAPs and covers different sectors of the mitigation, adaptation and energy access pillars.

#### **Hip-hop for the environment: innovative sensitization campaigns in Dakar**

The municipality of Dakar has designed a comprehensive set of sensitization measures to increase the engagement of the local population around environmental issues.

Initiatives include traditional approaches such as environmental education programs and ecological walks to involve the youth and the population in the cleaning of public areas. Other approaches include the establishment of a youth volunteer's environmental brigade or reforestation activity driven by schools and students.

At the same time, new approaches are also being tested. The municipality has created a hip-hop for the environment campaign and festival. The concept of hip hop environment was initiated for send a strong message targeted to the youth of the city. The objective of this activity is to clean the neighborhoods together with community associations and deliver awareness messages to overcome barriers social, especially standard behaviors and opinions and how they relate with the perception of the public.

### **Understanding energy uses and energy needs in Doumé**

The municipality of Boauké developed a wide-ranging energy sector analysis to better understand the current status and needs of the population in the areas of electricity and clean cooking.

Starting from the analysis of existing energy sources used by the population, the municipality cross-referenced this information with the different type of sectors (e.g. households, public buildings, commercial, public lighting). Through field surveys, the signatory defined the current level of use of renewable autonomous systems compared to those powered by fossil fuels across the different sectors.

The analysis has been completed by categorizing households per different income brackets. By considering the different income thresholds and the current average expenditure for a typical households for energy services, the municipality was able to define the share of population able to pay for electricity.

A similar process has been carried out for the sector of clean cooking, reaching similar conclusions.

The process used by the municipality of Doumé is an important example of how using a combination of techniques (e.g. data analysis, field surveys, interviews), the municipality can collect the information and build the picture of a specific sectors that is needed to then take planning decisions.

### **Waste treatment in Yaoundé IV**

Much of the waste from Yaoundé IV is related to the lack of an adequate waste management system that implies large amounts emissions of methane and carbon dioxide. To address this, the municipality has planned a program that includes the following:

Creation of an inter-municipal sewage sludge treatment and recovery station,

Creation of a waste treatment, recycling and recovery centre (The center will treat all types of waste not exploited by the industrial methanizer, and includes pre-collection and awareness-raising actions), Construction of an industrial methanizer allowing the production of biogas and electricity, and, the construction of 12 community methanizers. The 12 methanizers will supply about 180 households with biogas, thus limiting the use of wood and charcoal in cooking. These community methanizers allow reducing the dumping of garbage and setting up an effective pre-collection system. The target is the population of the districts of Yaoundé IV.

### **Training on ecologic and resilient buildings - Fokoué**

This action consists in sensitizing the population and training the building sector stakeholders and professionals on innovative, ecological and resilient building construction methods. The majority of buildings is made of soil, thereby being extremely vulnerable to the impacts of climate change: floods and landslides. In addition, the equipment of the dwellings is not energy efficient. The project, therefore, proposes to develop specific trainings and awareness campaigns on green constructions and subjects such as risks areas. The key topics of the trainings will include: the design, ensuring that the building is in harmony with its environment, the materials, favouring the use of natural, recyclable materials, equipment, focusing on energy efficiency and energy consumption. The main outcomes of the actions are: a trained population, resilient and energy efficient buildings, GHG emissions mitigation. The responsible actors of the action are: the municipality of Fokoué, la Délégation d'Arrondissement de la Jeunesse et Éducation Civique (DAJEC), la Délégation Départementale des Travaux Publics (DDTP), UNHABITAT. The timeline of implementation is January 2023 — June 2024 (18 months).

### **Dredging and enlarging the rivers beds to reduce the risk of floods in Fokoué**

The Bandoum area is often subjected to floods from the rivers Malapoundjé and Nthemtchie, due to the heavy rains. To address the problem, the action consists in enlarging the bed of the water courses during the dry season. The cleaning of watercourses and the creation of flood expansion fields (wetlands, alluvial forests and backwaters, etc.) are the two main steps planned for this action. The banks will also be stabilized thanks to the vegetation in order to reduce the transport of sediments towards the watercourses. The responsible body for this action is the Municipality of Fokoué.

### **Diversification of energy sources and promotion of LPG for cooking - Bangui**

In 2016 the use of LPG covered only 1% of the total final energy consumption. In contrast, the use of wood covered more than 70% in the same year. Moreover, the use of LPG in cooking was limited to 1% of households, electricity as well was reported to be used by 1% of households. Since the level of electrification is currently low and until the actions planned for increasing the access to electricity are put in place, to reduce the socio-economic and ecological impact of using firewood, the city of Bangui has proposed the use of LPG as an alternative for cooking. LPG is not a renewable energy source, but the emissions are lower than those linked to the use of wood produced in an unsustainable way. According to estimates based on assumptions detailed in the SEACAP, a household in Bangui using wood for cooking emits approximately 1,795 kg of CO<sub>2</sub> per year, while the use of LPG would emit 345 kg of CO<sub>2</sub>. The overall objective is to increase the consumption of LPG so that 30% of households will use this source by 2030. However, Bangui's inhabitants are not confident on the use of LPG in relation to the risk of fire stock shortages recorded by the market and the high price. The program planned by the city includes three main components:

- (i) construction/rehabilitation of LPG storage and distribution infrastructure
- (ii) implementation of the information, education and communication (IEC) program on LPG consumption.
- (iii) Development of financial incentives for LPG

Through the first component the source of energy becomes more reliable and more valuable for households. Better gas availability will also attract new distributors to the market, which would break the gas distribution monopoly. The combination of these aspects will put the basis for an increase in the demand, ultimately reducing the price. The second component allows to reinforce the knowledge of the population on the LPG as energy source. The campaign will use different media (TV, radio, neighborhood demonstrations, etc.) and will be amplified by advertising from private distributors. The cost of this component is estimated at 430 million CFA. Finally, fiscal and customs incentives are envisaged in order to reduce the price of LPG cylinders for users. For example, a 30% tax reduction on LPG would reduce the monthly expenditure of a household using this energy source for cooking. While such a reduction in the taxation of LPG over 3 years could represent a tax shortfall of 7 billion CFA by 2030, this could be largely offset by the financial and non-financial, direct and indirect impacts of the replacement of wood as a source of energy for cooking. With regards to the use of improved stoves, a support fund for producers/distributors could be created within the framework of the one-stop shop. Grants could be developed as well. A fund of 330 million CFA could make it possible to subsidize the sale of improved stoves up to 50% for 3 years before this subsidy begins to be reduced and disappears completely in 2029.

This program could save more than two million tonnes of wood compared to the BAU scenario, and reduce emissions by around 1.2 million tCO<sub>2</sub>/y by 2030.

## 6 General conclusion

The CoM SSA initiative is a relatively young chapter of the Global Covenant of Mayors. However, its first years of activity have reported a steady growth in the number of signatories and a strong engagement of local governments. This report analyses SEACAPs submitted by first mover signatories and provides key references and insights for current and future members of the initiative. The work developed by municipalities and the whole regional chapter in this initial years of activity establishes an important foundation to support the growth of the initiative.

This report is the first assessment related to CoM SSA and the analysis of the SEACAPs submitted provides positive evidence that the methodology developed for the region suits the local conditions and needs of local authorities. The experiences gathered through the SEACAPs part of the analysis can also serve to further improve the methodology and fine tune it to the local peculiarities.

While the small sample of signatories and SEACAPs considered in the report poses some limitations to this investigation, the analyses presented along the report allow to draw some preliminary important conclusions and recommendations. These will be further elaborated in the future with the increase in number of finalized SEACAPs.

### General highlights from the analysis of submitted SEACAPs

- **The size and role of a municipality is not a key determinant to develop a plan and play the role of an active signatory.** Both main and capital cities, as well as secondary cities, reached the phase of SECAP completion. This confirms the spirit of the initiative of full engagement with local governments independently by their size and role. A key element to sustain this diversity appears to be the provision of support either through engagement with local representatives, visits or trainings.
- **On average, the time required for a signatory to complete the SEACAP can be currently estimated at around 40 months, with best cases attesting around 28 months.** This period is calculated considering the time elapsed between joining the Covenant and submitting the SEACAP. Time required for best cases is in line with the two years period indicated by the GCoM Common Reporting Framework as timeline to submit a SEACAP. Overall, the average time required is expected to vary as the sample of signatories reaching SEACAP submission increases and municipalities build further experience in developing a plan.
- **Signatories give a clear shape and details of their planned actions.** Municipalities use project fiches or similar structure to provide key information on their designed actions. Ranging from description of the actions, to stakeholders involved and timeline, these elements create the basis the further work to operationalize actions or improve their design and move toward the financing stages.
- **Estimates of actions costs, and overall quantification of SECAPs required budget, appear to be a more challenging aspect in planning process.** The limited number of plans submitted also doesn't allow to define clear benchmarks for the cost of actions, however initial order of magnitudes can be drawn.

### Sector specific highlights from the analysis of submitted SEACAPs

- **Signatories set ambitious targets for mitigation and energy access sectors, and set goals of varied typology for the adaptation sector.** Emission reduction targets set by signatories are typically higher than targets set at country level under the NDC. For electricity and clean cooking access municipalities aim to improve remarkably current access levels, however not always aiming targets leading to universal access. Adaptation goals include cases of quantitative or qualitative goals, or a combination of both.
- **Municipalities from CoM SSA are the first signatories at global level to have successfully completed the energy access pillar.** Despite the challenges associated to the context of action, municipalities demonstrated their capacity to carry out analysis of their local context, to structure them into an action and a plan. Overall placing a key focus on the role of this information for an effective municipal planning.
- **The stationary energy sector is usually reported as the one with the highest level of emissions,** followed by the transport sector.

- **On average half of all actions included in SEACAPs are focused on mitigation, giving to the mitigation pillar a key role.** In terms of number of actions reported in SEACAPs the adaptation and energy access sectors rank second and third respectively.
- **SEACAPs report a high degree of integration among actions,** over 50% of actions are impacting more than one pillar.

#### **Key challenges faced during the SEACAP development and solutions adopted by municipalities**

- **A varied set of procedural or contextual challenges impact the SEACAP development process.** Signatories report among other factors limitations in availability of financial resources, difficulties in organising community engagement activities across all areas of the municipality, barriers linked to mistrust and scepticism in the local community, as well as administrative barriers.
- **Data collection appears to be a key challenge for municipalities.** Signatories report difficulties due to lack of data availability for the local level or data that is not easily retrievable. Options such as engagement with institutions acting at regional or higher level have been explored with mixed results. Challenges in terms of data ownership and responsibility to collect data among institutions emerge, however new networks and engagements with different organisations were built.
- **At the same time municipalities demonstrate the ability to close data gaps and use newly generated information to take data driven decisions.** Through use of surveys, workshops, participatory instruments, specific tools for analysis and literature reviews, municipalities found ways to overcome the difficulties of a challenging context where data and information are not readily available. The Energy Access pillar, with a large set of indicators provided by municipalities, stands out as positive example.
- **Across all signatories a high level of engagement with citizens emerges.** All municipalities used approaches that involved citizens and stakeholders to develop their SEACAPs. Engagement used ranged from workshops with the local population, to interviews and surveys, sensitization campaigns and co-creation activities.
- **Technical assistance appears to play an important role when it comes to provide support to municipalities in the development of SEACAPs.** The majority of municipalities made use of different forms of support, including support services from being a pilot municipality, leveraging external inputs from consulting companies, or making use of support from NGOs that are subject matter experts.

#### **Future areas of work: SEACAPs financing modalities constitute a key area for future plans operationalization**

The review of the plans highlights some key elements to be considered in future developments of activities for municipalities part of the analysis, as well as for other signatories.

- **The degree of analysis of financing mechanism tends to be of high touch and with limited description of action pathways on how to tap into the potential funding sources listed.** While the analysis of funding sources and how to access them is not a core element of the plan, it is a key stepping stone for executing the actions on which the plan is built. The approach used by municipalities could consider focusing more on having a roadmap on how to access these resources.

An option could be to include in the plan actions specifically focused on targeting financing needs. By having some actions dedicated to financing needs cities can embed this requirement into their plan and approach in a focused way. These financing actions, which are cross cutting by nature, could be eventually prolonged over the duration of the plan.

- **Funding from municipality is a common option among cities, however there is limited reflection on the actual financing capacity available from this source.** A basic review of municipality budget potential could be helpful during the plan preparation phase to start earmarking what kind of activities could be possibly financed through municipality's budget (either based on available capacity and/or affinities with existing budget lines). This first action could then pave the way for a second step where actions not financeable through municipality's budget, either due to limited funding capacity or lack of affinity with budget lines and spending sectors, could be associated with other possible funding sources.



- **Identification and testing of innovative financing options start to be explored by municipalities.** Innovative funding options that look to engage closer with citizens tapping into their funding potential, are a promising option. A balanced view over the mobilization potential should be taken into consideration. It could be possible for cities to leverage existing crowdfunding platforms and initiatives that are proving successful in the areas such as energy access. Eventually municipalities could test matching the funding needs of energy access actions for instance with dedicated campaigns carried out across crowdfunding platforms. This approach could help enlarge the funding base.
- **More options to engage with the private sector and its funding potential could be considered by municipalities.** While all plans recognize the need to differentiate financing sources and to include also the private sector sphere, municipalities could consider ways to make this approach more actionable. As this area of work might be new for some cities, an option could be to have dedicated actions in the plan that look at sparking engagements with the private sector and accessing its funding potential.

Overall, the work developed by CoM SSA and its signatories with their SEACAPs constitute a foundational reference for existing and future members of the initiative, as well as other local governments. Plans analysed in this report provide concrete examples of how municipalities can design and plan their sustainable future in sectors of mitigation, adaptation and energy access, and in the overall development of their communities. Despite the limited number of SEACAPs submitted and evaluated until now, it is already possible to identify key positive aspects shared among the plans, as well as areas that prove to be more challenging for municipalities. Finally, there are areas for improvement in the quality of the SEACAPs, as highlighted along the report. Overall, SEACAPs submitted constitute a key stepping stone to support the quest to build sustainable communities and drive the future development of municipalities.

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## **List of abbreviations and definitions**

AEA	Assessment on Energy Access
AFOULU	Agriculture, Forestry and Other Land Use
BAU	Business as Usual
BEI	Baseline emissions inventory
CEMR	Council of European Municipalities and Regions
CFA	Franc of the Financial Community of Africa
CoM	Covenant of Mayors for Climate and Energy
COP	Conference of parties
CRF	Common reporting framework
DG	Directorate General
EU	European Union
GCoM	Global Covenant of Mayors for Climate and Energy
GHG	Greenhouse gas emissions
IPCC	International Panel on Climate Change
JRC	Joint Research Centre
MENA	Middle East and North Africa
NDC	Nationally Determined Contribution
NGO	Non-governmental organisation
RVA	Risk and vulnerability assessment
SDG	Sustainable development goal
SEACAP	Sustainable Energy Access and Climate Action Plan
SSA	Sub-Saharan Africa

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## Annexes

### 1 Annex – List of mitigation/adaptation/energy access actions

Signatory	Sector	Action and sub-action
Dakar	Mitigation	<b>Adoption of energy efficiency standards to improve the energy performance of new buildings</b>
Dakar	Mitigation	Integrate the energy efficiency standard in the examination of building authorization files
Dakar	Mitigation	Advocate with the Senegalese Association for Standardization for the application of the energy efficiency standard in new buildings
Dakar	Mitigation	Raising the awareness of real estate developers on the consideration of energy efficiency in buildings
Dakar	Mitigation	<b>Achievement of energy savings in the buildings of the City of Dakar</b>
Dakar	Mitigation	Implement an energy efficiency pilot project in administrative buildings and municipal services
Dakar	Mitigation	Renovate municipal buildings for better thermal comfort and energy savings
Dakar	Mitigation	Monitor and evaluate the direct and indirect impact of energy saving measures
Dakar	Mitigation	<b>Generalization of solar LED streetlights in public lighting</b>
Dakar	Mitigation	Strengthen collaboration with the central government to pursue the policy of replacing conventional street-lights with solar LED street lights
Dakar	Mitigation	Carry out an inventory of existing lamps and renovate the system of the city by aiming for carbon neutrality of public lighting by 2030
Dakar	Mitigation	Strengthen the capacities of municipal agents on the management and maintenance of photovoltaic panels
Dakar	Mitigation	<b>Reinforcement of electricity production capacities by renewable energies to boost the energy transition</b>
Dakar	Mitigation	Initiate technical and financial feasibility studies of grid de-carbonization options via renewable energies
Dakar	Mitigation	Initiate pilot projects through the deployment of mini-power plants of renewable energies to ensure the supply of clean, reliable and affordable energy for all
Dakar	Mitigation	Lobby the central government to increase the share of renewable energy in Dakar's energy production and supply system
Dakar	Mitigation	<b>Development of Bus Rapid Transit (BRT)</b>
Dakar	Mitigation	Carry out road widening works
Dakar	Mitigation	Initiate a pilot project to set up a modern charging station for the transition to electric mode
Dakar	Mitigation	Evaluate the impact of the modal share of BRT on the improvement of the efficiency of the mass transport sector and the reduction of GHG emissions
Dakar	Mitigation	<b>Establishment of a vehicle fleet corresponding to energy efficiency standards by type of fuel</b>
Dakar	Mitigation	Initiate a public-private partnership for the implementation of the energy efficiency strategy in transport
Dakar	Mitigation	Advocacy for reduction of the age of imported vehicles to 5 years
Dakar	Mitigation	Lobby central government for large-scale adoption of less polluting Euro 6 type fuel
Dakar	Mitigation	Implement a pilot project by promoting the installation of an energy-saving device in the vehicle system
Dakar	Mitigation	<b>Development around public transport stations and promotion of TOD</b>
Dakar	Mitigation	Development of multimodal exchange hubs to improve the quality of service provided to users
Dakar	Mitigation	Establish a partnership with the private sector for the development of electric charging stations
Dakar	Mitigation	<b>Construction of cycle paths and pedestrian paths in municipalities</b>
Dakar	Mitigation	Establish car-free days in the City of Dakar
Dakar	Mitigation	Develop cycle paths along strategic roads and secondary axes in municipalities with appropriate signage
Dakar	Mitigation	Educate young people about the use of bicycles
Dakar	Mitigation	Develop neighborhood-wide mobility improvement initiatives
Dakar	Mitigation	<b>Development of organic waste recovery channels</b>



Dakar	Mitigation	Raising public awareness of the waste value chain and the circular economy
Dakar	Mitigation	Carry out technical and financial feasibility studies for the implementation of organic waste recovery infrastructure
Dakar	Mitigation	Establishment of a local waste collection and sorting system
Dakar	Mitigation	Establish a partnership with the private sector to develop the composting of organic waste
Dakar	Mitigation	<b>Adequate management of faecal sludge produced by on-site sanitation in unserved areas to reduce the pollution load</b>
Dakar	Mitigation	Reinforce the consideration of faecal sludge management in real estate and urban planning operations
Dakar	Mitigation	Develop a strategic plan for on-site sanitation aimed at improving faecal sludge management
Dakar	Mitigation	Disseminate appropriate technologies to strengthen the capacity and efficiency of wastewater treatment at the Cambéréne wastewater treatment plant
Dakar	Adaptation	<b>Strengthening the system for forecasting, monitoring, early warning and combating climate risks</b>
Dakar	Adaptation	Develop a partnership with dedicated structures for the exchange of strategic information around a knowledge management platform
Dakar	Adaptation	Set up a system for collecting and updating strategic information for coordinated emergency interventions
Dakar	Adaptation	Strengthen the capacities of municipal technical services in risk and disaster management
Dakar	Adaptation	Strengthen the capacities of elected officials for decision support in multi-risk management
Dakar	Adaptation	<b>Development of coastal protection infrastructure</b>
Dakar	Adaptation	Install coastal protection works in areas exposed to erosion
Dakar	Adaptation	Restore public beaches at high risk of disappearance
Dakar	Adaptation	<b>Strengthening communication, awareness and citizen participation in risk and disaster management</b>
Dakar	Adaptation	Promote the broadcasting of audiovisual programs on climate change
Dakar	Adaptation	Strengthen the capacities of community relays to raise awareness of risks and disasters
Dakar	Adaptation	Support the promotion of community dynamics for the development of climate change adaptation initiatives
Dakar	Adaptation	Raising public awareness of citizenship and eco-responsible behavior
Dakar	Adaptation	<b>Integration of the climate dimension into urban planning and urban planning operations</b>
Dakar	Adaptation	Set up a geographical information system on climate data for better consideration of climate change in urban planning
Dakar	Adaptation	Encourage the integration of climate change into municipal development plans
Dakar	Adaptation	Encourage compliance with the town planning code in the construction of buildings
Dakar	Adaptation	<b>Development of integrated catch-up infrastructure</b>
Dakar	Adaptation	Restructure informal housing areas to promote their connection to storm drains
Dakar	Adaptation	Build adapted hydraulic infrastructure in occupied floodplains
Dakar	Adaptation	Resize the rainwater collection and drainage network
Dakar	Adaptation	Develop multifunctional public spaces in neighborhoods
Dakar	Adaptation	<b>Promotion of nature-based solutions through the development of water resources</b>
Dakar	Adaptation	Set up a system for collecting and reusing rainwater in municipal buildings
Dakar	Adaptation	Implement solutions for the treatment and reuse of rainwater in water bodies
Dakar	Adaptation	Set up a system for the treatment and reuse of valve water in municipal buildings
Dakar	Adaptation	<b>Development of wetlands and green spaces in the City of Dakar</b>
Dakar	Adaptation	Put in place development and management plans for the different wetlands in Dakar
Dakar	Adaptation	Reinforce the alignment of trees at the level of the main arteries of the city
Dakar	Adaptation	Promote neighbourhood-scale reforestation activities
Dakar	Adaptation	Develop roof greening initiatives

Dakar	Adaptation	<b>Development of green infrastructure and income-generating activities for the populations most vulnerable to the effects of climate change</b>
Dakar	Adaptation	Strengthen the urban agriculture program of the City of Dakar
Dakar	Adaptation	Implement community initiatives to recover plastic waste
Dakar	Adaptation	Promote the development of green infrastructure through the development of horticultural activities
Dakar	Adaptation	<b>Improving access to water and sanitation</b>
Dakar	Adaptation	Organize awareness campaigns on water saving
Dakar	Adaptation	Strengthen the system for the management and maintenance of wastewater disposal structures
Dakar	Adaptation	Strengthen the capacities of Community Based Organizations on advocacy for access to water
Dakar	Adaptation	Implement innovative initiatives to reduce problems of access to water
Dakar	Crosscutting	<b>Establishment of an institutional framework for the governance of the energy and ecological transition</b>
Dakar	Crosscutting	Set up a body in charge of climate governance in the City of Dakar
Dakar	Crosscutting	Facilitate a consultation process with local authorities
Dakar	Crosscutting	Establish an organizational framework of inter-territoriality for climate governance
Dakar	Crosscutting	<b>Strengthening human capital in the formulation of projects for access to climate finance</b>
Dakar	Crosscutting	Strengthen the capacities of territorial actors on mechanisms for accessing climate finance
Dakar	Crosscutting	Educate elected officials on climate financing opportunities
Dakar	Crosscutting	Establish a technical support and coordination framework for access to climate finance
Dakar	Crosscutting	<b>Establishment of autonomous financing mechanisms for the risks and vulnerabilities of the City of Dakar</b>
Dakar	Crosscutting	Create an urban risk and disaster management fund
Dakar	Crosscutting	Set up a mechanism for the participation of municipalities in the risk and disaster management fund
<b>Signatory</b>	<b>Sector</b>	<b>Action and sub-action</b>
Bangui	Mitigation	<b>Strengthening of strategic and operational institutional capacities on air pollution monitoring in the city of Bangui</b>
Bangui	Mitigation	Improve the institutional and legal framework relating to the management of social, economic and environmental statistics with a view to integrating aspects related to climate change
Bangui	Mitigation	Strengthen the technical and operational capacities of the Central African Institute of Statistics and Economic and Social Studies (ICASEES) and other institutions in charge of sectoral statistics on the evaluation of emissions of atmospheric pollutants,
Bangui	Mitigation	Create an air pollution monitoring unit in the city of Bangui
Bangui	Mitigation	Commission a study on the artisanal manufacture of fired bricks and its environmental and social impacts in Bangui.
Bangui	Mitigation	<b>Promotion of urban and peri-urban forestry in the city of Bangui</b>
Bangui	Mitigation	Restoration and enhancement of the Gbazabangui forest reserve,
Bangui	Mitigation	Creation of green spaces and afforestation of roads in the city of Bangui.
Bangui	Mitigation	<b>Promotion of forest plantations dedicated to wood energy</b>
Bangui	Mitigation	Definition of the legal framework for urban and peri-urban forestry,
Bangui	Mitigation	The development of the master plan for the wood energy sector of the city of Bangui
Bangui	Mitigation	Carrying out a study of the market for firewood and derived products in the locality,
Bangui	Mitigation	Capacity building of producers on forestry techniques,
Bangui	Mitigation	The establishment of plantations dedicated to the wood energy sector.
Bangui	Mitigation	Improving energy wood sales infrastructure
Bangui	Mitigation	<b>Climate Change Education Program</b>
Bangui	Mitigation	Integrate programs on climate change into school curricula

Bangui	Mitigation	Produce school documents on environmental education and climate change;
Bangui	Mitigation	Develop communication tools for the wide dissemination of concepts related to climate change and eco-gestures;
Bangui	Mitigation	Support communication campaigns on climate change.
Bangui	Adaptation	<b>Sustainable development of the city of Bangui</b>
Bangui	Adaptation	Development of a master plan for the urbanization of the city
Bangui	Adaptation	Creation of a housing and housing support framework
Bangui	Adaptation	Extension and rehabilitation of the stormwater drainage network
Bangui	Adaptation	Servicing of neighborhoods through the construction and rehabilitation of secondary and tertiary roads
Bangui	Adaptation	<b>Management of risks and natural and climatic disasters</b>
Bangui	Adaptation	Setting up an early warning system
Bangui	Adaptation	Rehabilitation of the meteorological station and establishment of meteorological data broadcasting channels
Bangui	Adaptation	Strengthening of the epidemiological surveillance system
Bangui	Adaptation	Strengthening the intervention capacities of the General Directorate of Civil Protection and local fire and rescue centers
Bangui	Adaptation	<b>Adaptation program: Access to drinking water and sanitation services in the city of Bangui</b>
Bangui	Adaptation	Institutional capacity building for the management of the water and sanitation sub-sectors
Bangui	Adaptation	Increase the supply of drinking water by building a new water treatment plant
Bangui	Adaptation	Improving the quality of sanitation services
Bangui	Adaptation	<b>Promotion of urban and peri-urban agriculture</b>
Bangui	Adaptation	Servicing of neighbourhoods through the construction and rehabilitation of secondary and tertiary roads
Bangui	Adaptation	Develop a concerted system for the regular supply of inputs,
Bangui	Adaptation	Build storage premises for agricultural products,
Bangui	Adaptation	Organize the non-timber forest products (NTFP) sector,
Bangui	Adaptation	Support NGOs and farmers directly for the transfer of knowledge and technology in ecological agriculture,
Bangui	Adaptation	Ensure regular awareness of the actors of the sector, in particular women and young people, on their role in the actions
Bangui	Energy Access	<b>Strengthening of the strategic, legal and operational institutional capacities of the General Directorate of Energy</b>
Bangui	Energy Access	Update the national energy policy document
Bangui	Energy Access	Improve the legal framework by revising the electricity and petroleum codes
Bangui	Energy Access	Strengthen the technical skills of the DGE subdivisions
Bangui	Energy Access	Conduct a tariff study and implement a reform of the ENERCA tariff structure based on the results of the study
Bangui	Energy Access	<b>Improvement of the supply of electrical goods and services from ENERCA</b>
Bangui	Energy Access	Massive increase in production capacity
Bangui	Energy Access	Network improvement through the construction/rehabilitation of transmission and distribution lines (HV, MV and LV)
Bangui	Energy Access	Connecting over 130,000 new households and reducing financial losses
Bangui	Energy Access	Reinforcement of the operational capacities of the technical and commercial services of the company.
Bangui	Energy Access	<b>Promotion of renewable energies and energy efficiency</b>
Bangui	Energy Access	The promotion of solar kits
Bangui	Energy Access	Promotion of solar street lighting
Bangui	Energy Access	Promoting efficient light bulbs

Bangui	Energy Access	Promoting energy efficiency and installing solar systems in public buildings
Bangui	Energy Access	research and development
Bangui	Energy Access	<b>Diversification of energy sources used for cooking and promotion of LPG</b>
Bangui	Energy Access	Construction/rehabilitation of LPG storage and distribution infrastructure
Bangui	Energy Access	Implementation of the information, education and communication (IEC) program on LPG consumption.
Bangui	Energy Access	Development of financial incentives for LPG
Bangui	Energy Access	<b>Capacity building of actors in the wood-energy sector</b>
Bangui	Energy Access	Strengthening the administrative and operational capacities of the General Directorate of Energy and improving the regulatory framework of the wood energy sector,
Bangui	Energy Access	Structuring and training of charcoal burners on improved carbonization techniques,
Bangui	Energy Access	Structuring and training of scrap metal craftsmen on the techniques of manufacturing efficient improved stoves,
Bangui	Energy Access	Raising awareness and educating households on the use of improved stoves and sustainable wood energy
Bangui	Energy Access	Development of a financial mechanism for improved stoves
Bangui	Other Actions	<b>Promoting the green economy</b>
Bangui	Other Actions	Define a new strategic, legal, economic and financial framework by adapting and supplementing the existing one which is incentive and reassuring for the stakeholders;
Bangui	Other Actions	Strengthen the capacities of actors on the fundamentals of the green economy;
Bangui	Other Actions	Create a window at the level of the National Guarantee Fund, dedicated to the financing of eco-responsible companies.
Bangui	Other Actions	Develop a partnership framework with foreign investors.
<b>Signatory</b>	<b>Sector</b>	<b>Action</b>
Bouaké	Mitigation	Raising awareness on butane gas and biogas in households in Bouaké
Bouaké	Mitigation	Promotion of improved stoves for charcoal and wood
Bouaké	Mitigation	Ensuring household electricity savings
Bouaké	Mitigation	Improving efficiency and limiting the impact of the coal sector
Bouaké	Mitigation	Improving the energy efficiency of industries
Bouaké	Mitigation	Creation of community parks with green belt
Bouaké	Mitigation	Promotion of urban and peri-urban forestry
Bouaké	Mitigation	Promoting low-emission agriculture-livestock
Bouaké	Mitigation	Make the vehicle fleet less emitting
Bouaké	Mitigation	Promote public transport
Bouaké	Mitigation	Project to eradicate wild dumps in the city of Bouaké
Bouaké	Mitigation	Creation of a waste recovery site with an economic center allowing the recovery of waste
Bouaké	Mitigation	Selective sorting awareness activities
Bouaké	Mitigation	Creation of a mixed sanitation brigade
Bouaké	Mitigation	Stormwater management
Bouaké	Adaptation	Establishment of a dialogue with the producers of the Gbêkê Region
Bouaké	Adaptation	Creation of community parks with green belt
Bouaké	Adaptation	Sustainable Urban Stormwater Management
Bouaké	Adaptation	Project to strengthen the drinking water supply of the city of Bouaké from Lake Kossou
Bouaké	Adaptation	Preparing to welcome climate refugees
Bouaké	Adaptation	Promoting bioclimatic habitat

Bouaké	Adaptation	tree planting
Bouaké	Adaptation	Creation of green areas by planting trees in the municipality
Bouaké	Adaptation	Development of classified forests and sacred groves
Bouaké	Energy Access	Raising awareness on the use of butane gas and promotion of biogas in households
Bouaké	Energy Access	Promotion of improved stoves for charcoal and firewood
Bouaké	Energy Access	Ensuring energy savings
Bouaké	Energy Access	Improving energy efficiency in administrative buildings and businesses
<b>Signatory</b>	<b>Sector</b>	<b>Action</b>
Yaoundé IV	Mitigation	Solarisation (Installation of a photovoltaic solar system) of the roof of Yaoundé IV Town Hall
Yaoundé IV	Mitigation	Installation of 3,000 solar streetlights in the 65 neighbourhoods of CAY4
Yaoundé IV	Mitigation	Encouragement of 50 companies in the tertiary sector to carry out energy audits
Yaoundé IV	Mitigation	9% reduction in domestic electricity consumption in the Arrondissement Commune of Yaoundé IV
Yaoundé IV	Mitigation	Support for 20,000 households for access to clean cooking
Yaoundé IV	Mitigation	Distribution of 3,600 photovoltaic solar kits to poor households
Yaoundé IV	Mitigation	Construction of 12 community methanizers in Yaoundé 4
Yaoundé IV	Mitigation	Construction of an industrial methanizer
Yaoundé IV	Mitigation	Development of the Ebolondzong road over a distance of 500 m on the Messamendongo side
Yaoundé IV	Mitigation	Rehabilitation of the Odza terminal 10 road over a distance of 345m
Yaoundé IV	Mitigation	Development of the Station Neptune road in Carosel in the Kondengui district over a distance of 700 m
Yaoundé IV	Mitigation	Development of three high-level service bus lines
Yaoundé IV	Mitigation	Incentive for the use of electric motorcycle taxis up to 5%
Yaoundé IV	Mitigation	Formal development of two bus stations
Yaoundé IV	Mitigation	Limitation of motorcycle traffic exclusively in central districts with difficult access and in peripheral districts
Yaoundé IV	Mitigation	Creation of a continuous urban cycle network of 58 km.
Yaoundé IV	Mitigation	Implementation of a transport system based on electric minibuses
Yaoundé IV	Mitigation	Creation of an inter-municipal treatment and recovery station for faecal sludge
Yaoundé IV	Mitigation	Creation of an inter-municipal waste treatment and recovery center
Yaoundé IV	Adaptation	Promotion of 130 community ecological latrines in precarious housing neighbourhoods and in socio-collective facilities in Yaoundé 4
Yaoundé IV	Adaptation	Development of 65 plots of garbage bins in the neighbourhoods of CAY4
Yaoundé IV	Adaptation	Modernization of two (02) health facilities (Odza and Nkolndongo) and construction of a Health Unit in Meyo
Yaoundé IV	Adaptation	Development of 58 diversified community drinking water points (Springs, boreholes, standpipes, etc.) in 58 districts of CAY4
Yaoundé IV	Adaptation	Installation of three (03) limnograph stations on the Odza, Akeu and Bivé Bizok rivers
Yaoundé IV	Adaptation	Establishment and operation of a municipal climate change observatory
Yaoundé IV	Adaptation	Implementation of a contingency plan to manage risks and vulnerability in Yaoundé 4
Yaoundé IV	Adaptation	Construction of two shaving ponds on the Odza and Akeu rivers
Yaoundé IV	Adaptation	Construction of 9 landscaped green spaces (Mimboman, Emombo, Ekounou, Nkomo, Ekoumdoum, Mvan Nord, Odza (02) and Messamendongo)
Yaoundé IV	Adaptation	Revitalization of the participatory budget in the commune of Commune d'Arrondissement de Yaoundé IV
Yaoundé IV	Adaptation	Reforestation of 783 ha of green spaces to constitute the carbon sink of CAY4
Yaoundé IV	Adaptation	Construction of a modern documentation and education center on climate change in Odza

Yaoundé IV	Adaptation	Revitalization of the activities of 65 Animation and Development Committees (CAD) towards issues related to climate change and access to sustainable energies
Yaoundé IV	Adaptation	Establishment of a functional sustainable development committee in 15 companies (State or private)
Yaoundé IV	Adaptation	Establishment of a functional sustainable development committee in 50 basic structures (school, hospital, market, etc.)
Yaoundé IV	Adaptation	Formal development of two bus stations
Yaoundé IV	Adaptation	Limitation of motorcycle traffic exclusively in central districts with difficult access and in peripheral districts
Yaoundé IV	Adaptation	Creation of a continuous urban cycle network of 58 km.
Yaoundé IV	Energy Access	Establishment of a functional energy-climate team within Yaoundé City Hall 4
Yaoundé IV	Energy Access	Development of a public lighting master plan for the Arrondissement Commune of Yaoundé IV
Yaoundé IV	Energy Access	Creation of 65 photovoltaic solar terminals in CAY4
<b>Signatory</b>	<b>Sector</b>	<b>Action</b>
Doumé	Mitigation	Training in the manufacture and distribution of 1,500 improved stoves and awareness of their use.
Doumé	Mitigation	Construction of 100 social housing units powered by a mini 300kWh solar power plant, drinking water supply and installation of a biodigester (producing fertilizers and biogas while cleaning up waste) in Doumé"
Doumé	Mitigation	Creation of green spaces within the municipality and establishments schools (2 public gardens of 2500 m <sup>2</sup> and 20 trees per school)"
Doumé	Mitigation	Creation of 400 hectares of orchard in the 24 villages of the municipality
Doumé	Mitigation	Treatment and recovery of municipal solid waste for the production of biogas"
Doumé	Mitigation	Development of 200 ECOSAN toilets for the production of compost and urea from excrement
Doumé	Mitigation	Support for the creation of agroforestry areas for women and young people in Doumé
Doumé	Mitigation	Support and supervision of farmers for sustainable agriculture in Doumé
Doumé	Mitigation	Construction of 05 mini solar power plants of 300 kWh in the municipality
Doumé	Mitigation	Construction of a 0.5 mW mini hydroelectricity with isolated turbine in the urban center
Doumé	Mitigation	Electrification of 15 hospital structures using solar energy in a 2kwh kit
Doumé	Adaptation	Reforestation of the banks of the Doumé River and other areas with heavy deforestation with 100,000 trees
Doumé	Adaptation	Development of 100 traditional water sources
Doumé	Adaptation	Creation of 15 drinking water supply points in the villages and the urban center of the city of Doumé operating by photovoltaic pumping
Doumé	Adaptation	Drainage of runoff water in the urban center of Doumé
Doumé	Adaptation	Development and rehabilitation of municipal roads and collection tracks in Doumé
Doumé	Adaptation	Installation of early warning systems in the event of climate risk at the community level
Doumé	Adaptation	Awareness-raising and training of populations in constructions more adapted to climatic hazards
Doumé	Adaptation	Development of an ecotourism complex in the city of Doumé
Doumé	Energy Access	Construction of 05 mini solar power plants of 300 kWh in the municipality
Doumé	Energy Access	Construction of a 0.5 mW mini hydroelectricity with isolated turbine in the urban center
Doumé	Energy Access	Installation of 500 solar kits in isolated households in the municipality
Doumé	Energy Access	Electrification of 15 hospital structures with solar energy in a 2kwh kit
Doumé	Energy Access	Distribution of 3,000 solar lanterns
Doumé	Energy Access	Public lighting by solar street lamps (1000 units) in the Commune of Doumé
Doumé	Energy Access	Training, manufacturing and distribution of 1,500 improved stoves and raising awareness of their use.
<b>Signatory</b>	<b>Sector</b>	<b>Action</b>
Fokoué	Mitigation	Contribution to the establishment of the micro hydroelectric power station on the Malapoundjé site
Fokoué	Mitigation	Empowerment of health facilities in renewable energies

Fokoué	Mitigation	Installation of solar street lights for public lighting
Fokoué	Mitigation	Distribution of photovoltaic solar systems to the Bororo community.
Fokoué	Mitigation	Exploitation of animal waste to produce sustainable energy within the Bororo community
Fokoué	Mitigation	Manufacture and distribution of improved stoves
Fokoué	Mitigation	Training on ecological and resilient construction
Fokoué	Mitigation	Training in the production and use of biofuels
Fokoué	Mitigation	Improved municipal solid waste management system
Fokoué	Mitigation	Development and implementation of a municipal REDD+ strategy
Fokoué	Mitigation	Training on ecological and resilient agriculture
Fokoué	Mitigation	Development of ecotourism within the municipality
Fokoué	Adaptation	Dredging and raising the bed of the Malapoundjé and Nthemtchie rivers
Fokoué	Adaptation	Training on ecological and resilient construction
Fokoué	Adaptation	Training on ecological and resilient agriculture
Fokoué	Adaptation	Development of traffic lanes
Fokoué	Energy Access	Contribution to the establishment of the micro hydroelectric power station on the Malapoundjé site
Fokoué	Energy Access	Empowerment of health facilities in renewable energies
Fokoué	Energy Access	Installation of solar street lights for public lighting
Fokoué	Energy Access	Distribution of photovoltaic solar systems to the Bororo community.
Fokoué	Energy Access	Exploitation of animal waste to produce sustainable energy within the Bororo community
Fokoué	Energy Access	Manufacture and distribution of improved stoves
Fokoué	Other Actions	Operation of the steering and management committee
Fokoué	Other Actions	Organization of training seminars and strengthening of municipal staff
Fokoué	Other Actions	Development and implementation of a communication plan

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